High-Performance Process Manager Parameter Reference Dictionary

HP09-540
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About This Publication

This publication defines the parameters for the HPM data point types implemented through TotalPlant Solution (TPS) system network Release 500 - 530. TPS is the evolution of TDC 3000X.

Change bars are used to indicate paragraphs, tables, or illustrations containing changes that have been made to this manual effective with Release 530. Pages revised only to correct minor typographical errors contain no change bars.
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$–Y$ PARAMETER DEFINITIONS
1.1 PURPOSE

This publication defines the user-visible parameters that exist in the TotalPlant Solution (TPS) System High-Performance Process Manager (HPM) and Network Interface Module (NIM). It also provides listings of parameters that are applicable to various HPM point types and algorithms.

For information on how the parameters are related to each other in terms of point types and algorithms, refer to the High-Performance Process Manager Control Functions and Algorithms manual in the Implementation/High-Performance Process Manager - 1 binder.

1.2 USE OF THIS PUBLICATION

Use this publication during configuration and during operation when detailed information about HPM and NIM parameters is required.

For use in data point configuration, this publication provides definitions for each entry that can be made on the High-Performance Process Manager Point Configuration Forms, HP88-500 in the Implementation/High-Performance Process Manager - 1 binder, and in the Parameter Entry Displays at the Universal Station.

For use in process operation, this publication provides information about the parameters that appear for the process data points and HPM Box Data Point on the displays of Universal Stations that are running with the Operator personality.

1.3 PARAMETER DEFINITION FORMAT

In this dictionary, the parameter definitions are listed in alphabetical order according to the parameter name, which can be up to eight characters in length. Each parameter in this publication is defined using the format shown below for the ALMOPT parameter, as an example. The following paragraphs describe the entries that appear within each parameter definition.

**ALMOPT (DigIn)**

<table>
<thead>
<tr>
<th>Type:</th>
<th>e($ALMOPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Eng/PB</td>
</tr>
<tr>
<td>Default:</td>
<td>None</td>
</tr>
<tr>
<td>PtRes:</td>
<td>APM</td>
</tr>
<tr>
<td>Range:</td>
<td>0-None (No alarms are to be detected)</td>
</tr>
<tr>
<td></td>
<td>1-Offnorml (Off Normal; alarm if current PV state is not the PVNORMAL state. PVNORMAL is defined by the STATETXT(0) or STATETXT(1) descriptor, as configured by the user.)</td>
</tr>
<tr>
<td></td>
<td>2-ChngofSt (An alarm is generated when the digital input changes state in either direction).</td>
</tr>
</tbody>
</table>

*Helpful Hint:* ALMOPT configuration requires DITYPE = Status.
For many parameters, the function of the parameter is described using the long name of the parameter (Alarm Option), followed by a description as shown in the above example. Some parameters in this dictionary do not have functional descriptions following the long name; this is because the long name of the parameter sufficiently describes the parameter function.

**Type**

This entry is the data type that defines how the parameter is viewed by the system. The following data types are used in this dictionary:

- **E:**—Enumeration; the value for the parameter is chosen from a set of predefined character strings. In the above example, the enumerations of $ALMOPT$ are None, Offnorml.

- **SD_ENM:**—Self-Defining Enumeration; the value for the parameter is chosen from the user-defined character strings.

- **Ent.Prm**—consists of a 1-16 character tag name, a period, and a 1-8 character parameter name.

- **Integer**—a 16-bit whole number that does not contain a decimal point (+32767).

- **Logical**—a binary type with the values of ON (True) and OFF (False), or 0 (Off) and 1 (On).

- **NaN**—although not a data type, is used to represent "Not A Number" and is stored in IEEE format.

- **Prm_Id**—1-8 character parameter name.

- **Real**—a 32-bit floating-point number in IEEE format.

- **String_L**—a character string of maximum length = L. Same as Ascii_L.

- **Time**—The time of day in one of the following formats: DDD HH:MM:SS for durations, and DDMMYY HH:MM:SS for an absolute date or time stamp.

- **Universal Ent.Prm**—Universal Entity Parameter Identifier. It is basically the same as Ent.Prm, but the entity name can be entered as an external 16-character tag name or as the HPM's internal hardware reference address. The hardware reference address syntax can be used to access parameters of points (within this same HPM) that are untagged or tagged.
The following are examples of hardware reference addresses*:

<table>
<thead>
<tr>
<th>Type</th>
<th>Hardware Reference Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO Processor Output</td>
<td>!AO11S03.OP (Parameter OP of Slot #3 of AO processor #11)</td>
</tr>
<tr>
<td>DI Processor PV</td>
<td>!DI05S07.PVFL (Parameter PVFL of Slot #7 of DI processor #5)</td>
</tr>
<tr>
<td>DO Processor Status Output</td>
<td>!IDO15S12.SO (Parameter SO of Slot #12 of DO processor #15)</td>
</tr>
<tr>
<td>DO Processor ON Pulse Command</td>
<td>!IDO15S12.ONPULSE (Parameter ONPULSE of Slot #12 of DO processor #15)</td>
</tr>
<tr>
<td>DO Processor OFF Pulse Command</td>
<td>!IDO15S12.OFFPULSE (Parameter OFFPULSE of Slot #12 of DO processor #15)</td>
</tr>
</tbody>
</table>

**Lock**

The access lock defines "who" or "what" can change the parameter's value or option and the access level defines "who" or "what" is requesting a parameter value or option change. For example, if a requestor with an access level of Supr tries to change a parameter that has an access lock of Engr, the request will be denied. The two charts below describe how access levels and access locks work.

**Access Level**

<table>
<thead>
<tr>
<th>Used By Who Or What When A Parameter Change Request Is Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oper Operator</td>
</tr>
<tr>
<td>Supr or Sup Supervisor</td>
</tr>
<tr>
<td>Engr, Eng, or Eg Engineer</td>
</tr>
<tr>
<td>Cont Continuous_Control (from a Module on the LCN)</td>
</tr>
<tr>
<td>OnProc On Process</td>
</tr>
<tr>
<td>HPMMCc HPMM_Continuous_Control (from HPMM)</td>
</tr>
<tr>
<td>Prog CL/HPM Sequence_Programs</td>
</tr>
<tr>
<td>PtBld or PB Point_Builder (Data Entity Builder)</td>
</tr>
</tbody>
</table>

**Access Lock**

<table>
<thead>
<tr>
<th>Access Level of Requestors That Can Change The Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oper Supr Engr Cont HPMMCc Prog PtBld</td>
</tr>
<tr>
<td>Supr Supr Engr Cont HPMMCc Prog PtBld</td>
</tr>
<tr>
<td>Engr Supr Engr Cont HPMMCc Prog PtBld</td>
</tr>
<tr>
<td>OnProc Oper Supr Engr Cont HPMMCc Prog PtBld</td>
</tr>
<tr>
<td>Sup/Eg Supr Engr</td>
</tr>
<tr>
<td>EgOnly Engr</td>
</tr>
<tr>
<td>Prog Oper Supr Engr Cont HPMMCc Prog PtBld</td>
</tr>
<tr>
<td>Eng/PB Engr</td>
</tr>
<tr>
<td>PtBld</td>
</tr>
<tr>
<td>View (Read Only)</td>
</tr>
</tbody>
</table>

*The Analog Input address !AlmmSss.Parameter is not supported because the Analog Input point does not have a useable default database.
Default

The default for the parameter is the default value assigned by the system. The system automatically enters the default value for a parameter when a range or a selection is not entered for a parameter during point building. The default values are also shown on the configuration forms and parameter entry displays.

PtRes

This defines where the parameter physically resides. The following residency locations are used in the parameter definitions:

<table>
<thead>
<tr>
<th>PtRes</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPM</td>
<td>High-Performance Process Manager</td>
</tr>
<tr>
<td>NIM</td>
<td>Network Interface Module</td>
</tr>
<tr>
<td>SI</td>
<td>Serial Interface</td>
</tr>
</tbody>
</table>

Range

This defines the range of the value that can be entered for this parameter. Integers that precede HPM resident enumeration parameters are sometimes needed by advanced CL users. These integers specify the member’s position within the set (that is, the ordinal). CL programs external to the UCN (such as AM/CL) will see the same enumeration strings, but in some cases, with different ordinal values.

Helpful Hint

Some parameter definitions contain a Helpful Hint box at the end of the definition. This box contains additional information about the parameter, such as prerequisites, etc.

1.4 PARAMETERS PER POINT TYPE AND ALGORITHM TYPE

In addition to the parameter definitions, this dictionary also contains listings of the parameters that are applicable to each HPM point type and algorithm type. Parameters-per-point-type are defined in Section 2; parameters-per-algorithm-type are defined in Section 3.

1.5 FULL POINTS AND COMPONENT POINTS

Separate functional elements of the HPM are used to implement various parts of typical control loops and control strategies. Each of these functional elements can be assigned a user-defined tag name to allow for location-independent reference to the data associated with that function. For example, point tags are assigned by the user for analog input and analog output slots. The I/O Processor data (engineering-unit range for inputs, characterization option for outputs, etc.) is configured as part of the point-build process for these points. A separate tag is configured for each regulatory control (RegCtl) slot that is linked to the assigned analog I/O tags through input/output connections.
The HPM provides a configurable parameter called PNTFORM (Point Form) that allows the user to define which points are to be used as the primary operator interface for point data. The PNTFORM parameter provides the user with two choices for point form: "Full" and "Component." Points that are configured as having "Full" point form include alarm-related parameters and sometimes, some other miscellaneous parameters. This information is needed when the point is to be used as the primary operator interface to the point's data.

Points that are configured as having "Component" point form should be used to provide inputs to the "Full" point and also for those points that handle the outputs from the "Full" points. "Component" points should be used as part of the "Full" point that has been designated a primary operator interface point.

1.6 ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>Application Module</td>
</tr>
<tr>
<td>AnalgIn</td>
<td>Analog Input Data Point</td>
</tr>
<tr>
<td>AnalgOut</td>
<td>Analog Output Data Point</td>
</tr>
<tr>
<td>AO</td>
<td>Analog Output</td>
</tr>
<tr>
<td>HPM</td>
<td>High-Performance Process Manager</td>
</tr>
<tr>
<td>HPMM</td>
<td>High-Performance Process Manager Module</td>
</tr>
<tr>
<td>HPM Box</td>
<td>HPM Box Data Point</td>
</tr>
<tr>
<td>Array</td>
<td>Array Data Point</td>
</tr>
<tr>
<td>AutoMan</td>
<td>Auto Manual algorithm</td>
</tr>
<tr>
<td>Box</td>
<td>Box Data Point</td>
</tr>
<tr>
<td>Calcultr</td>
<td>Calculator algorithm</td>
</tr>
<tr>
<td>CM</td>
<td>Computing Module 50 or 60</td>
</tr>
<tr>
<td>DevCtl</td>
<td>Device Control Data Point</td>
</tr>
<tr>
<td>DI</td>
<td>Digital Input</td>
</tr>
<tr>
<td>DigComp</td>
<td>Digital Composite Data Point</td>
</tr>
<tr>
<td>DigIn</td>
<td>Digital Input Data Point</td>
</tr>
<tr>
<td>DigOut</td>
<td>Digital Output Data Point</td>
</tr>
<tr>
<td>DISOE</td>
<td>Digital Input Sequence of Events</td>
</tr>
<tr>
<td>DO</td>
<td>Digital Output</td>
</tr>
<tr>
<td>ESI</td>
<td>Extended Standard International Engineering Units</td>
</tr>
<tr>
<td>FBus</td>
<td>Field Bus</td>
</tr>
<tr>
<td>Flag</td>
<td>Flag Data Point</td>
</tr>
<tr>
<td>FlowComp</td>
<td>Flow Compensation algorithm</td>
</tr>
<tr>
<td>FTA</td>
<td>Field Termination Assembly</td>
</tr>
<tr>
<td>GenLin</td>
<td>General Linearization algorithm</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>HiLoAvg</td>
<td>High Low Average algorithm</td>
</tr>
<tr>
<td>HLAI</td>
<td>High Level Analog Input</td>
</tr>
<tr>
<td>IncrSum</td>
<td>Incremental Summer algorithm</td>
</tr>
<tr>
<td>IOL</td>
<td>I/O Link</td>
</tr>
<tr>
<td>IOP</td>
<td>I/O Processor</td>
</tr>
<tr>
<td>Logic</td>
<td>Logic Data Point (Slot)</td>
</tr>
<tr>
<td>LCN</td>
<td>Local Control Network</td>
</tr>
<tr>
<td>LLAI</td>
<td>Low Level Analog Input (or LLAI-8)</td>
</tr>
<tr>
<td>LLMUX</td>
<td>Low Level Analog Input Multiplexer (or LLAI-16/32)</td>
</tr>
<tr>
<td>MidOf3</td>
<td>Middle-of-3 Selector algorithm</td>
</tr>
<tr>
<td>MulDiv</td>
<td>Multiply Divide algorithm</td>
</tr>
<tr>
<td>NIM</td>
<td>Network Interface Module</td>
</tr>
<tr>
<td>ORSel</td>
<td>Override Selector algorithm</td>
</tr>
<tr>
<td>PI</td>
<td>Pulse Input</td>
</tr>
<tr>
<td>PID</td>
<td>Proportional, Integral, Derivative,</td>
</tr>
<tr>
<td>PidErfb</td>
<td>Proportional, Integral, Derivative with External Reset Feedback algorithm</td>
</tr>
<tr>
<td>PidFf</td>
<td>PID with Feedforward algorithm</td>
</tr>
<tr>
<td>PidPosPr</td>
<td>PID With Position Proportional algorithm</td>
</tr>
<tr>
<td>PosProp</td>
<td>Position Proportional algorithm</td>
</tr>
<tr>
<td>ProcMod</td>
<td>Process Module Data Point</td>
</tr>
<tr>
<td>PSDP</td>
<td>Processor Status Data Point</td>
</tr>
<tr>
<td>RampSoak</td>
<td>Ramp Soak algorithm</td>
</tr>
<tr>
<td>RatioCtl</td>
<td>Ratio Control algorithm</td>
</tr>
<tr>
<td>RegCtl</td>
<td>Regulatory Control Data Point or algorithm</td>
</tr>
<tr>
<td>RegPV</td>
<td>Regulatory PV Data Point or algorithm</td>
</tr>
<tr>
<td>RHMUX</td>
<td>Remote Hardened Analog Input Multiplexer (or RHMUX–16/32)</td>
</tr>
<tr>
<td>SI</td>
<td>Serial Interface</td>
</tr>
<tr>
<td>SDI</td>
<td>Serial Device Interface</td>
</tr>
<tr>
<td>STI</td>
<td>Smart Transmitter Interface</td>
</tr>
<tr>
<td>Switch</td>
<td>Switch algorithm</td>
</tr>
<tr>
<td>Summer</td>
<td>Summer algorithm</td>
</tr>
<tr>
<td>Timer</td>
<td>Timer Data Point</td>
</tr>
<tr>
<td>Totalizr</td>
<td>Totalizer algorithm</td>
</tr>
<tr>
<td>UCN</td>
<td>Universal Control Network</td>
</tr>
<tr>
<td>VdtLdLag</td>
<td>Variable Deadtime Lead Lag algorithm</td>
</tr>
</tbody>
</table>
1.7 CL ACCESS

1.7.1 Parameter Not Accessible to CL

Parameter $EVNTREC is not accessible to Control Language (CL) sequences.

1.7.2 CL Restricted Parameters

The following parameters are not accessible to PM/CL sequences. They are not directly available to AM/CL sequences. Access to AM/CL is through a custom data segment parameters attached to AM regulatory points as described below.

- BHALMFL1-BHALMFL7
- NODESTS
- NODETYP
- UCNRECHN

These parameters are available to user schematics using the NIM reserved data point, e.g., $NMuuBnn.param, where uu = UCN number and nn = UCN node number.

AM/CL programs can access the restricted parameters as Regulatory Point General inputs (using ordinary point parameter access). They must be transferred to parameters of AM regulatory points. There are two ways to do this:

1. Boolean parameters (BHALMFLn), can be referenced as general inputs to a Switch algorithm. A CL program can access the switch parameters.

2. For Enumerations (NODEOPER, NODESTS, NODETYP, POSITION, AND UNRECHN) a custom data segment is created to allow the parameters to be referenced as general inputs and transferred to user-defined parameters (of a RegCtl Point) that can be accessed by CI.
PARAMETERS PER POINT TYPE
Section 2

This section contains listings of parameters that are applicable to each data point type in the HPM, except for the Regulatory Control and Regulatory PV data points which can be found in Section 3. Refer to Sections $ - X for the definitions of the parameters.

2.1 Analog Input (AI)

The parameters of the Analog Input Data points are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>$AUXUNIT  (F)</th>
<th>LRL</th>
<th>PVALDB  (F)</th>
<th>PVLPR  (F)</th>
<th>PVTVP  (F)</th>
<th>RJTEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALENBST  (F)</td>
<td>LRV</td>
<td>PVALDBEU  (F)</td>
<td>PVLLTP  (F)</td>
<td>PVLOFL</td>
<td>S1</td>
</tr>
<tr>
<td>ASSOCDSP</td>
<td>MODNUM</td>
<td>PVAUTO</td>
<td>PVLOPR  (F)</td>
<td>SENSRTYP</td>
<td>SERIALNO</td>
</tr>
<tr>
<td>AVELTHS</td>
<td>NAME</td>
<td>PVAUTOST</td>
<td>PVLOTP  (F)</td>
<td>SERIALNO</td>
<td></td>
</tr>
<tr>
<td>AVSTS</td>
<td>NODENUM</td>
<td>PVCALC</td>
<td>PVTVP</td>
<td>SFSTS</td>
<td></td>
</tr>
<tr>
<td>BADPVFL  (F)</td>
<td>NODETYP</td>
<td>PVCHAR</td>
<td>PVRAW</td>
<td>SLOTS</td>
<td></td>
</tr>
<tr>
<td>BAPVPR  (F)</td>
<td>NWKNUM</td>
<td>PVCLAMP</td>
<td>PVRAWHI</td>
<td>SLOTNUM</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>OTDENIBLE</td>
<td>PVEUHI</td>
<td>PVRAWHI</td>
<td>SLOTNUM</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>OVERVAL</td>
<td>PVEULO</td>
<td>PVRAWLO</td>
<td>SLWSRCID</td>
<td></td>
</tr>
<tr>
<td>CJTACT</td>
<td>PIUOTDCF</td>
<td>PVEUHI</td>
<td>PVROCNFL</td>
<td>STATE</td>
<td></td>
</tr>
<tr>
<td>COMMAND</td>
<td>PNTFORM</td>
<td>PVEUHFL</td>
<td>PVROCNPR</td>
<td>STI_EU</td>
<td></td>
</tr>
<tr>
<td>CONTCUT  (F)</td>
<td>PNTMODTY</td>
<td>PVEUHFL</td>
<td>PVROCNP (F)</td>
<td>STISWVER</td>
<td></td>
</tr>
<tr>
<td>DAMPING</td>
<td>PNTNODTY</td>
<td>PVEXHIFL</td>
<td>PVROCPFL</td>
<td>STITAG</td>
<td></td>
</tr>
<tr>
<td>DECONF</td>
<td>PNTSTATE</td>
<td>PVEXHIFL</td>
<td>PVROCPPR</td>
<td>TCRCNOPT</td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
<td>PRIMTYPE</td>
<td>PVHIFL</td>
<td>PVROCP</td>
<td>TF</td>
<td></td>
</tr>
<tr>
<td>HIGHL (F)</td>
<td>PRIMMOD</td>
<td>PVHIHFL</td>
<td>PVSOURCE</td>
<td>TIMEBASE</td>
<td></td>
</tr>
<tr>
<td>HIGHLPR  (F)</td>
<td>PTDESC</td>
<td>PVHHTP</td>
<td>PVSOURCE</td>
<td>TIMEBASE</td>
<td></td>
</tr>
<tr>
<td>INPTDIR</td>
<td>PTEXECST</td>
<td>PVHIPL</td>
<td>PVTV</td>
<td>URL</td>
<td></td>
</tr>
<tr>
<td>KEYWORD</td>
<td>PTINAL</td>
<td>PVHIPL</td>
<td>UV</td>
<td>URL</td>
<td></td>
</tr>
<tr>
<td>LASTPV</td>
<td>PV</td>
<td>PVHIPL</td>
<td>PVTV</td>
<td>URL</td>
<td></td>
</tr>
<tr>
<td>LOCUTOFF</td>
<td>PV</td>
<td>PVHIPL</td>
<td>PVTV</td>
<td>URL</td>
<td></td>
</tr>
</tbody>
</table>

2.2 Analog Output (AO)

The parameters of the Analog Output Data point are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>ASSOCDSP</th>
<th>MODNUM</th>
<th>OPFINAL</th>
<th>OPOUT2</th>
<th>PNTTYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASREQ  (F)</td>
<td>NAME</td>
<td>OPIN0</td>
<td>OPOUT2</td>
<td>PRIMMOD (F)</td>
</tr>
<tr>
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2.3 Array

The parameters of the Array Data Point are listed below in alphabetical order. The Point Form parameter is set to Full.

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2.4 Box (HPM Box)

The parameters of the High-Performance Process Manager Box Data Point are listed below in alphabetical order.

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Some of the parameters in the above listing are arrays and are not defined in this publication.
2.5 Box Flag

The parameters of the Box Flag Data Point are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full; an * indicates that the parameter is applicable to flag slots 1-128.

$AUXUNIT (F)* CONTCTU (F)* NODETYP PRIMMOD (F)* S1BOXCLR
ALENBST (F)* EIPPCODE (F)* NTWKNUM PTDESC SLOTNUM
ALPRIOR EUDESC OFFNRMPR (F)* PV STATE0
ASSOCDSP BOXCLR PNTFORM PVFL STATE1
BOXCLR KEYWORD PVNODTY S0BOXCLR STATETXT
CNFMU NAME PTDESC UNIT
CNFPU NODENUM

2.6 Box Numeric

The parameters of the Box Numeric Data Point are listed below in alphabetical order. The Point Form parameter is set to Full.

ASSOCDSP EUDESC NODETYP PV
CNFMU KEYWORD NTWKNUM PVFORMAT
CNFPU NAME PNTFORM PRIMMOD SLOTNUM

2.7 Box Timer

The parameters of the Box Timer Data Point are listed below in alphabetical order. The Point Form parameter is set to Full.

ASSOCDSP NAME PNTNODTY PV SP
COMMAND NODENUM PNTTYPE RV STATE
EUDESC NODETYP PRIMMOD SLOTNUM TIMEBASE
KEYWORD NTWKNUM PTDESC SO TIMOUTFL
PERIOD UNIT
2.8 Device Control (DevCtl)

The parameters of the Device Control Data Point are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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<th>Notes</th>
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<td>LOCALMAN (#Outputs&gt;0) OVRCTIM</td>
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<td>LOENBL 1-2</td>
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HPM Parameter Reference Dictionary 2-4 8/97
Continuation of the Device Control parameters are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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### 2.9 Digital Composite (DigComp)

The parameters of the Digital Composite Data Point are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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2.10 Digital Input (DigIn)

The parameters of the Digital Input Data point are listed below in alphabetical order. (L), (S), or (A)—parameter applies only when DITYPE = Latched, Status, or Accum. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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2.11 Digital Output (DigOut)

The parameters of the Digital Output Data point are listed below in alphabetical order. (S) or (P) parameter applies only when DOTYPE = Status or Pulse Width Modulated (PWM). This point type is available only in the component form.

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HPM Parameter Reference Dictionary 2-7 8/97
2.12 Reserved
2.13  IOP

The parameters of the Input/Output Processor Point are listed below in alphabetical order.

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Some of the parameters in the above listing are arrays and are not defined in this publication.

2.14  Logic

The parameters of the Logic Data Point (otherwise referred to as the Logic Slot) are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.15 Process Module (ProcMod)

The parameters of the Process Module Data Point are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABHEMSD</td>
<td>DIAGCMD</td>
</tr>
<tr>
<td>ABHHOLD</td>
<td>FL 1-27</td>
</tr>
<tr>
<td>ABHRSTR</td>
<td>IOLPSERR</td>
</tr>
<tr>
<td>ABHSHDN</td>
<td>IOLPSOPT</td>
</tr>
<tr>
<td>ACP (F)</td>
<td>LSTWHNER</td>
</tr>
<tr>
<td>ALPRIOR (F)</td>
<td>MAXPU</td>
</tr>
<tr>
<td>ANAME 1-3</td>
<td>MSGPEND</td>
</tr>
<tr>
<td>ASSOCDSP</td>
<td>NAME (F)</td>
</tr>
<tr>
<td>ASTEP 1-3</td>
<td>NN 1-80</td>
</tr>
<tr>
<td>ASTM 1-3</td>
<td>NODENUM</td>
</tr>
<tr>
<td>AVGPU</td>
<td>NTDENUM</td>
</tr>
<tr>
<td>BADIOLPF</td>
<td>NOOVRRUN</td>
</tr>
<tr>
<td>CNFMU</td>
<td>NTWKNUM</td>
</tr>
<tr>
<td>CNFPU</td>
<td>OVERPHAS</td>
</tr>
<tr>
<td>CNTLLOCK</td>
<td>OVERSTAT</td>
</tr>
<tr>
<td>CLBACK</td>
<td></td>
</tr>
</tbody>
</table>

(F) indicates that the parameter is applicable when the PNTFORM = Full.

2.16 UCN Network

Listed below in alphabetical order are the parameters of the UCN Network Data Point (system parameter $NTWRKnn where nn = the UCN number).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHPINHWY</td>
<td>HWYCTLST</td>
</tr>
<tr>
<td>CLPZMXC</td>
<td>LOADSCOP</td>
</tr>
<tr>
<td>CLPZMXP</td>
<td>MSGTXT 0-15</td>
</tr>
</tbody>
</table>

2.17 UCN Node

The parameters of the UCN Node Data Point are listed below in alphabetical order. They can be accessed as follows:

$SNMuuNnn.parameter where,

uu is the UCN network number, and nn is the UCN node number.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$UCNLSB 1-50</td>
<td>NODESTS</td>
</tr>
<tr>
<td>CABLESTS</td>
<td>NODESTAT</td>
</tr>
<tr>
<td>CLPZMXC</td>
<td>NODETYPE</td>
</tr>
<tr>
<td>CLPZMXP</td>
<td>NPROQUAVG</td>
</tr>
<tr>
<td>LOADSCOP</td>
<td>NPROQMAX</td>
</tr>
<tr>
<td>MDMHWREV</td>
<td>NPSRVAVG</td>
</tr>
<tr>
<td>MODNUM</td>
<td>NPSRVMAX</td>
</tr>
<tr>
<td>MSGTXT</td>
<td></td>
</tr>
</tbody>
</table>

*These parameters are indexed. The index is either an odd number from 1 to 63 and represents either—
1. the UCN node number of a peer node for peer-to-peer statistics with that node
2. 0 for the sum of all peer-to-peer statistics

Example for case 2 is: NPROQUAVG(0) = NPROQUAVG(1) + NPROQUAVG(3) + ... + NPROQUAVG(63)
This section contains listings of parameters that are applicable to each PV and control algorithm in the HPM. Refer to Sections $ - X for the definitions of the parameters.

### 3.1 Auto Manual (AutoMan)

The parameters of the Auto Manual control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>$AUXUNIT  (F)</th>
<th>CTLALGID</th>
<th>MODEPERM</th>
<th>OPLAFL  (F)</th>
<th>PTORST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALENBST  (F)</td>
<td>CTRLINIT</td>
<td>MODENUM</td>
<td>OPLOF</td>
<td>RARWSTS</td>
</tr>
<tr>
<td>ARWNET</td>
<td>CV</td>
<td>NAME</td>
<td>OPLOFL</td>
<td>RATE1</td>
</tr>
<tr>
<td>ARWOP</td>
<td>CVEUHI</td>
<td>NMODATTR</td>
<td>OPLOPR  (F)</td>
<td>RCASOPT</td>
</tr>
<tr>
<td>ASSOCDSP</td>
<td>CVEULO</td>
<td>NMODE</td>
<td>OPLOTP  (F)</td>
<td>RCASSED</td>
</tr>
<tr>
<td>AUTMODFL</td>
<td>ESWAUTO</td>
<td>NOCINPTS</td>
<td>OPMCHLM</td>
<td>REDITAG (F)</td>
</tr>
<tr>
<td>B</td>
<td>ESWCAS</td>
<td>NOCOPTS</td>
<td>OPRAFRFL</td>
<td>RINITREQ</td>
</tr>
<tr>
<td>B0</td>
<td>ESWENBST</td>
<td>NODENUM</td>
<td>OPROCLM</td>
<td>RINITVAL</td>
</tr>
<tr>
<td>BADCTLFL</td>
<td>ESMAN</td>
<td>NODETYP</td>
<td>$OPTOL</td>
<td>SAFEOP</td>
</tr>
<tr>
<td>BADCTLOP</td>
<td>EUDESC</td>
<td>NORMCYCL</td>
<td>OVERVAL (F)</td>
<td>SCHSTS</td>
</tr>
<tr>
<td>BADCTLPR  (F)</td>
<td>EXTSWOPT</td>
<td>NRMATRF</td>
<td>PERIOD</td>
<td>SHEDMODE</td>
</tr>
<tr>
<td>BCAMODFL</td>
<td>HIGHAL (F)</td>
<td>NRMMODFL</td>
<td>PFDLYFL</td>
<td>SHEDTIME</td>
</tr>
<tr>
<td>CASMODFL</td>
<td>HIGHALPR (F)</td>
<td>NTWKNUM</td>
<td>PNTFORM</td>
<td>SHUTDOWN</td>
</tr>
<tr>
<td>CASREQ</td>
<td>INITMAN</td>
<td>OP</td>
<td>PNTMODY</td>
<td>SLOTNUM</td>
</tr>
<tr>
<td>CIDSTN</td>
<td>K</td>
<td>OPALDB  (F)</td>
<td>PNTMODT</td>
<td>STDBYMAN</td>
</tr>
<tr>
<td>CISRC</td>
<td>KEYWORD</td>
<td>OPEU</td>
<td>PNTNODT</td>
<td>STSMSG</td>
</tr>
<tr>
<td>CNFPU</td>
<td>LOCALMAN</td>
<td>OPAFL  (F)</td>
<td>PNTNODT</td>
<td>UNIT</td>
</tr>
<tr>
<td>CNPUPU</td>
<td>MANMODFL</td>
<td>OPHIFL</td>
<td>PRGATRF</td>
<td>USERID</td>
</tr>
<tr>
<td>CODSTN</td>
<td>MODATTR</td>
<td>OPHILM</td>
<td>PRIMMOD (F)</td>
<td>X1</td>
</tr>
<tr>
<td>CONTCONT  (F)</td>
<td>MODEAPPL</td>
<td>OPHIPR (F)</td>
<td>PSDLYFL</td>
<td>X2</td>
</tr>
<tr>
<td>CTLEQN</td>
<td>MODE</td>
<td>OPHITP (F)</td>
<td>PTDESC</td>
<td>XEUHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PTEXECST</td>
<td>XEULO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PTINAL</td>
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</tr>
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3.2 Calculator (Calcultr)

The parameters of the Calculator PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
<th>Group</th>
<th>Format</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUXUNIT</td>
<td>F</td>
<td>NAME</td>
<td>PFDLYFL</td>
<td>PVCLAMP</td>
<td>PVLOT (F)</td>
</tr>
<tr>
<td>ALENBST</td>
<td>F</td>
<td>P3</td>
<td>PIDSTN</td>
<td>PVEUHI</td>
<td>PVP</td>
</tr>
<tr>
<td>ASSOCDS</td>
<td>NODENUM</td>
<td>PISRC</td>
<td>PVEULO</td>
<td>PVROCNFL</td>
<td></td>
</tr>
<tr>
<td>BDPVFL</td>
<td>NODETY</td>
<td>PNTFORM</td>
<td>PVEUEUHI</td>
<td>PVROCNPR (F)</td>
<td></td>
</tr>
<tr>
<td>BDPVPR</td>
<td>NOPINPTS</td>
<td>PNTMODTY</td>
<td>PVEUEULO</td>
<td>PVROCNTP (F)</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>NORMCYCL</td>
<td>PNTNODTY</td>
<td>PVEXHIFL</td>
<td>PVROCPFL</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>NTWKNUM</td>
<td>PNTSTATE</td>
<td>PVEXLOFL</td>
<td>PVROCPPR (F)</td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>OVERVAL (F)</td>
<td>PNTTYPE</td>
<td>PVFORMAT</td>
<td>PVROCTP (F)</td>
<td></td>
</tr>
<tr>
<td>C4</td>
<td>P1</td>
<td>PRIMMOD (F)</td>
<td>PVHFL</td>
<td>PVSGCHTP (F)</td>
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<tr>
<td>CALCEXP</td>
<td>P1STS</td>
<td>PSDLYFL</td>
<td>PVHPR (F)</td>
<td>PVSOURCE (F)</td>
<td></td>
</tr>
<tr>
<td>CNFMU</td>
<td>P2</td>
<td>PTEXECST</td>
<td>PVHIFL</td>
<td>PVSTS</td>
<td></td>
</tr>
<tr>
<td>CNFPU</td>
<td>P2STS</td>
<td>PTDESC</td>
<td>PVHIFL</td>
<td>PVSTS</td>
<td></td>
</tr>
<tr>
<td>CONTCT</td>
<td>P3STS</td>
<td>PTEXECST</td>
<td>PVHIFL</td>
<td>PVSTS</td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
<td>P4</td>
<td>PTINAL</td>
<td>PVHIFL</td>
<td>PVSTS</td>
<td></td>
</tr>
<tr>
<td>HIGHAL</td>
<td>P4STS</td>
<td>PVALDB (F)</td>
<td>PVHITP (F)</td>
<td>PVTV (F)</td>
<td></td>
</tr>
<tr>
<td>HIGHALPR</td>
<td>P5</td>
<td>PVALDBEU (F)</td>
<td>PVHITP (F)</td>
<td>PVTV (F)</td>
<td></td>
</tr>
<tr>
<td>KEYWORD</td>
<td>P5STS</td>
<td>PVALGID</td>
<td>PVINIT</td>
<td>SCHSTS</td>
<td></td>
</tr>
<tr>
<td>LASTPV</td>
<td>P6</td>
<td>PVAUTO</td>
<td>PVINIT</td>
<td>SCHSTS</td>
<td></td>
</tr>
<tr>
<td>MODNUM</td>
<td>P6STS</td>
<td>PVAUTOST</td>
<td>PVINIT</td>
<td>SCHSTS</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>PERIOD</td>
<td>PVCALC</td>
<td>PVINIT</td>
<td>SCHSTS</td>
<td></td>
</tr>
<tr>
<td>PERIOD</td>
<td>PVLOF</td>
<td>USE</td>
<td>PVINIT</td>
<td>SCHSTS</td>
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</tr>
<tr>
<td>PVUSERID</td>
<td>USE</td>
<td>USERID</td>
<td>PVINIT</td>
<td>SCHSTS</td>
<td></td>
</tr>
</tbody>
</table>
3.3 Data Acquisition (DataAcq)

The parameters of the Data Acquisition PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

$AUXUNIT  (F)  NOPINPTS  PTDESC  PVHHFL  PVROCNPR  (F)
ALENBST  (F)  NORMCYCL  PTINAL  PVHHPR  (F)  PVROCNTP  (F)
ASSOCDSP  NTWKNUM  PTEXECST  PVHHTP  (F)  PVROCPVL
BADPVFL  (F)  OVERVAL  (F)  PVVALDB  (F)  PVHIFL  PVROCPPR
BADPVPR  (F)  P1  PVVALDBEUF (F)  PVHIPR  (F)  PVROVPTP
CONCUT  (F)  P1STS  PVALGID  PVHTIP  (F)  PVSGCHTP
CNFMU  PERIOD  PVAUTO  PVINIT  PVSOURCE
CNFPU  PDLYFL  PVAUTOST  PVLLFL  PVSRCOPT
EUDESC  PIDSTN  PVCALC  PVLLPR  (F)  PVSTS
HIGHAL  (F)  PISR  PVLCLAMP  PVLLTP  (F)  PVT (F)
HIGHALPR  (F)  PNTFORM  PVEUHI  PVLOFL  PVVT (F)
KEYWORD  PNTMODTY  PVEXEUHI  PVLOTP  (F)  SLOTNUM
LASTPV  PNTNTDTS  PVEXEUULO  PVP  STMSGS
MODNUM  PNTSTATE  PVEXHIFL  PVROCNFL  TF
NAME  PNTTYPE  PRVEXLOFL  PVROCNFL UNIT
NODENUM  PRIMMOD  (F)  PVFORMAT  USERID
NODETYP  PSDLYFL  PVVSOURCE

3.4 Flow Compensation (FlowComp)

The parameters of the Flow Compensation PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

$AUXUNIT  (F)  LASTPV  PSDLYFL  PVHHFL  PVSVRCOPT  (F)
ALENBST  (F)  MODNUM  PTEXESC  PVHHPR  (F)  PVSVTS
ASSOCDSP  NAME  PTINAL  PVHHTP  (F)  PVTV
BADPVFL  (F)  NODENUM  PVVALDB  (F)  PVHIFL  PVVT (F)
BADPVPR  (F)  NODETYP  PVVALDBEU  (F)  PVHIPR  (F)  Q
C  NOPINPTS  PVVALGID  PVHTIP  (F)  PVT (F)
C1  NORMCYCL  PVALDBEUF (F)  PVINIT QSTS
C2  NTWKNUM  PVALGID  PVLLFL  PVLSQ
CNFMU  OVERVAL  (F)  PVAUTO  PVLLTP  (F)  Q
CNFPU  P  PVAUTOST  PVT (F)  Q
COMPILHM  PERIOD  PVEQN  PVOSTF  RX
COMPOLLM  PFDLYFL  PVCHAR  PVOFL  RX
COMPTERM  P0  PVCLAMP  PVLOPR  (F)  SCHSTS
CONTOUT  PIDSTN  PVCLAMP  PVLOTP  (F)  SLOTNUM
EUDESC  PISR  PVCLAMP  PVLOTP  (F)  STMSGS
F  PNTFORM  PVCLAMP  PVLOTP  (F)  STMSGS
FSTS  PNTMODTY  PVEUHI  PVROCNFL T
G  PNTNTDTS  PVEXEUHI  PVROCNPR  (F)  TO
GSTS  PNTSTATE  PVEXEUULO  PVROCPFL (F)  TFS
HIGHL  (F)  PRIMMOD  (F)  PVEXHIFL  UNIT
HIGHLPR  (F)  PRIMMOD  (F)  PVEXLOFL  USERID
KEYWORD  PNTSTATE  PVHHIFL  PVROCPFL (F)  X
               PVINIT  PVSOURCE  XSTS
### 3.5 General Linearization (GenLin)

The parameters of the General Linearization PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUXUNIT</td>
<td>IN11 OUT12</td>
<td>F</td>
</tr>
<tr>
<td>ALENBST</td>
<td>IN12 OVERVAL (F)</td>
<td></td>
</tr>
<tr>
<td>ASSOCDSR</td>
<td>KEYWORD</td>
<td></td>
</tr>
<tr>
<td>BADPVFL</td>
<td>LASTPV</td>
<td></td>
</tr>
<tr>
<td>BADVPR</td>
<td>MODNUM</td>
<td></td>
</tr>
<tr>
<td>CNFMU</td>
<td>NAME</td>
<td></td>
</tr>
<tr>
<td>CNFPU</td>
<td>NODENUM</td>
<td></td>
</tr>
<tr>
<td>CONTÇUT</td>
<td>NODETYP</td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
<td>NOPINPTS</td>
<td></td>
</tr>
<tr>
<td>HIGHAL</td>
<td>NORMCYCL</td>
<td></td>
</tr>
<tr>
<td>HIGHALPR</td>
<td>NTWKNUM</td>
<td></td>
</tr>
<tr>
<td>IN0</td>
<td>OUT0 PNTSTATE</td>
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</tr>
<tr>
<td>IN1</td>
<td>OUT1 PNTTYPE</td>
<td></td>
</tr>
<tr>
<td>IN2</td>
<td>OUT2 PRIMMOD (F)</td>
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</tr>
<tr>
<td>IN3</td>
<td>OUT3 PSDLYFL</td>
<td></td>
</tr>
<tr>
<td>IN4</td>
<td>OUT4 PTDESC</td>
<td></td>
</tr>
<tr>
<td>IN5</td>
<td>OUT5 PTEEXECST</td>
<td></td>
</tr>
<tr>
<td>IN6</td>
<td>OUT6 PTINAL</td>
<td></td>
</tr>
<tr>
<td>IN7</td>
<td>OUT7 PVAUTO</td>
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<td>IN8</td>
<td>OUT8 PV INIT</td>
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<td>IN9</td>
<td>OUT9 PVVALDB (F)</td>
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</tr>
<tr>
<td>IN10</td>
<td>OUT10 OUT11</td>
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</table>

### 3.6 High-Low Average (HiLoAvg)

The parameters of the High-Low Average PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Type</th>
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<tr>
<td>AUXUNIT</td>
<td>NODETYP</td>
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</tr>
<tr>
<td>ALENBST</td>
<td>NOPINPTS</td>
<td></td>
</tr>
<tr>
<td>ASSOCDSR</td>
<td>NORMCYCL</td>
<td></td>
</tr>
<tr>
<td>BADPVFL</td>
<td>NTWKNUM</td>
<td></td>
</tr>
<tr>
<td>BADVPR</td>
<td>OVERVAL (F)</td>
<td></td>
</tr>
<tr>
<td>CNFMU</td>
<td>P1</td>
<td></td>
</tr>
<tr>
<td>CNFPU</td>
<td>P1STS</td>
<td></td>
</tr>
<tr>
<td>CONTÇUT</td>
<td>P2STS</td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
<td>P3</td>
<td></td>
</tr>
<tr>
<td>FRCPERM</td>
<td>P3STS</td>
<td></td>
</tr>
<tr>
<td>FSELIN</td>
<td>P4</td>
<td></td>
</tr>
<tr>
<td>HIGHAL</td>
<td>P4STS</td>
<td></td>
</tr>
<tr>
<td>HIGHALPR</td>
<td>P5</td>
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<td>KEYWORD</td>
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</tr>
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<td>LASTPV</td>
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<td></td>
</tr>
<tr>
<td>MODNUM</td>
<td>P6STS</td>
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<tr>
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<td>PERIOD</td>
<td></td>
</tr>
<tr>
<td>NAME</td>
<td>PFSDLYFL</td>
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<td>NMIN</td>
<td>PIDSTN</td>
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</tr>
<tr>
<td>NODENUM</td>
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<td></td>
</tr>
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</table>

HPM Parameter Reference Dictionary
3.7 Incremental Summer (IncrSum)

The parameters of the Incremental Summer control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

\[
\begin{align*}
\$AUXUNIT \quad (F) & \quad CVEULO \quad MODEPERM \quad OPLOFL \quad RARWSTS \\
ALENBST \quad (F) & \quad DELCV \quad MODNUM \quad OPLOLM \quad RARSOPT \\
ARNET & \quad ESWAUTO \quad NAME \quad OPLPR \quad RCASSEQ \\
ARWOP & \quad ESWCAS \quad NMODATTR \quad OPLOTP \quad REDITAG \quad (F) \\
ASSOCDSP & \quad ESWENBST \quad NMODE \quad OPMCHLM \quad RINITREQ \\
AUTMODFL & \quad ESWMAN \quad NOCINPTS \quad OPRATRFL \quad RINITVAL \\
BADCTLFL & \quad EUDESC \quad NOCOPTS \quad OPROCLM \quad SAFEOP \\
BADCTLPR \quad (F) & \quad EXTSWOPT \quad NODENUM \quad $OPTOL \quad SCHSTS \\
BCAMODFL & \quad HIGHAL \quad (F) \quad NODETYPE \quad OVERVAL \quad (F) \quad SHEDMODE \\
CASMODFL & \quad HIGHALPR \quad (F) \quad NORMCYCL \quad PERIOD \quad SHEDTIME \\
CASREQ & \quad INITMAN \quad NRMATRFL \quad PDFLYFL \quad SHUTDOWN \\
CNFMU & \quad K1 \quad NRMMODFL \quad PNTFORM \quad SLOTMUN \\
CNFPU & \quad K2 \quad NTWKNUM \quad PNTMODTY \quad STDDBYMAN \\
CNFU & \quad K3 \quad OP \quad PNTNODY \quad STSMCG \\
CODSTN & \quad KEYWORD \quad OPALDB \quad (F) \quad PNTSTATE \quad UNIT \\
CONTCCUT \quad (F) & \quad LOCALMAN \quad OPEU \quad PNTTYPE \quad USERID \\
CTRLGID & \quad M \quad OPHAFL \quad (F) \quad PRGATRFL \quad X1 \\
CV & \quad MANMODFL \quad OPHILM \quad PRIMMOD \quad (F) \quad X2 \\
CVEUHI & \quad MODE \quad OPHITP \quad (F) \quad PTEEXECST \quad XEUIH \\
\end{align*}
\]

3.8 Middle-of-3 (MidOf3)

The parameters of the Middle-Of-3 PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

\[
\begin{align*}
\$AUXUNIT \quad (F) & \quad NORMCYCL \quad PSDLYFL \quad PVEXLOFL \quad PVROCNPR \quad (F) \\
ALENBST \quad (F) & \quad NTWKNUM \quad PTDESC \quad PVEXQFL \quad PVROCNTP \quad (F) \\
ASSOCDSP & \quad OVERVAL \quad (F) \quad PTEXECST \quad PVHIFL \quad PVROCPFL \\
BADPVFL \quad (F) & \quad P1 \quad PTINAL \quad PVHPPR \quad PVROCPPR \quad (F) \\
BADPVPR \quad (F) & \quad P1STS \quad PV \quad PVHHTP \quad PVROCPFP \quad (F) \\
CNFU & \quad P2 \quad PVALDB \quad (F) \quad PVHIFL \quad PVSAGHPT \quad (F) \\
CNFPU & \quad P2STS \quad PVALDBEU \quad (F) \quad PVHIPR \quad PVSOURCE \quad (F) \\
CONTCCUT \quad (F) & \quad P3 \quad PVLAGID \quad PVHITP \quad PVSRCOPT \quad (F) \\
EUDESC & \quad P3STS \quad PVAUTO \quad PVINIT \quad PVSTS \\
HIGHAL & \quad PERIOD \quad PVAUTOPT \quad PVLLFL \quad PVTV \quad (F) \\
HIGHALPR & \quad PFDLYFL \quad PVCALC \quad PVLLPR \quad PVTVP \quad (F) \\
KEYWORD & \quad PIDSTN \quad PVLAMP \quad PVLTP \quad SCHSTS \\
LASTPV & \quad PIISR \quad PVEQN \quad PVLOFL \quad SELAVP \\
MODNUM & \quad PNTFORM \quad PVEUHI \quad PVLOPR \quad SLOTNUM \\
NAME & \quad PNTMODTY \quad PVEULO \quad PVLOPT \quad STSMOOG \\
NODENUM & \quad PNTNODY \quad PVEUXHI \quad PVP \quad TF \\
NODETY & \quad PNTSTATE \quad PVEUXEUO \quad PVROCNFL \quad UNIT \\
NOMPINTPS & \quad PNTTYPE \quad PVEXHIFL \quad USERID \\
\end{align*}
\]
### 3.9 Multiply/Divide (MulDiv)

The parameters of the Multiply/Divide control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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### 3.10 Override Selector (ORSel)

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3.10  Pid

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The above parameters are listed in alphabetical order. Parameters marked with (F) are applicable when PNTFORM = Full.
### 3.11 Pid with External Reset Feedback (PidErfb)

The parameters of the Pid with External Reset Feedback control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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**HPM Parameter Reference Dictionary 3-8 8/97**
## 3.12 Pid with Feed Forward (PidFf)

The parameters of the Pid with Feed Forward control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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3.14 Position Proportional (PosProp)

The parameters of the Position Proportional control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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ADVDEVPR (F)  \quad \text{DEVLOFL}  \quad \text{NOCINPTS}  \quad \text{PVEUHI}  \quad \text{REDTAG (F)}
ADVDEVT (F)  \quad \text{DEVLOPR (F)}  \quad \text{NOCOPTS}  \quad \text{PVEULO}  \quad \text{RINIREQ}
ADVSP (F)  \quad \text{DEVLOTP (F)}  \quad \text{NODENUM}  \quad \text{PVFORMAT}  \quad \text{RINITVAL}
ADVSPP (F)  \quad \text{ESWAUTO}  \quad \text{NODETYP}  \quad \text{PVHIFL}  \quad \text{RP}
ALENBS (F)  \quad \text{ESWCAS}  \quad \text{NORMCYCL}  \quad \text{PVHHPR (F)}  \quad \text{RT}
ARWNET  \quad \text{ESWENB}  \quad \text{NRMATFL}  \quad \text{PVHHTP (F)}  \quad \text{SAFOPCMD}
ARWOP  \quad \text{ESWMANS}  \quad \text{NRMMODFL}  \quad \text{PVHFL}  \quad \text{SCHSTS}
ASPPROC (F)  \quad \text{EUDESC}  \quad \text{NWKNUM}  \quad \text{PVHPR (F)}  \quad \text{SHEMODE}
ASSOCDSP  \quad \text{EXTSWOPT}  \quad \text{OPCMD}  \quad \text{PVHITP (F)}  \quad \text{SHEDTIME}
AUTMODFL  \quad \text{HIGHAL (F)}  \quad \text{OPHIFL}  \quad \text{PVHTL (F)}  \quad \text{SHUTDOWN}
BADETLFL  \quad \text{HIGHALP (F)}  \quad \text{OPHSRC}  \quad \text{PVLLPR (F)}  \quad \text{SLOTNUM}
BADCLOP  \quad \text{INITMAN}  \quad \text{OPLOFL}  \quad \text{PVLLTP (F)}  \quad \text{SP}
BADCPLR (F)  \quad \text{KEYWORD}  \quad \text{OPLOSRC}  \quad \text{PVLOFL}  \quad \text{SPEUHI}
BAPVFL (F)  \quad \text{LASTPV}  \quad \text{OVERVAL (F)}  \quad \text{PVLOPR (F)}  \quad \text{SPEULO}
BADPVR (F)  \quad \text{LMSRC}  \quad \text{PERIOD}  \quad \text{PVLOT (F)}  \quad \text{SPFORMAT}
BCAMODFL  \quad \text{LOCALMAN}  \quad \text{PFDLYFL}  \quad \text{PVP}  \quad \text{SPHILO}
CASMODFL  \quad \text{LOWERTIM}  \quad \text{PNTFORM}  \quad \text{PVROCFL}  \quad \text{SPHIH}
CASREQ  \quad \text{LOWRDSN}  \quad \text{PNTMODTY}  \quad \text{PVROCNR} (F)  \quad \text{SPOLO}
CIDSTN  \quad \text{LOWRRATE}  \quad \text{PNTNODTY}  \quad \text{PVROCNP (F)}  \quad \text{SPOOLT}
CISR  \quad \text{LTIMHILM}  \quad \text{PNTSTATE}  \quad \text{PVROCPF}  \quad \text{SPOPT}
CNFMU  \quad \text{MANMODFL}  \quad \text{PNTTYPE}  \quad \text{PVROCPPR (F)}  \quad \text{SPP}
CNFU  \quad \text{MANOPCMD}  \quad \text{PRGATRFL}  \quad \text{PVROCPPT (F)}  \quad \text{SPTAIL}|
CODSTN  \quad \text{MANOPTIM}  \quad \text{PSDLYFL}  \quad \text{PVSGCHTP (F)}  \quad \text{SPPTV}
CONTCT (F)  \quad \text{MAXPULSE}  \quad \text{PRIMMOD (F)}  \quad \text{PVSOURCE (F)}  \quad \text{STDBYMAN}
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CTRLUNIT  \quad \text{MODATTR}  \quad \text{PTEXECST}  \quad \text{PVSTS}  \quad \text{STRDSN}
CYCLETIM  \quad \text{MODE}  \quad \text{PTINAL}  \quad \text{RAISDSTN}  \quad \text{TVPROC}
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### 3.15 Ramp Soak (RampSoak)

The parameters of the Ramp Soak control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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The parameters of the Ratio-Control control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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### 3.17 Summer (RegCtl)

The parameters of the Regulatory Control Summer algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

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<td>BCONSDFL</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CREQ</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CISRC</td>
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<td></td>
<td></td>
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<tr>
<td>CNFANU</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CODSTN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTCU</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>CTLaLGD</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CTLEQN</td>
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</tr>
</tbody>
</table>

### 3.18 Summer (RegPV)

The parameters of the Summer Regulatory PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value(s)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUXUNIT</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>ALENBST</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>ASSOCDSP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAPVFL</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>BAPVPR</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>C4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>C6</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CNFANU</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>CNFPU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTCU</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
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<td></td>
<td></td>
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<tr>
<td>HIGHL</td>
<td></td>
<td>(F)</td>
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</tr>
<tr>
<td>HIGHLPR</td>
<td></td>
<td>(F)</td>
<td></td>
</tr>
<tr>
<td>KEYWORD</td>
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<td></td>
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</tr>
<tr>
<td>LASTPV</td>
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<td></td>
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</tr>
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</table>

HPM Parameter Reference Dictionary 3-14 8/97
3.19 Switch

The parameters of the Switch control algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default</th>
<th>Applicability</th>
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<tbody>
<tr>
<td>$AUXUNIT</td>
<td>CVEUHI</td>
<td>NMODE</td>
<td>OPROCLM</td>
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<td>ALENBST</td>
<td>CVEULO</td>
<td>NRMATRFL</td>
<td>$OPTOL</td>
</tr>
<tr>
<td>ARWNET</td>
<td>ESWAUTO</td>
<td>NRMMODFL</td>
<td>OVERVAL (F)</td>
</tr>
<tr>
<td>ARWOP</td>
<td>ESWCAS</td>
<td>NOCINPTS</td>
<td>PERIOD</td>
</tr>
<tr>
<td>ASSOCDS</td>
<td>ESWENBST</td>
<td>NOCOPTS</td>
<td>PFDLYFL</td>
</tr>
<tr>
<td>AUTMODE</td>
<td>ESWMAN</td>
<td>NODENUM</td>
<td>PNTFORM</td>
</tr>
<tr>
<td>BADCTFL</td>
<td>EUDESC</td>
<td>NODETYP</td>
<td>PNTMODTY</td>
</tr>
<tr>
<td>BADCTLOP</td>
<td>EXTSWOPT</td>
<td>NTWKNUM</td>
<td>PNTNODTY</td>
</tr>
<tr>
<td>BADCTLPR (F)</td>
<td>HIGHAL (F)</td>
<td>OP</td>
<td>PNTSTATE</td>
</tr>
<tr>
<td>BCAMODE</td>
<td>HIGHALPR (F)</td>
<td>OPALDB (F)</td>
<td>PNTTYP</td>
</tr>
<tr>
<td>CASMODE</td>
<td>INITMAN</td>
<td>OPEU</td>
<td>SHUTDOW</td>
</tr>
<tr>
<td>CASREQ</td>
<td>KEYWORD</td>
<td>OPHAFL (F)</td>
<td>PRIMMOD (F)</td>
</tr>
<tr>
<td>CIDSTN</td>
<td>LOCALMAN</td>
<td>OPHIFL</td>
<td>STDBYMAN</td>
</tr>
<tr>
<td>CISRC</td>
<td>M</td>
<td>OPHILM</td>
<td>STSMG</td>
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<td>CNFMU</td>
<td>MANMODFL</td>
<td>OPHIPR (F)</td>
<td>PTEXECST</td>
</tr>
<tr>
<td>CNFPU</td>
<td>MODATTR</td>
<td>OPHTP (F)</td>
<td>UNIT</td>
</tr>
<tr>
<td>CODSTN</td>
<td>MODE</td>
<td>OPLAFL (F)</td>
<td>USERID</td>
</tr>
<tr>
<td>CONTCT (F)</td>
<td>MODEAPPL</td>
<td>OPLOFL</td>
<td>PTORST</td>
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<td>MODEPERM</td>
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<td>CTLQEN</td>
<td>MODNUM</td>
<td>OPLOPR (F)</td>
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<td>OPLOTP (F)</td>
<td>REDTAG (F)</td>
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<td>OPRAFRL</td>
<td>RINITVAL</td>
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(F) indicates that the parameter is applicable when the PNTFORM = Full.
### 3.20 Totalizer (Totalizr)

The parameters of the Totalizer PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>PNTFORM</th>
<th>PVEXEULO</th>
<th>PVROCPFL</th>
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<tr>
<td>ACCTYPE</td>
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</tr>
<tr>
<td>ALENBST</td>
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</tr>
<tr>
<td>ASSOCDSP</td>
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<tr>
<td>AVDEV1FL</td>
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<td>BADVFL</td>
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</tr>
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</tr>
<tr>
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</tr>
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<td>CNFMU</td>
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</tr>
<tr>
<td>CNFPU</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CUTOFFLM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>HIGHAL</td>
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<td>F</td>
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<td></td>
</tr>
</tbody>
</table>

### 3.21 Variable Dead Time with Lead/Lag (VdtLdLag)

The parameters of the Variable Dead Time with Lead/Lag PV algorithm are listed below in alphabetical order. (F) indicates that the parameter is applicable when the PNTFORM = Full.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>PNTSTATE</th>
<th>PVEXHIFL</th>
<th>PVROCNTP</th>
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<tr>
<td>ACCTYPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALENBST</td>
<td></td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASSOCDSP</td>
<td></td>
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<td></td>
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<tr>
<td>BADVFL</td>
<td></td>
<td>F</td>
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<td></td>
</tr>
<tr>
<td>BADVPR</td>
<td></td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNFMU</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CNFPU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUTOFFLM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>D1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>D2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EUDESC</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>HIGHAL</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>HIGHALPR</td>
<td></td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KEYWORD</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LASTPV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
$ADD

$ADD (Array)
Type: Logical
Lock: PtBld
Default: On
PtRes: HPM
Range: Off
On

Add Point Last Parameter Indicator—The last parameter sent to the HPM during point build of an array point.

Helpful Hint: Do not remove $ADD from an exception build file or the point will not load properly.

$AUXUNIT
Type: E:UNIT
Lock: Oper
Default: Null
PtRes: NIM
Range: A-Z, 0-9 and Null - (Any valid unit ID as configured in the NCF)

Auxiliary Unit—The Auxiliary Unit of an alarmable process point. If an Auxiliary Unit ID is specified, alarms from this point go to the Auxiliary Unit instead of the Primary Unit. If the $AUXUNIT parameter is set to null (- -), alarms go to the Primary Unit. Available in Release 520 and later software.

Helpful Hint: A Network configuration option sets the keylevel required to change $AUXUNIT.

$COMCFLM (HPM Box)
Type: Real
Lock: Engineer
Default: 10
PtRes: HPM

Comm Processor CPU Free Low Limit in per cent —

Helpful Hint: This parameter cannot be reset.

Range: 0 - 100
### $COMCUOS (HPM Box)

**Type:** Real  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM

**Comm Processor CPU Utilization (System)** — Specifies the CPU Utilization (in per cent) for the Comm Processor operating system, device drivers, and interrupt handlers.

**Helpful Hint:** This parameter cannot be reset.

**Range:** 0 - 100

### $COMCUTS(0 - 99) (HPM Box)

**Type:** Real  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM

**Comm Processor CPU Utilization (Task)** — CPU Utilization (in per cent) for each Comm Processor Task.

**Helpful Hint:** This parameter cannot be reset.

**Range:** 0 - 100

### $CTLCFLM (HPM Box)

**Type:** Real  
**Lock:** Engineer  
**Default:** 10  
**PtRes:** HPM

**Control Processor CPU Free Low Limit** —

**Helpful Hint:** This parameter cannot be reset.

### $CTLCUOS (HPM Box)

**Type:** Real  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM

**Control Processor CPU Utilization (system)** — specifies the CPU Utilization (in per cent) for the Control Processor operating system, device drivers, and interrupt handlers

**Helpful Hint:** This parameter cannot be reset.

**Range:** 0 - 100
$CTLCUTS(0 - 99) (HPM Box)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM

Control Processor CPU Utilization (Task) — specifies the CPU Utilization (in per cent) for each Control Processor Task

Helpful Hint: This parameter cannot be reset.

Range: 0 - 100

$DBVALID (HPM Box)

Type: E:$ACCSRC
Lock: Eng
Default: DB Invalid
PtRes: HPM
Range: 0-DB_Valid (An IOP database is valid and the IOP can be started)
       1-DBInvalid (An IOP database is not valid and the IOP will not start)

$IOMPADD(1)–(168)

Type: Integer
Lock: View
Default: 0
PtRes: HPM
Range: 0, 129 - 255

IOP Address—Returns the physical address of the IOP with (soft address) (File-1)*16 + card + 127

$OPTOL (RegCtl, AO)

Type: Real (in Percent)
Lock: Engineer
Default: 0.0
PtRes: HPM
Range: 0.0 to 106.9

Output Tolerance Parameter Definition—Tolerance limit for a manually entered OP. The difference between a new OP and a current OP is compared against $OPTOL. If the tolerance is violated in either a positive or negative direction from the current value of the OP, operator confirmation is required before the value is stored. A value of 0.0 disables this check. An NaN or a negative value is not allowed.

$SPTOL (RegCtl)

Type: Real (in Engineering Units)
Lock: Engineer
Default: 0.0
PtRes: HPM
Range: >= 0.0

Setpoint Tolerance Parameter Definition—Tolerance limit for a manually entered SP. The difference between a new SP and a current SP is compared against $SPTOL. If the tolerance is violated in either a positive or negative direction from the current value of the SP, operator confirmation is required before the value is stored. A value of 0.0 disables this check. An NaN or a negative value is not allowed.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>$UCNLSB(1)$–$(50)$</td>
<td>Real</td>
<td>HPM</td>
<td>Local UCN Communications Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$UCNLSB(45)$ (NIM)</td>
<td>Real</td>
<td>0</td>
<td>Local Statistics Block—The number of auto reconnects.</td>
<td>$\leq 0$</td>
</tr>
<tr>
<td></td>
<td>View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HPM, NIM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$\leq 0$</td>
<td></td>
</tr>
</tbody>
</table>
AB_DATA1 (SI - Array)

**Type:** Real

**Lock:** Eng

**Default:** NaN

**PtRes:** HPM

**Range:** N/A

**Helpful Hint:** Use of this parameter is only required to configure Serial Interface mapping to/from an Allen-Bradley programmable logic controller device. This parameter should be set to NAN if it is not being used.

**Auxiliary A-B Data 1**—Specifies the Allen-Bradley PLC family type: 2.0, 3.0, or 5.0. Refer to the APM/HPM Serial Interface Options manual when configuring for diagnostics.

**Range:** N/A

AB_DATA2 (SI - Array)

**Type:** Real

**Lock:** Eng

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 999, NaN

**Helpful Hint:** Use of this parameter is only required to configure Serial Interface mapping to/from an Allen-Bradley programmable logic controller device. This parameter should be set to NAN if it is not being used.

**Auxiliary A-B Data 2**—Specifies the Allen-Bradley PLC File Number (in decimal) from which data is read into the Array point for PLC-3 or PLC-5 controllers. Must be NaN for PLC-2.

AB_DATA3 (SI - Array)

**Type:** Real

**Lock:** Eng

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 13

**Helpful Hint:** Use of this parameter is only required to configure Serial Interface mapping to/from an Allen-Bradley programmable logic controller device. This parameter should be set to NAN if it is not being used.

**Auxiliary A-B Data 3**—Specifies the data type for Allen-Bradley PLC-2 or PLC-5 controllers or section ID for PLC-3 controllers. Refer to the APM/HPM Serial Interface Options manual for additional information.

AB_DATA4 (SI - Array)

**Type:** Real

**Lock:** Eng

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 256

**Helpful Hint:** Use of this parameter is only required to configure Serial Interface mapping to/from an Allen-Bradley programmable logic controller device. This parameter should be set to NAN if it is not being used.

**Auxiliary A-B Data 4**—Specifies the Allen-Bradley PLC scan frequency: 0 indicates that the point is to be scanned as fast as possible. 1–255 indicates the number of seconds for the polling period; 256 = scan once. Note that the report by exception feature can work with any scan rate selection. Refer to the APM/HPM Serial Interface Options manual for more information.

**Range:** 0 - 256
ABHEMSD (ProcMod)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: On (Emergency Shutdown abnormal handler is enabled)
Off (Emergency Shutdown abnormal handler not enabled)

ABH HOLD (ProcMod)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: On (Hold abnormal handler is enabled)
Off (Hold abnormal handler not enabled)

ABH RSTR (ProcMod)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: On (Restart abnormal handler is enabled)
Off (Restart abnormal handler not enabled)

ABH SHDN (ProcMod)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: On (Shutdown abnormal handler is enabled)
Off (Shutdown abnormal handler not enabled)

ACCELTIM (DevCtl)
Type: Time (Duration)
Lock: View
Default: 0
PtRes: HPM
Range: 0 to 4000 days (With a resolution of 1 second)
### ACCTYPE (Totalizer)

**Type:** E:\$ACCTYPE  
**Lock:** Eng/PB  
**Default:** Analog  
**PtRes:** HPM  

**Range:**
- 0: Pulse  
- 1: Analog

**Accumulator Operation Mode**—Specifies the type of input.

### ACP (ProcMod)

**Type:** Ent_Id  
**Lock:** PtBld  
**Default:** Null  
**PtRes:** NIM  

**Range:**
- Tag name can be up to 16 characters, and the permissible character set is as follows:
  - Alphabets A-Z (uppercase only)
  - Numerics 0-9 (an all numeric tag name is not allowed)
  - Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
  - Embedded space characters are not allowed.

**Advanced Control Point ID**—Defines the name of the point in the CG or CM to which this process module is assigned. The NIM notifies the advanced control point when the process module sends a special sequence message.

### ACTPRIM(1)–(40) (HPM Box)

**Type:** E:\$ACTPRIM  
**Lock:** View  
**Default:** PtRes: HPM  

**Range:**
- 0: IOM_A  
- 1: IOM_B

**Acting Primary I/O module**—Specifies the acting primary I/O module. 
nn = 1–40 corresponds to the 40 logical I/O modules.

- Applies to primary IOP only.

### ADVDEVFL

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  

**Range:**
- Off (Alarm has not been detected)  
- On (Alarm has been detected. PV - ADVSP is greater than ADVDEVTP)

**Helpful Hint:** ADVDEVFL is never On unless SPOPT = Asp.
### ADVDEVPR

**Type:** E:ALPRIOR

**Lock:** Engr

**Default:** Low

**PtRes:** NM

**Range:**
- JnlPrint (Alarm is historized and reported to the printer but not annunciated)
- Printer (Alarm is reported to the printer but not historized and not annunciated)
- Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
- High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
- Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
- Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
- NoAction (Alarm is not reported to the system and not annunciated)

**Helpful Hint:** ADVDEVPR configuration requires SPOPT = Asp.

### ADVDEVTP

**Type:** Real

**Lock:** Supr

**Default:** NaN

**PtRes:** HPM

**Range:**
- \(\geq 0.0\)
- NaN

**Helpful Hint:**
1. ADVDEVTP change requires SPOPT = Asp.
2. Alarm generation requires ASPPROC = Enable and \(\text{abs}(PV - ADVSP) > ADVDEVTP\).
   
   When \(\text{abs}(PV - ADVSP) < \text{ADVDEVTP} \times 0.9\) alarm returns to normal.

### ADVSP

**Type:** Real

**Lock:** Supr

**Default:** N/A

**PtRes:** HPM

**Range:** SPLOLM to SPHILM

**Helpful Hint:** ADVSP change requires (SPOPT = Asp) + (ASPPROC = Enable).

Alarm generation requires ASPPROC = Enable and \(\text{abs}(PV - ADVSP) > \text{ADVDEVTP}\).

When \(\text{abs}(PV - ADVSP) < \text{ADVDEVTP} \times 0.9\) alarm returns to normal.

### ADVSPP

**Type:** Real

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** N/A

**Helpful Hint:** ADVSPP cannot be viewed unless SPOPT = Asp.
ALENBST

Type: E:ALENBST
Lock: Oper
Default: Enable
PtRes: NIM

Alarm Enable Status—Defines the alarm reporting function that is to be used when an alarm condition is detected in this data point. Note that even when alarms are disabled, the alarm indicators still appear on the Group and Detail displays. With Release 510 and later software, the word DIS appears in half height text above the tag name on the Point Detail or Group Display for a point with ALENBEST set to Disable.

Range:

<table>
<thead>
<tr>
<th></th>
<th>Displayed</th>
<th>Logged</th>
<th>Reported to EIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Disable</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Inhibit</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Helpful Hint: ALENBEST should not be set to Disable or Inhibit for points critical to safe operations. For Box Flag points, this parameter applies to only slots 1 through 128.

Reference: See Engineer’s Reference Manual in the Alarm Management section, for more information on what should happen under different possible alarm actions.

NOTE

The access lock for the ALENBEST parameter is configurable through System-Wide Values.

ALMOPT (DigIn)

Type: E:ALMOPT
Lock: Eng/PB
Default: None
PtRes: HPM

Alarming Option—Defines the alarming option for a digital input point whose DITYPE is Status.

Range:

0-None (No alarms are to be detected.)
1-Offnorml (Off Normal; alarm if current PV state is not the PVNORMAL state. PVNORMAL is defined by the STATETXT(0) or STATETXT(1) descriptor, as configured by the user.)
2-ChngofSt (An alarm is generated when the digital input changes state in either direction. Note that IOP firmware must support Change of State Reporting.)

Helpful Hint: ALMOPT configuration requires DITYPE = Status.
## ALPRIOR (ProcMod)

<table>
<thead>
<tr>
<th>Type:</th>
<th>E:ALPRIOR</th>
<th><strong>Alarm Priority</strong>—Defines the alarm priority for Process Module points. Note that even when the alarm priority is Journal, the alarm indicators still appear on the Group and Detail displays.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Engr</td>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>Default:</td>
<td>Low</td>
<td><strong>NIM</strong></td>
</tr>
<tr>
<td>PtRes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td></td>
<td><strong>Alarm Priority</strong>—Defines the alarm priority for Process Module points. Note that even when the alarm priority is Journal, the alarm indicators still appear on the Group and Detail displays.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Emergency</strong> (Alarm is historized, annunciated, and reported to all alarm summary displays)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>High</strong> (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Low</strong> (Alarm is historized, reported to Unit Alarm Summary Display, and annunciated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>JnlPrint</strong> (Alarm is historized and reported to the printer but not annunciated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Printer</strong> (Alarm is reported to the printer but not historized and not annunciated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Journal</strong> (Alarm is historized but not reported to Universal Stations and not annunciated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NoAction</strong> (Alarm is not reported to the system and not annunciated)</td>
</tr>
</tbody>
</table>

**Helpful Hint:** Access to ALPRIOR is by schematic or CL. ALPRIOR is retained in R500 for compatibility with earlier software. Use SEQPR for new points.

**Reference:** See [Engineer’s Reference Manual in the Alarm Management section](#) for more information on what should happen under different possible alarm actions.

## ALPRIOR (DigComp, DigIn, FL)

<table>
<thead>
<tr>
<th>Type:</th>
<th>E:ALPRIOR</th>
<th><strong>Composite Alarm Priority</strong>—When read, returns a value equal to the highest configured priority among all alarm parameters for the point. When written, sets all of the point’s alarm priority parameters equal to the value being stored. Note that individual parameters such as BADPVPR, etc. can be stored individually. If a point’s separate alarm priorities are all set to the same priority, ALPRIOR is compatible with R400 and earlier software.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Engr</td>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>Default:</td>
<td>Low</td>
<td><strong>NIM</strong></td>
</tr>
<tr>
<td>PtRes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td></td>
<td><strong>Alarm Priority</strong>—Defines the alarm priority for Process Module points. Note that even when the alarm priority is Journal, the alarm indicators still appear on the Group and Detail displays.</td>
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<td><strong>NoAction</strong> (Alarm is not reported to the system and not annunciated)</td>
</tr>
</tbody>
</table>

**Helpful Hint:** Access to ALPRIOR is by schematic or CL. No value is actually read from ALPRIOR on a read and no value is actually stored to ALPRIOR on a write. Values are copied to and from the separate alarm priorities.

**Reference:** See [Engineer’s Reference Manual in the Alarm Management section](#) for more information on what should happen under different possible alarm actions.

## ANAME(1)–(3) (ProcMod)

<table>
<thead>
<tr>
<th>Type:</th>
<th>String_8</th>
<th><strong>Abnormal Sequence Name</strong>—Indicates the name of the abnormal handler currently being executed by the process module. A value of &quot;&quot; means that an abnormal handler is not executing. ANAME(1) returns the abnormal handler name, while both ANAME(2) and ANAME(3) return the names of the two abnormal subroutine levels being executed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
<td><strong>Spaces</strong></td>
</tr>
<tr>
<td>Default:</td>
<td>Spaces</td>
<td><strong>HPM</strong></td>
</tr>
<tr>
<td>PtRes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Range:** N/A

**Reference:** See [Engineer’s Reference Manual in the Alarm Management section](#) for more information on what should happen under different possible alarm actions.
AOCALIB(1)–(168)

Type: Logical
Lock: Eng/PB
Default: HPM
PtRes: HPM
Range: Off (No calibration in progress)
        On (Calibration in progress)

AO Calibration In Progress Flag—Shows which AO modules are in the process of calibration.

ARWNET (RegCtl)

Type: E:WINDUP
Lock: View
Default: Normal
PtRes: HPM
Range: 0-Normal (Free to move in either direction)
        1-Hi (Free to move in the lower direction)
        2-Lo (Free to move in the higher direction)
        3-HiLo (Not free to move in any direction)

Windup Status of the Input—Indicates the windup status for the SP or another initializable input.

ARWOP (RegCtl)

Type: E:WINDUP
Lock: View
Default: Normal
PtRes: HPM
Range: 0-Normal (Free to move in either direction)
        1-Hi (Free to move in the lower direction)
        2-Lo (Free to move in the higher direction)
        3-HiLo (Not free to move in any direction)

Windup Status of the Output—Indicates the output (OP) windup status.

ASSOCDSP

Type: String_8
Lock: Engr
Default: Blank
PtRes: NIM
Range: N/A

Associated Display—Specifies a user configured schematic that is associated with this point. Available on Release 510 and later software.

Helpful Hint: The specified associated display can be called from a Point Detail Display, or from any summary display or the Group display when the point is selected.

ASPPROC (RegCtl)

Type: E:ASPPROC
Lock: Supr
Default: Disable
PtRes: HPM
Range: 0-Disable (Disallow advisory deviation alarming)
        1-Enable (Allow advisory deviation alarming)

Advisory SP Processor State

Helpful Hint: ASPPROC change requires SPOPT = Asp.
ASTEP(1)–(3) (ProcMod)

Type: String_8  Abnormal Step Name—ASTEP(1) indicates the step name of the abnormal
Lock: View handler that is executing in this process module. A value of “ ” means no
Default: Spaces abnormal handler is presently executing. Both ASTEP(2) and ASTEP(3) indicate
PtRes: HPM the step names of the first and second level subroutines called from the abnormal
Range: N/A handler.

ASTMT(1)–(3) (ProcMod)

Type: Integer  Abnormal Statement Number—ASTMT(1) indicates the statement number of the
Lock: View abnormal handler that is presently executing in the process module. Both
Default: Blank ASTMT(2) and ASTMT(3) give statement numbers for first and second level
PtRes: HPM subroutines executing from an abnormal handler. A value of 0 indicates no
Range: 0 to 255 sequence is being executed.

AUTMODFL (RegCtl)

Type: Logical  Automatic Mode Flag—Indicates whether the current mode of the point is
Lock: View Automatic.
Default: N/A
PtRes: HPM
Range: Off (Current mode is not Automatic)
On (Current mode is Automatic)

AUXDATA1 (SI-Array — Generic Modbus)

Type: Real  FTA Driver Auxiliary Data 1—Keep Alive Address for Modbus devices.
Lock: Eng Specifies the address of a coil that is written to every 10 seconds (Force Single
Default: NaN Coil On function). NaN (dashes) = Keep Alive function is inactive.
PtRes: HPM
Range: 1 - 9999, NaN

Helpful Hint: AUXDATA1 can be configured separately for each Array point. No two Array
points should write to the same coil address. This parameter should be set to
NAN if it is not being used.

AUXDATA2 (SI-Array — Generic Modbus)

Type: Real  FTA Driver Auxiliary Data 2—Specifies the time interval that the FTA waits
Lock: Eng before a message retry to the Modbus is attempted. NaN (dashes) indicates a 1.5
Default: NaN second timeout.
PtRes: HPM
Range: .25 - 5 Sec., NaN

Helpful Hint: After three retries, a message timeout error is displayed on the Point Detail
display. AUXDATA2 can be configured separately for each Array point. This
parameter should be set to NAN if it is not being used.
AUXDATA3 (SI-Array — Generic Modbus)

Type: Real  
Lock: Eng  
Default: NaN  
PtRes: HPM  

FTA Driver Auxiliary Data 3—Signaling mode. Modem support (in integer/decimal format). Integer = 232 or 485.  
Decimal (EIA-232 only) = .0 or .1 (.0 = no modem control, .1 = modem control).  
NaN (dashes) = 232.0 (EIA-232 without modem control).

Range: 232.0, 232.1, or 485.0

Helpful Hint: All array points that are loaded to the same FTA must have the same AUXDATA3 settings. This parameter should be set to NAN if it is not being used.

AUXDATA4 (SI-Array — Generic Modbus)

Type: Real  
Lock: Eng  
Default: NaN  
PtRes: HPM  

FTA Driver Auxiliary Data 4—Baud Rate. Parity (in integer/decimal format).  
Baud Rates = 1200, 2400, 4800, 9600, or 19200.  
Parity: .0 = no parity, .1 = odd parity, .2 = even parity.  
NaN (dashes) = 9600.1 (9600 baud, odd parity).

Range: integer = 1200, 2400, 4800, 9600, or 19200
          decimal = .0, .1, or .2

Helpful Hint: All array points that are loaded to the same FTA must have the same AUXDATA4 settings. This parameter should be set to NAN if it is not being used.

AV (DigIn)

Type: Integer  
Lock: Oper  
Default: 0  
PtRes: HPM  
Range: 0–32767

Accumulated Value in Engineering Units—Indicates the current value accumulated in the accumulator.

AV (RegCtl)

Type: Integer  
Lock: Configurable  
Default: 0  
PtRes: APM  
Range: 0–32767

Accumulated Value in Engineering Units—Indicates the current value accumulated in the accumulator.

AVDELTUH (PI)

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range: ≥ 0

The Last Half-second’s AV
AVDEV1FL (Totalizr)

Type: Logical  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: Off (PVCALC is not > AVTV - AVDEV1TP)  
On (PVCALC is > AVTV - AVDEV1TP)

Accumulated Value; 1st Deviation Flag—Indicates whether PVCALC is greater than AVTV minus AVDEV1TP. (PVCALC > AVTV - AVDEV1TP). This is the first "slowdown" or "near-target" flag.

AVDEV1TP (Totalizr)

Type: Real  
Lock: Supr  
Default: NaN  
PtRes: HPM  
Range: ≥ 0.0, NaN

Accumulated Value; 1st Deviation Trip Point (deviation from AVTV)

AVDEV2FL (Totalizr)

Type: Logical  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: Off (PVCALC is not > AVTV - AVDEV2TP)  
On (PVCALC is > AVTV - AVDEV2TP)

Accumulated Value; 2nd Deviation Flag—Indicates whether PVCALC is greater than AVTV minus AVDEV2TP. (PVCALC > AVTV - AVDEV2TP). This is the second "slowdown" or "near-target" flag.

AVDEV2TP (Totalizr)

Type: Real  
Lock: Supr  
Default: NaN  
PtRes: HPM  
Range: ≥ 0.0, NaN

Accumulated Value; 2nd Deviation Trip Point (deviation from AVTV)

AVGPU (ProcMod)

Type: Real  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

Average PUs—Specifies the average PUs used for point processing

AVGTF (NIM, HPM Box)

Type: Real  
Lock: Engineer  
Default: 1.00 Minutes  
PtRes: HPM  
Range: 0.0 - 1440.0 (0 = no filter)

Average Statistics Single Lag Filter Time Constant—Defines the filter time in the single lag filter used to calculate average values of the performance statistics.
AVSTS (PI)

Type: E:PVVALST Value Status of AV
Lock: View
Default: Bad
PtRes: HPM
Range: 0-Bad
2-Normal

AVTV (DigIn)

Type: Integer Accumulator Target Value—Specifies the target value of the accumulator.
Lock: Oper AVTV appears on a group or detail display as the SP value.
Default: 0
PtRes: HPM
Range: 0 to 32767

Helpful Hint: AVTV change requires DITYPE = Accum.

AVTV (Totalizr)

Type: Real Accumulator Target Value—Specifies the target value of the totalizer. AVTV
Lock: Oper appears on a group or detail display as the SP value.
Default: NaN
PtRes: HPM
Range: N/A, NaN

AVTVFL

Type: Logical Accumulated Value Target Reached Flag—AVTVFL is the accumulated value's
Lock: View "target value reached" flag. It is turned On whenever PVCALC ≥ AVTV.
Default: N/A Parameter AVTV contains the target value last entered by the operator.
PtRes: HPM
Range: Off
On
**B (AutoMan)**

- **Type:** Real
- **Lock:** Oper
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

*Overall Bias*—Defines the overall bias which consists of BO plus BI. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**B (MulDiv, RegCtl Summer)**

- **Type:** Real
- **Lock:** Oper
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

*Overall Bias*—Defines the overall bias which consists of BO plus BI. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**B0 (AutoMan, MulDiv, RegCtl Summer)**

- **Type:** Real
- **Lock:** View
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

*Last Operator-Entered Output Bias*

**B1 (RatioCtl)**

- **Type:** Real
- **Lock:** Supr
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

*Output Bias Constant*—If the Calcultr PV algorithm is being used in conjunction with this algorithm, the value of B1 should be the same as C3.

**B2 (RatioCtl)**

- **Type:** Real
- **Lock:** Supr
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

*Bias for Input X2*—If the Calcultr PV algorithm is being used in conjunction with this algorithm, the value of B2 should be the same as C4.

**B1, B2, B3 (MulDiv)**

- **Type:** Real
- **Lock:** Supr
- **Default:** 0.0
- **PtRes:** HPM
- **Range:**

*Bias for Inputs for X1, X2, and X3*—
BADCTLFL
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (Bad-control alarm not present)
On (Bad-control alarm present)

BADCTLOP
Type: E:$BADCTLO
Lock: Engr
Default: No_Shed
PtRes: HPM
Range: 0-No_Shed (The point holds its output and mode, resuming control after initialization upon recovery)
1-ShedHold (The mode sheds to manual, the mode attribute goes to operator, while the output is held and external mode switching is disabled)
2-ShedLow (The mode sheds to manual, the mode attribute goes to operator, while the output goes to -6.9% and external mode switching is disabled)
3-ShedHigh (The mode sheds to manual, the mode attribute goes to operator, while the output goes to 106.9% and external mode switching is disabled)
4-ShedSafe (The mode sheds to manual, the mode attribute goes to operator, while the output goes to SafeOP and external mode switching is disabled. If SafeOP is NaN, the output is held as if the Bad Control Option is ShedHold.)

BADCTLPR
Type: E:ALPRIOR
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
Printer (Alarm is reported to the printer but not historized and not annunciated)
Emergncy (Alarm is historized, annunciated, and reported to all alarm summary displays)
High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
NoAction (Alarm is not reported to the system and not annunciated)

BADIOLPF (ProcMod)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (IOL prefetch value is bad)
On (IOL prefetch value is bad)
BADOCFL (RegCtl)

**Type:** Logical  
**Lock:** View  
**Default:** OFF  
**PtRes:** HPM  

**Bad Output Connection Flag (BADOC) Alarm**—ON indicates that the RegCtl point cannot drive at least one Analog Output point (out of 4 possible). The alarm appears on the Alarm Summary display and in the Real Time Journal as a BADOC alarm. If it is the highest level alarm on the point, it appears on the Point Detail or Group displays as BOC.

**Range:**  
- Off (Point is not in alarm)  
- On (Point is in alarm)

BADOC1FL

**Type:** Logical  
**Lock:** View  
**Default:** OFF  
**PtRes:** HPM  

**Bad Output Connection Flag 1**—ON indicates that the RegCtl point cannot drive Output 1 to an AO point (if configured).

**Range:**  
- Off  
- On

BADOC2FL

**Type:** Logical  
**Lock:** View  
**Default:** OFF  
**PtRes:** HPM  

**Bad Output Connection Flag 2**—ON indicates that the RegCtl point cannot drive Output 2 to an AO point (if configured).

**Range:**  
- Off  
- On

BADOC3FL

**Type:** Logical  
**Lock:** View  
**Default:** OFF  
**PtRes:** HPM  

**Bad Output Connection Flag 3**—ON indicates that the RegCtl point cannot drive Output 3 to an AO point (if configured).

**Range:**  
- Off  
- On

BADOC4FL

**Type:** Logical  
**Lock:** View  
**Default:** OFF  
**PtRes:** HPM  

**Bad Output Connection Flag 4**—ON indicates that the RegCtl point cannot drive Output 4 to an AO point (if configured).

**Range:**  
- Off  
- On
BADOCPR (RegCtl)

Type: E:ALPRIOR  Bad Output Connection (BADOC) Alarm Priority—Indicates the priority of the Bad Output Connection (BADOC) alarm
Lock: Engr
Default: Low
PtRes: NIM
Range: NoAction
        JnlPrint
        Printer
        Journal
        Low
        High
        Emergency

Helpful Hint: The value of this parameter can be changed on the Point Detail display with Engineering keylevel access.

BADOCOPT (RegCtl)

Type: Logical  Bad Output Connection Alarm Option (BADOC)—ON indicates that the Bad Output Connection (BADOC) alarm can be generated (or is permitted).
Lock: Eng/Pb
Default: OFF
PtRes: HPM
Range: Off (BADOC alarms are suppressed)
        On (BADOC alarms are permitted)

Helpful Hint: The value of this parameter can be changed on the Point Detail display with Engineering keylevel access.

BADPVFL

Type: Logical  Bad PV Flag—Indicates that a bad PV value has been detected at this data point.
Lock: View
Default: Off
PtRes: HPM
Range: Off (PV is not bad)
        On (PV is bad)
BADPVFL (DI)

**Type:** Logical  
**Lock:** View  
**Default:** On  
**PtRes:** HPM

**Bad PV Flag**—Indicates that a bad PV value has been detected at this data point. BADPVFL is shown on the detailed display only when PNTFORM = Full.

For a Digital Input, the Bad PV Flag is on when:

- The PV source is not equal to Manual and DITYPE is set to Accumulator.
- The PV source has just been switched to Substituted but the PV has not yet been updated.
- The PV source = Substitute or Auto and PTEXECST = Inactive or the module is not in the RUN state.
- PVSOURCE = Auto and there is no FTA connected or there is a Soft Fail that is preventing this channel from working.

**Range:**  
- Off (PV is not bad)  
- On (PV is bad)

BADPVFL (DevCtl, DigComp)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM

**Bad PV Flag**—For a Digital Composite or Device Control point, the Bad PV Flag is set to ON when the PV is bad.

**Range:**  
- Off (PV is not bad)  
- On (PV is bad)

BADPVPR

**Type:** E:ALPRIOR  
**Lock:** Engr  
**Default:** Low  
**PtRes:** NIM

**Bad PV Alarm Priority**—Defines the priority of the bad PV alarm.

**Range:**  
- Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)  
- High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)  
- Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)  
- JnlPrint (Alarm is historized and reported to the printer but not annunciated)  
- Printer (Alarm is reported to the printer but not historized and not annunciated)  
- Journal (Alarm is historized but not reported to Universal Stations and not annunciated)  
- NoAction (Alarm is not reported to the system and not annunciated)
BADPVTXT (DevCtl, DigComp, NIM)

**Type:** String_8  
**Lock:** PtBld  
**Default:** BAD  
**PtRes:** NIM

**Bad PV State Descriptor**—Defines the state descriptor that is displayed when the digital composite or device control point state is indeterminate or bad. The bad state can result when the PV input signals from the process are in an inconsistent state (e.g., for a valve, the limit switches indicating open and closed are on at the same time). This state descriptor is configured on a per point basis and is valid only when the PVTXTOPT parameter is On.

**Range:** The permissible character set for the up to eight character descriptor is as follows:
- Alphabets A-Z (upper case only)
- Numerics 0-9,
- Underscore (_)

BADSVFL (DevCtl)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM

**Bad SV Alarm Flag**—Indicates a bad secondary value alarm.

**Range:**
- Off (Good data being read)
- On (SV parameter = BAD or NaN)

BADSVPR (DevCtl)

**Type:** E:ALPRIOR  
**Lock:** Engr  
**Default:** Low  
**PtRes:** NIM

**Bad SV Alarm Priority**—Indicates the alarm priority for the secondary value.

**Range:**
- JnlPrint (Alarm is historized and reported to the printer but not annunciated)
- Printer (Alarm is reported to the printer but not historized and not annunciated)
- Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
- High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
- Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
- Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
- NoAction (Alarm is not reported to the system and not annunciated)

BCAMODFL (RegCtl)

**Type:** Logical  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM

**Backup Cascade Mode Flag**—Indicates if the mode of the point is Backup Cascade.

**Range:**
- Off - (point is not in Backup Cascade mode)
- On - (point is in Backup Cascade mode)
**BCOMPOPT (FlowComp)**

*Bad Compensation Input Option—*

- **Type:** Bad Compensation Input Option
- **Lock:** Supr
- **Default:** HPM
- **PtRes:** HPM
- **Range:**
  - Set_PVCALC_Bad
  - Use_Last_Good_Comp_Term
  - Use_LastGood_Comp_Input

**BFF (PidFf)**

*Feed Forward Input Bias—*

- **Type:** Real
- **Lock:** Supr
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

**BHALMFL1–BHALMFL7**

*Alarm Flags*

- **Type:** String_2
- **Lock:** View
- **Default:** NIM
- **PtRes:** NIM
- **Range:** Hexadecimal characters 00 - FF

**BIAS (Pid)**

*Bias—*

- **Type:** Real
- **Lock:** Oper
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** BSLOLM to BSHLM

**BLK_INFO**

*Function Block Summary Information—*

- **Type:** Blind Record
- **Lock:** View
- **Default:** N/A
- **PtRes:** IOP
- **Range:**

**BNDRESET (NIM, HPM Box)**

*Bounds (Minimum/Maximum) Statistics Reset Flag—*

- **Type:** Logical
- **Lock:** Operator
- **Default:** Off
- **PtRes:** HPM
- **Range:** Off/On

*Helpful Hint:* A read of BNDRESET always returns OFF.
BNDRSTIM (NIM, HPM Box)

Type: Time  
Lock: View  
Default: Time of HPM Startup  
PtRes: HPM  
Range: N/A

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

BOXCLR(0)—(2) (DevCtl, DigComp)

Type: E:BOXCOLOR  
Lock: Eng/PB  
Default: Green [Upper-box default (State 1)]  
Yellow [Middle-box default (State 0)]  
Red [Lower-box default (State 2)]  
PtRes: NIM  
Range: Red  
Green  
White  
Black  
Cyan  
Yellow  
Blue  
Magenta

Helpful Hint: BOXCLR has an access lock of View if PNTFORM = Component.

BOXCLR(0)—(1) (DigIn, Flag)

Type: E:BOXCOLOR  
Lock: Eng/PB  
Default: Green [Upper box default color (State 1)]  
Yellow [Lower-box default color(State 0)]  
PtRes: NIM  
Range: Red  
Green  
White  
Black  
Cyan  
Yellow  
Blue  
Magenta
**BSHILM**

*Type:* Real  
*Lock:* Supr  
*Default:* 50.0  
*PtRes:* HPM  
*Range:* ≥ BSLOLM, NaN  

*Helpful Hint:* Entering NaN disables the BSHILM function with NaN being stored in the database.

**BSLOLM**

*Type:* Real  
*Lock:* Supr  
*Default:* -50.0  
*PtRes:* HPM  
*Range:* ≤ BSHILM, NaN  

*Helpful Hint:* Entering NaN disables the BSLOLM function with NaN being stored in the database.

**BYPASS (DevCtl, DigComp)**

*Type:* Logical  
*Lock:* Oper  
*Default:* Off  
*PtRes:* HPM  
*Range:* Off (Interlocks not bypassed)  
On (Interlocks bypassed)

**BYPASS (ORSel)**

*Type:* Logical  
*Lock:* Oper  
*Default:* Off  
*PtRes:* HPM  
*Range:* Off (Bypass of inputs is not allowed)  
On (Bypass of inputs is allowed)

**BYPASSX1–BYPASSX4 (ORSel)**

*Type:* Logical  
*Lock:* Oper  
*Default:* BYPASSX1 = Off, BYPASSX2–X4 = On  
*PtRes:* HPM  
*Range:* Off, On

Refer to the *HPM Control Functions and Algorithms* manual for a detailed description. BYPASSXn being On does not bypass X1–X4 unless BYPASS = On.
# C (FlowComp, Summer, Totalizer, and VdtLdLg)

**Type:** Real

**Scale Factor**—Value in C is used in the calculation of PVCALC. Refer to the *HPM Control Functions and Algorithms* manual for the equation.

**Lock:** Supr

**Default:** 1.0

**PtRes:** HPM

**Range:** Anything except NaN

## C1–C2 (FlowComp)

**Type:** Real

**Correction Constants**—Values in C1 and C2 are used in the calculation of PVCALC, and serve as factors in compensating for assumed design conditions. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**Lock:** Supr

**Default:** 1.0

**PtRes:** HPM

**Range:**
- C1 ≥ 0.1
- C2 ≥ 0.1

## C1–C2 (Pl)

**Type:** Real

**Scaling Constants**—Values in C1 and C2 are used in the calculation of PVCALC. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**Lock:** Supr

**Default:** 1.0

**PtRes:** HPM

**Range:**
- C1 ≥ 0
- C2 > 0

## C1–C2 (VdtLdLg)

**Type:** Real

**Scaling Constant For Input P1–P2**—Values in C1 and C2 are used in the calculation of TD (fixed time delay) and TDNEW (calculated new delay time).

**Lock:** Supr

**Default:** 1.0

**PtRes:** HPM

**Range:** ≥ 0.0

## C1–C4 (Calcultr)

**Type:** Real

**Intermediate Results of Calculations**

**Lock:** Supr

**Default:** N/A

**PtRes:** HPM

**Range:** N/A
C1–C6 (Summer)

**Type:** Real  
**Lock:** Supr  
**Default:** 1.0  
**PtRes:** HPM  
**Range:** N/A

Scaling Constants 1-6—Defines the scaling constants to be used with the respective inputs P1-P6.

C1–C4DESC (Logic)

**Type:** String_8  
**Lock:** Engr  
**Default:** Blank  
**PtRes:** HPM  
**Range:** 8 Character String

Custom Alarm Descriptors—Defines the state for each of the four custom alarms.

C1–C4FL (Logic)

**Type:** Logical  
**Lock:** Program  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (A custom alarm is not active)  
On (A custom alarm is active)

Custom Alarm Flags—Defines the state for each of the four custom alarms. These flags can be written to if C1–C4SRC=None.

C1–C4PR (Logic)

**Type:** E:ALPRIOR  
**Lock:** Engr  
**Default:** NoAction  
**PtRes:** NIM  
**Range:** JnlPrint (Alarm is historized and reported to the printer but not annunciated)  
Printer (Alarm is reported to the printer but not historized and not annunciated)  
Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)  
High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)  
Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)  
Journal (Alarm is historized but not reported to Universal Stations and not annunciated)  
NoAction (Alarm is not reported to the system and not annunciated)

Custom Alarm Priorities—Defines the alarm priorities for each of the four custom alarms.

C1–C4SRC (Logic)

**Type:** E:$LGALSRC  
**Lock:** PtBld  
**Default:** None  
**PtRes:** HPM  
**Range:** NONE (No source configured for alarms)  
L1..L12 (Alarm source is the configured input connection; they can be either On or Off)  
SO1..SO24 (Alarm source is the status output (SOn) from another logic block)  
FL1..FL12 (Alarm source is a local flag; they can be either On or Off)

Custom Alarm Source—Indicates the alarm source for each of the four custom alarms.
CABLESTS (NIM)

Type: Integer
Lock: View
Default: N/A
PtRes: NIM
Range: 0-(Both cables are OK)
       1-(Cable A has failed)
       2-(Cable B has failed)
       3-(Both cables have failed)

CALCEXP (Calcultr)

Type: String_40
Lock: Eng/PB
Default: blank
PtRes: HPM
Range: N/A

CALIBALL (1)–(168)

Type: Logical
Lock: Engr
Default: Off
PtRes: HPM
Range: Off (Card calibration is disabled)
       On (Card calibration is enabled)

CALIBRJ (1)–(168)

Type: Logical
Lock: Eng/PB
Default: Off
PtRes: HPM
Range: Off (Disable Reference Junction calibration)
       On (Enable Reference Junction calibration)

CASMODFL (RegCtl)

Type: Logical
Lock: View
Default: N/A
PtRes: HPM
Range: On - (point is in cascade mode)
       Off - (point is not in cascade mode)
**CASREQ (AnalgOut, RegCtl)**

**Type:** E:CASREQ  
**Lock:** Prog  
**Default:** NotReq  
**PtRes:** HPM  

**Remote Cascade Request Flag**—Defines whether the remote cascade mode has been requested for the data point. The remote cascade mode exists when MODE is changed to Cas and RCASOPT is Ddc or DdcRsp. When a request to change MODE to Cas is received from a US or a program, MODE does not immediately change to Cas. Instead, CASREQ is set to Request and a -C appears to the right of the mode indicator on the Group and Detail displays. When continuous control in an AM determines that CASREQ contains Request, it requests the mode to go to Cas, and changes CASREQ to NotReq.

Should the point shed while it is in the remote cascade mode, MODE goes to the state defined in SHEDMODE, and CASREQ goes back to Request.

**Range:**
- 0-NotReq (Remote cascade mode request not made)
- 1-Request (Remote cascade mode request made; operator or program has requested the cascade mode)

**Helpful Hint:** CASREQ does not apply for an AnalgOut point if RCASOPT = None. CASREQ does not apply for a RegCtl point unless RCASOPT = Spc, Ddc, or DdcRsp.

If Spc has been entered for the RCASOPT parameter, the AM writes to the setpoint.

Ddc is the only remote cascade option for an analog output point.

---

**CHPINHWY (UCN)**

**Type:** E:CHPINDAC  
**Lock:** Supr  
**Default:** Enable  
**PtRes:** NIM  

**Automatic Checkpoint Inhibit**

**Range:**
- 0-Enable (Enable automatic checkpointing of data bases on this UCN)
- 1-Inhibit (Inhibit automatic checkpointing)

**CHPINOPR (HPM Box)**

**Type:** E:CHPINDAC  
**Lock:** Supr  
**Default:** Enable  
**PtRes:** NIM  

**Automatic Checkpoint Inhibit Operation**—Defines whether automatic database saves are to be performed for the devices connected to this NIM.

**Range:**
- Enable (Automatic database saves are enabled)
- Inhibit (Automatic database saves are inhibited)
CIDSTN(1)–CIDSTN(4) (RegCtl)

Type: Prm_ID
Lock: PtBld
Default: Based on CTLALGID, CTLEQN, N
PtRes: HPM
Range: N/A

Control Input Connection Destination—Defines the parameter name (PV, SP, etc.) in the RegCtl point that is to receive the value fetched using the “Tagname.Parameter” or the hardware reference address specified in parameter CISRC, Control Input Connection Source.

Helpful Hint:
1. CIDSTN must contain a legitimate parameter of one to eight characters.
2. Default to PV, SP, or some other parameter depends on parameters CTLALGID, CTLEQN, and M.

CISRC(1)–CISRC(4) (RegCtl)

Type: Ent.Prm
Lock: PtBld
Default: null.null
PtRes: HPM
Range: Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters, and the permissible character set is as follows:

- Alphabetics A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point’s tag name.
- Parameter name can be up to eight characters and must be a legitimate parameter name.

CLBACK (ProcMod)

Type: Integer
Lock: Engr
Default: 0
PtRes: HPM
Range: (0 - 240)

Number of Backward Branches -- Specifies how many backward branches may occur when executing GOTO WHEN ERROR, & REPEAT, before preemption occurs. 0 = preempt every backward branch.
CLPZMXC (UCN)

Type: Logical
Lock: View
Default: N/A
PtRes: NIM
Range: Off (Cable A status is OK)
       On (Cable A status is not OK)

CLPZMXP (UCN)

Type: Logical
Lock: View
Default: N/A
PtRes: NIM
Range: Off (Cable B status is OK)
       On (Cable B status is not OK)

CMD (RegCtl)

Type: Logical
Lock: Configurable
Default: Off
PtRes: APM
Range: Off (PV moved after the output command)
       On (PV did not move after the output command)

CMDDISFL (DevCtl, DigComp)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (No command disagree alarm)
       On (Command disagree alarm has been detected by this point)

Helpful Hint: A slow-responding field device can cause a premature alarm. If so, adjust the time in parameter FBTIME.
CMDDISPR (DevCtl, DigComp)

**Type:** E:ALPRIOR  
**Lock:** Engr  
**Default:** Low  
**PtRes:** NIM  
**Range:**
- **Emergency** (Alarm is historized, annunciator, and reported to all alarm summary displays)
- **High** (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
- **Low** (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciator)
- **JnlPrint** (Alarm is historized and reported to the printer but not announced)
- **Printer** (Alarm is reported to the printer but not historized and not annunciated)
- **Journal** (Alarm is historized but not reported to Universal Stations and not annunciated)
- **NoAction** (Alarm is not reported to the system and not annunciated)

**CMDFALFL (DevCtl, DigComp)**

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:**
- **Off** (PV moved after the output command)
- **On** (PV did not move after the output command)

**CMDFALTM (DevCtl, DigComp)**

**Type:** Integer  
**Lock:** Supr if CMDFALTM is changed from a non-zero value to a zero value, else Eng/PB  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 999 seconds (0 indicates command fail alarming is disabled)

**CMDHWREV**

**Type:** String_2  
**Lock:** View  
**Default:** HPM  
**PtRes:** HPM  
**Range:** Hexadecimal characters 00 - FF
### CMFLTIME (HPM BOX)

<table>
<thead>
<tr>
<th>Type</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
</tbody>
</table>

**Helpful Hint:** If a value of 0 is returned for the time from the UCN, a parameter status of Parameter Invalid is returned on the LCN.

### CMIDTXT (HPM BOX)

<table>
<thead>
<tr>
<th>Type</th>
<th>String_16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>Blank</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>Hexadecimal characters 00 - FF</td>
</tr>
</tbody>
</table>

### CMPLTIME

<table>
<thead>
<tr>
<th>Type</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>0</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
</tbody>
</table>

### CNFERRFL

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>Off</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>Off     On</td>
</tr>
</tbody>
</table>

### CNFERRPR

<table>
<thead>
<tr>
<th>Type</th>
<th>E: ALPRIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Eng/PB</td>
</tr>
<tr>
<td>Default:</td>
<td>Low</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>Low</td>
</tr>
</tbody>
</table>
CNFLUA(n)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM

Configured Link Units on Link A—

n = 1 - 64 for per cycle totals
n = 257 - 320 for per cycle non-SI IOP loading
n = 513 - 576 for per cycle SI array slot loading

CNFLUB(n)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM

Configured Link Units on Link B—

n = 1 - 64 for per cycle totals
n = 257 - 320 for per cycle non-SI IOP loading
n = 513 - 576 for per cycle SI array slot loading

CNFMU

Type: Integer
Lock: View
Default: N/A
PtRes: HPM

Configured Memory Units—Configured size of slot in Memory units.

CNFPU(1 - 64) (HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM

Configured Process Units Per Cycle—
**CNFPU**

**Type:** Real  
**Lock:** PtBld  
**Default:** 2.0  
**PtRes:** HPM  
**Range:**

*Helpful Hint:* Can only be written for ProcMod points.

**Configured Process Units Per Cycle**—Process Units Configured as being required to execute point processing.

**CNFPUP (1 -64)**

**Type:** Real  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM  
**Range:**

*Configured PUs Percent*—Specifies the Configured Process Units in percent

**CNTLLOCK**

**Type:** E:ACCLVL  
**Lock:** Engr  
**Default:** OPERATOR  
**PtRes:** HPM  

*Control Lock*—Attempts to write values in the following parameters are subject to the access-lock value contained in CNTLLOCK. The check is bypassed for the exceptions.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCMOD</td>
<td>New value = START</td>
</tr>
<tr>
<td>SEQEXEC</td>
<td>None</td>
</tr>
<tr>
<td>SEQMODE</td>
<td>None</td>
</tr>
<tr>
<td>OVERPHAS</td>
<td>SEQEXEC = FAIL or ERROR</td>
</tr>
<tr>
<td>OVERSTEP</td>
<td>SEQEXEC = FAIL or ERROR</td>
</tr>
<tr>
<td>OVERSTAT</td>
<td>SEQEXEC = FAIL or ERROR</td>
</tr>
</tbody>
</table>

**Range:**
- 0-OPERATOR - Operator and higher keylock positions allow store access.
- 1-SUPERVIS - Supervisor and higher keylock positions allow store access.
- 2-ENGINEER - Engineer and higher keylock positions allow store access.
- 3-PROGRAM - Only the program has store access.
CODSTN(1)–CODSTN(4) (RegCtl)

**Type:** Universal

**Ent.Prm:** Control Output Connection Destination—Defines up to four different

**Lock:** PtBld

**Default:** null

**PtRes:** HPM

**Range:** Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters, and the permissible character set is as follows:

- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.

Parameter name can be up to eight characters and must be a legitimate parameter name.

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where

- MT is the IOP type, such as AO (analog output)
- mm is the IOP Card number (1-40)
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)

Parameter name can be up to eight characters and must be a legitimate parameter name.

---

**COMCFAVG (HPM Box)**

**Type:** Real

**Lock:** View

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**COMCFMAX (HPM Box)**

**Type:** Real

**Lock:** View

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**COMCFMIN (HPM Box)**

**Type:** Real

**Lock:** View

**Default:** NaN

**PtRes:** HPM

**Range:** 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.
COMDAUGH

Type: Logical
Lock: View
Default: HPM
Range: Off (No daughter card present)
       On (Daughter card present)

COMDAY

Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: 1 - 31

COMFWREV

Type: String_2
Lock: View
Default: Hexadecimal characters 00 - FF
PtRes: HPM
Range: HPMM Communications Firmware Revision.

COMDGAVG (HPM Box)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: Average Diagnostic cycle time (in minutes) in the Comm CPU—

COMDGMAX (HPM Box)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: Maximum Diagnostic cycle time (in minutes) in the Comm CPU—
COMHOUR (HPM BOX)

Type: Integer
Lock: View
Default: 0
PtRes: HPM

COMHOUR (HPM BOX)

COMHWREV

Type: String_2
Lock: View
Default:
PtRes: HPM
Range: Hexadecimal characters 00 - FF

COMLUAVG (1) - (2) (HPM Box)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: 0 - 100

COMLUMAX (1) - (2) (HPM Box)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: 0 - 100

COMMAND (DigIn)

Type: E:COMMAND
Lock: Oper
Default: None
PtRes: HPM
Range: 0=None (No effect on accumulator)
1=Start (Start the accumulator)
2=Stop (Stop the accumulator)
3=Reset (Reset the accumulation to zero)

Helpful Hint: COMMAND applies only when DITYPE = Accum.
COMMAND (STI)

Type: E:COMMAND  Command—Allows the user to do database transfers between the STI point and the smart transmitter, and to calibrate the transmitter.

Lock: Oper  Default: None  PtRes: HPM

NOTE

During an up-load operation, previously unseen data is read from the transmitter database and stored in the STI database. If this data is not desired, the data can be restored by using the checkpoint restore or load IDF functions.

Range:

0: None (A command has not been issued by the STI point)
1: DnLoadDb (Loads the transmitter parameters from the STI point data base into the transmitter)
2: UpLoadDb (Loads the transmitter data base from the transmitter into the STI point)
3: Set LRV (Sets the Lower Range Value)
4: Set URV (Sets the Upper Range Value)
5: Cor LRV (Corrects the Lower Range Value)
6: Cor URV (Corrects the Upper Range Value)
7: Cor Inpt (Corrects the zero point for the PV value)
8: RstCor (Sets all input calibration parameters to their default values)

Helpful Hint: If PV or PV_SV has been entered for the DECONF parameter, the only command supported is DnLoadDB.
COMMAND (Timer)

- **Type:** E:COMMAND
- **Lock:** Oper
- **Default:** None
- **PtRes:** HPM
- **Range:**
  - 0: None (No effect on the timer)
  - 1: Start (Starts the timer)
  - 2: Stop (Stops the timer)
  - 3: Reset (Resets the timer to zero)
  - 4: RestStrt (Resets the timer, then starts the timer)

COMMAND (Totalizr)

- **Type:** E:COMMAND
- **Lock:** Oper
- **Default:** None
- **PtRes:** HPM
- **Range:**
  - 0: None (No effect on totalizer)
  - 1: Start (Starts the totalizer)
  - 2: Stop (Stops the totalizer)
  - 3: Reset (Resets the totalizer to RESETVAL)

COMMIN (HPM BOX)

- **Type:** Integer
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:**

COMMONTH

- **Type:** Integer
- **Lock:** View
- **Default:** N/A
- **PtRes:** HPM
- **Range:** 1 - 12

COMNAME

- **Type:** String_8
- **Lock:** View
- **Default:**
- **PtRes:** HPM
- **Range:**

**Timer Commands**—Allow the operator to control the operation of the timer data point.

**Totalizer Commands**—Allow the operator to control the operation of the totalizer.
### COMPHILM (FlowComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 1.25  
**PtRes:** HPM  
**Range:** COMPHILM to 10.0, NaN

**Helpful Hint:** Entering NaN disables high-limit checking by forcing its value to the extreme (10.0).

---

### COMPLOLM (FlowComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.8  
**PtRes:** HPM  
**Range:** 0.0 to COMPHILM, NaN

**Helpful Hint:** Entering NaN disables low-limit checking by forcing its value to the extreme (0.0).

---

### COMPTERM (FlowComp)

**Type:** Real  
**Lock:** View  
**Default:** 1.0  
**PtRes:** HPM  
**Range:** COMPLOLM to COMPHILM

**Helpful Hint:** This term differs in each of the five flow compensation equations, A through E. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

---

### COMRDRRV

**Type:** Integer  
**Lock:** View  
**Default:**  
**PtRes:** HPM  
**Range:**

---

### COMRDRVS

**Type:** Integer  
**Lock:** View  
**Default:**  
**PtRes:** HPM  
**Range:**
COMREV
Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

COMVERS
Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

COMYEAR
Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: 0 - 99

CONTCUT
Type: Logical
Lock: Prog
Default: Off
PtRes: HPM
Range: Off (Alarms are not cut out)
On (Alarms are cut out)

Contact Cut Out — Defines whether alarms detected at this data point are to be cut out to prevent this data point's alarms from being reported to the operator. The alarms continue to be reported to the AM or CM through the EIPPCODE parameter.

CONTCUT can be used to cutout alarms on a point when the alarms are generated because of specific conditions at other points which themselves have alarms. As an example, the user could configure a logic point so that the logic point would monitor the nuisance alarm conditions and then store the contact cutout state of this point using an output connection. It can also be stored by the sequence program in the HPM or the AM which could monitor the process conditions to determine when the alarms have to be suppressed.

Helpful Hint: Cutout alarms behave the same as inhibited alarms; that is, when a point's contact cutout state is true—
- alarms are not distributed to the US or HM
- return to normal events are not distributed to the US or HM
- EIP events triggered by the alarm condition are not distributed

For HPM Box Flag points, CUTOUT applies to only slots 1–128.
### COUNTDWN (DigIn)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th><strong>Accumulator Count Down Flag</strong>—Determines whether the accumulator is to count down or count up.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Eng/PB</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (Accumulator is to count up) On (Accumulator is to count down)</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** COUNTDWN configuration requires DITYPE = Accum.

### CPMSGSEC (NIM PSDP)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th><strong>Number of Checkpoint Messages</strong>—Specifies the Number of Checkpoint Messages per second.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### CPTIMAVG (NIM PSDP)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th><strong>Average Time to Complete a Checkpoint Request</strong>—Specifies the Average Time (in msec.) to Complete a Checkpoint Request.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### CPTIMMAX (NIM PSDP)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th><strong>Maximum Time to Complete a Checkpoint Request</strong>—Specifies the Maximum Time (in msec.) to Complete a Checkpoint Request.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
**CRIOLORN (1) - (4) (HPM Box)**

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM

Current Hour IOL Fetch/Store Overrun Counter—A counter that accumulates and shows the number of I/O Link fetch/store time outs that have occurred during the current hour.

In arrays 1 through 4, the counter is indexed by the cycle.
In array 0, the counter is totaled for all cycles.

**Range:** $\geq 0$

**CRPPXORN (0 - 8) (HPM Box)**

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM

Current Period Point Processing Overruns Per Cycle—A counter that accumulates and shows the number of HPMM point processing overruns that have occurred during the current hour.

In arrays 1 through 8, the counter is indexed by the cycle.
In array 0, the counter is totaled for all cycles.

**Range:** $\geq 0$

**CRUCNORN (HPM Box)**

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM

Current-Hour UCN Access Overruns—Indicates the number of UCN access overruns that have occurred in the current hour. Refer to the HPM Control Functions and Algorithms manual for a detailed description of overrun handling.

**Range:** $\geq 0$
CTFLTIME (HPM Box)

Type: Time
Lock: View
Default: N/A
PtRes: HPM

Helpful Hint: If a value of 0 is returned for the time from the UCN, a parameter status of Parameter Invalid is returned on the LCN.

Range: N/A

CTIDTXT (HPM BOX)

Type: String_16
Lock: View
Default: Blank
PtRes: HPM
Range: N/A

CTLACTN

Type: E:POLARITY
Lock: Eng/PB
Default: Reverse
PtRes: HPM
Range: 0-Direct (As PV increases, output increases)
1-Reverse (As PV increases, output decreases)

CTLALGID (RegCtl)

Type: E:$PMMCTAL
Lock: PtBld
Default: Null
PtRes: HPM
Range: 0-Null (No algorithm selected)
1-Pid (Proportional, Integral, Derivative)
2-PidFf (PID with Feedforward)
3-PidErfb (PID with External Reset Feedback)
7-RatioCtl (Ratio Control)
8-RampSoak (Ramp Soak)
9-AutoMan (Auto Manual Station)
10-IncrSum (Incremental Summer)
11-Switch (Switch)
12-ORSel (Override Selector)
13-PosProp (Position Proportional)
14-PIDPosProp (PID with Position Proportional output)
**CTLCFAVG (HPM Box)**

*Type:* Real

_Average HPM Control Processor CPU Free Percentage_—The average percent of time the HPM Control Processor is not busy.

*Lock:* View

*Default:* NaN

*PtRes:* HPM

*Range:* 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**CTLCFMAX (HPM Box)**

*Type:* Real

_Maximum HPM Control Processor CPU Free Percentage_—The maximum percent of time the HPM Control Processor is not busy.

*Lock:* View

*Default:* NaN

*PtRes:* HPM

*Range:* 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**CTLCFMIN (HPM Box)**

*Type:* Real

_Minimum HPM Control Processor CPU Free Percentage_—The minimum percent of time the HPM Control Processor is not busy.

*Lock:* View

*Default:* NaN

*PtRes:* HPM

*Range:* 0 - 100

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**CTLDAY**

*Type:* Integer

_Creation Day of HPMM Control Personality_

*Lock:* View

*Default:* N/A

*PtRes:* HPM

*Range:* 1 - 31

**CTLDGA AVG (1) - (2) (HPM Box)**

*Type:* Real

_Average Diagnostic cycle time (in minutes) in the Control CPU—_

*Lock:* View

*Default:* 0.0

*PtRes:* HPM

*Range:* N/A
CTLDGMAX (1) - (2) (HPM Box)
Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: N/A

CTLEQN (AutoMan)
Type: E:ALGOEQN
Lock: Eng/PB
Default: EqA
PtRes: HPM
Range: 0-EqA (CV = X1 + B +BI)
1-EqB (CV = X1 + (K*X2) + BI)

CTLEQN (ORSel)
Type: E:ALGOEQN
Lock: PtBld
Default: EqA
PtRes: HPM
Range: 0-EqA (Selects the highest input)
1-EqB (Selects the lowest input)

CTLEQN (Pid)
Type: E:ALGOEQN
Lock: PtBld
Default: EqA
PtRes: HPM
Range: 0-EqA (P, I, and D act on Error)
1-EqB (P and I act on Error, D acts on PV)
2-EqC (I acts on Error, P and D act on PV)
3-EqD (Integral-only control)

CTLEQN (Switch)
Type: E:ALGOEQN
Lock: Eng/PB
Default: EqA
PtRes: HPM
Range: 0-EqA (Operator controls switch position)
1-EqB (Program or logic point controls switch position)
**CTLHOUR (HPM Box)**

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

**CTLMIN (HPM Box)**

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

**CTLMONTH**

Type: Integer  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: 1 - 12

**CTLNAME**

Type: String_8  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: N/A

**CTLOPT (HPM Box)**

Type: Logical  
Lock: PtBld  
Default: On  
PtRes: HPM  
Range: On (All point types can be configured)  
Off (DigComp, Logic, RegCtl, or RegPV points cannot be configured; only I/O points can be configured. This usually means that the control processor hardware is missing from the HPM).
### CTLREDUN

**Type:** Logical  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** Off, On  

**Description:** HPMM Control Redundancy Present Flag

### CTLREV

**Type:** Integer  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** N/A  

**Description:** HPMM Control Personality Revision

### CTLVERS

**Type:** Integer  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** N/A  

**Description:** HPMM Control Personality Version

### CTLYEAR

**Type:** Integer  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** 0 - 99  

**Description:** Creation Year of HPMM Control Personality

### CTRLINIT (RegCtl)

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off, On  

**Description:** Control Initialization Request Flag—A user-written program or a logic slot can cause a data point to initialize by setting the point's control initialization-request flag to On.
CURCOMFL

Type: E:SPMMHFST  Current HPMM Communications Board Failure
Lock: View
Default: HPM
PtRes: Null (Unknown Error)
Pwrdwn (Power Down)
Lr_Par (Parity Error)
Lr_Lram (Local Ram Error)
Lr_Ck (Local Ram Check)
Lr_Exec (Local Ram Exception)
Lr_Hrev (Local Ram Hardware Revision)
Mm_Hrev (Memory Board Hardware Revision)
Lr_Tmr (Local Ram Timer Error)
Lr_Ptn (Local Ram Pattern Check Error)
Lr_Byte (Local Ram Byte Error)
Lr_Add (Local Ram Address Decode Test)
Lr_Addl (Local Ram Additional Check)
Lr_Clrr (Local Ram Scrub Incomplete)
Sr_Par (Shared Ram Parity)
Sr_Ptn (Shared Ram Pattern Check Error)
Sr_Add (Shared Ram Address Decode Test)
Sr_Addl (Shared Ram Additional Checks)
Gr_Par (Global Ram Parity)
Gr_Ptn (Global Ram Pattern Check Error)
Gr_Byte (Global Ram Byte Error)
Gr_Add (Global Ram Address Decode Test)
Gr_Addl (Global Ram Additional Checks)
Gr_Clrr (Global Ram Scrub Incomplete)
31_Nr (IOL Processor, No Response or Failure)
31_Aliv (IOL Processor, Transmitter Not Alive)
31_Iltn (IOL Processor, Illegal Transition)
Nmi_Unk (Unknown NMI Request)
Baducnn (UCN Address Parity or Duplicate Address)
Nr (No Response From Other Processor)
Mrfi (Memory Reference Table (Pattern Build Fail)
Nomtos (No MTOS Readout)
Llc_Comm (LLC Communication Fatal Error)
Ucdrv (UCN Driver, Fatal Error)
Rd_Hrev (Redundancy Card Version/Revision Mismatch)
Sw_Error (Software Error)
Md_Hrev (Modem Card Version/Revision Mismatch)
Da_Ptn (Daughter Card Pattern Test)
Da_Byte (Daughter Card Byte Write Test)
Da_Add (Daughter Card Address Decode)
Da_Addl (Daughter Card Additional Test)
Da_Clrr (Daughter Card Scrub Incomplete)
Rd_Snps (Redundancy Card 96 Kw Snapshot Error)
Rd_Bslk (Redundancy Card Bus Lock Fail)
CURCTRLFL

Type: E:$PMMHFST  Current HPMM Control Failure
Lock: View
Default: HPM
PtRes: Null (Unknown Error)
Pwrdwn (Power Down)
Lr_Par (Parity Error)
Lr_Lram (Local Ram Error)
Lr_Ck (Local Ram Check)
Lr_Exc (Local Ram Exception)
Lr_Hrev (Local Ram Hardware Revision)
Mm_Hrev (Memory Board Hardware Revision)
Lr_Tmr (Local Ram Timer Error)
Lr_Ptn (Local Ram Pattern Check Error)
Lr_Btye (Local Ram Byte Error)
Lr_Add (Local Ram Address Decode Test)
Lr_Addl (Local Ram Additional Checks)
Lr_Clrr (Local Ram Scrub Incomplete)
Sr_Par (Shared Ram Parity)
Sr_Ptn (Shared Ram Pattern Check Error)
Sr_Add (Shared Ram Address Decode Test)
Sr_Addl (Shared Ram Additional Checks)
Gr_Par (Global Ram Parity)
Gr_Ptn (Global Ram Pattern Check Error)
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Mrlf (Memory Reference Table - Pattern Build Fail)
Nomtos (No MTOS Readout)
Llc_Comm (LLC Communication Fatal Error)
Ucdrv (UCN Driver, Fatal Error)
Rd_Hrev (Redundancy Card Version/Revision Mismatch)
Sw_Err (Software Error)
Mdl_Hrev (Modem Card Version/Revision Mismatch)
Da_Ptn (Daughter Card Pattern Test)
Da_Btye (Daughter Card Byte Write Test)
Da_Add (Daughter Card Address Decode)
Da_Addl (Daughter Card Additional Tests)
Da_Clrr (Daughter Card Scrub Incomplete)
Rd_Snps (Redundancy Card 96 Kw Snapshot Error)
Rd_Bslk (Redundancy Card Bus Lock Fail)
**CURIOLFL**

*Type:* E:\IOMHF  
*Current HPMM IOL Interface Failure*

*Lock:* View

*Default:* HPM

*Range:*
- **Unknown** - (Unknown Error)
- **Powerdwn** - (Power Is Off)
- **Invprgex** (Invalid Program Execution)
- **Epromerr** (EPROM Error)
- **Ramcnter** (Ram Contents Error)
- **Ramadrer** (Ram Address Error)
- **Dpaerror** (Device Physical Address Error)
- **Dsaerror** (Device Soft Address Error)
- **Rxbufosf** (Receive Buffer Overflow Error)
- **Ioljaber** (IOL Jabber Error; Module saw or talked too much on link)
- **Badpgjmp** (Bad Program Jump)
- **Adcincmp** (A/D Incompatible)
- **Adoutovf** (A/D Overflow)
- **Adoutudf** (A/D Underflow)
- **Adccaler** (A/D Calibration Error)
- **Baddcltc** (Bad DC LTC)
- **Dmt_tmot** (Deadman Time Out)
- **Mloumlf** (Multiple Output Failure)
- **Datbusfl** (Data Bus Failure)
- **Baddarng** (Bad A/D Range)
- **Mstrtmot** (Master Timeout)
- **Ctrakfl** (Counter Circuit Failure)

**CURPINAM (n)**

*Type:* String_8  
*Current PI Filename—Defines the personality Image filename that currently resides in this IOP where n is the IOP number 1 - 40.*

*Lock:* View

*Default:* N/A

*PtRes:* IOP

*Range:* N/A
### CURSEGID (RampSoak)

**Type:** E:CURSEGID  
**Lock:** Oper  
**Default:** Ramp1  
**PtRes:** HPM  
**Range:**  
- 0-Ramp1  
- 1-Soak1  
- 2-Ramp2  
- 3-Soak2  
- ...  
- 20-Ramp11  
- 21-Soak11  
- 22-Ramp12  
- 23-Soak12  

**Current Segment ID**—Defines the current ramp or soak segment.

### CUTOFFLM (Totalizr)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:**  
- $\geq 0.0,$  
- NaN (Cutoff limit is not applicable)

**Zero-Flow Cutoff Limit**—Allows the user to specify a cutoff limit such that when the value of input parameter P1 falls below the limit specified, its value is replaced by 0.0.

### CUTOFFLM (VdtLdLag)

**Type:** Real  
**Lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:**  
- $\geq 0.0,$  
- NaN (Bypasses the limit check)

**Zero-Flow/Belt-Speed Cutoff Limit**—Allows the user to specify a cutoff limit for equations C and D.

### CV

**Type:** Real  
**Lock:** Prog  
**Default:** NaN  
**PtRes:** HPM  
**Range:** N/A

**Calculated Variable**—The result (calculated value) of the calculation of the control algorithm. The value can be in percent or in engineering units depending on the control algorithm.
CVEUHI

Type: Real
Lock: Engr
Default: 100.0 (GPM, PPH, etc.)
PtRes: HPM
Range: ≥ CVEULO

Calculated Value's High Limit in Engineering Units

Helpful Hint: CV ranges track X-input ranges if CTLALGID = AutoMan, ORSel, IncrSum, or Switch. For CTLALGID = PidErfb and RampSoak, CV ranges are configurable. For CTLALGID = Pid, Pidff, and RatioCtl, if NOCOPTS = 0, then the CV ranges are configurable, otherwise, the CV ranges track the ranges of the secondary output connection.

CVEULO

Type: Real
Lock: Engr
Default: 0.0 (GPM, PPH, etc.)
PtRes: HPM
Range: ≤ CVEUHI

Calculated Value's Low Limit in Engineering Units

Helpful Hint: Same as above for CVEUHI.

CYCLEOPT (RampSoak)

Type: E:$CYCLOPT
Lock: Oper
Default: Cyclic
PtRes: HPM
Range: 0-Single (Stop after completing one complete cycle)
1-Cyclic (Repeat complete cycles over and over)

Ramp/Soak Cycle Option—Defines whether the ramp/soak cycle stops after a single cycle, or is continuous. For detailed information, refer to the HPM Control Functions and Algorithms manual.

Helpful Hint: If Cyclic is entered, repeats complete ramp/soak cycles after Mode is changed from Man to Auto. If Single is entered, performs one ramp/soak cycle and then stops.
CYCLETIM

Type: Real
Lock: Supr
Default: 10.0 seconds
PtRes: HPM

Range: 0.25 to 1000.0 seconds

PosProp Output Cycle Time in Seconds—Determines the rate at which raise or lower output pulses are going to be generated. PV - SP determines the width of the output pulse.

CYCOVRO (FBus)

Type: Real
Lock: View
Default: 0
PtRes: IOP

Range: N/A
D (Summer, VdtLdLag)

Type: Real
Lock: Supr
Default: 0.0
PtRes: HPM
Range: N/A

Overall Bias—Defines the overall bias used in calculating PVCALC.

D1 (VdtLdLag)

Type: Real
Lock: Supr
Default: 0.0 minutes
PtRes: HPM
Range: 0.0 to 400.0 minutes

Fixed Deadtime in Minutes—Bias value for the variable time delay.

D1, D2 (DigComp, DevCtl)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (No input present)
On (Input is present)

Digital Input 1 Status and Digital Input 2 Status—Separately indicates whether input 1 and input 2 are on or off.

D1_0 (DigComp, DevCtl)

Type: E:$PVSTATS
Lock: View
Default: PVState0
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) describes D1 = 0)
1-PVState1 (STATETXT(1) describes D1 = 0)

Helpful Hint: Applies only if NODINPTS = 1. D1_0 is always the opposite state of D1_1.

D1_1 (DigComp, DevCtl)

Type: E:$PVSTATS
Lock: Eng/PB
Default: PVState1
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) describes D1 = 1)
1-PVState1 (STATETXT(1) describes D1 = 1)

Helpful Hint: D1_1, Digital Input 1 Equal To A PV State Of 1, applies only if NODINPTS = 1. D1_1 is always the opposite state of D1_0 and vice versa.
D2 (VdtLdLag)

Type: Real
Lock: Supr
Default: 0.0
PtRes: HPM
Range: ≥ 0.0

D2D1_00 (DigComp, DevCtl)

Type: E:$PVSTATS
Lock: Eng/PB
Default: MovPV
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) descriptor)
       1-PVState1 (STATETXT(1) descriptor)
       2-BadPV (BADPVTXT descriptor)
       3-MovPV (MOVPVTXT descriptor)
       4-PVState2 (STATETXT(2) descriptor)

Helpful Hint: D2D1_00 configuration requires NODINPTS = 2. Option PVState2 cannot be selected unless NOSTATES = 3. STATETXT(0–2) is configured for each DigComp or DevCtl point; BADPVTXT and MOVPVTXT are configured during Box Data Point configuration for all DigComp or DevCtl points in this box.

D2D1_01 (DigComp, DevCtl)

Type: E:$PVSTATS
Lock: Eng/PB
Default: PVState1
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) descriptor)
       1-PVState1 (STATETXT(1) descriptor)
       2-BadPV (BADPVTXT descriptor)
       3-MovPV (MOVPVTXT descriptor)
       4-PVState2 (STATETXT(2) descriptor)

Helpful Hint: D2D1_01 configuration requires NODINPTS = 2. Option PVState2 cannot be specified unless NOSTATES = 3. STATETXT(0–2) is configured for each DigComp or DevCtl tag name; BADPVTXT and MOVPVTXT are configured during Box Data Point configuration for all DigComp or DevCtl points in the box.
D2D1_10 (DigComp, DevCtl)

Type: E:$PVSTATS  D2D1 One_Zero PV State—Defines the PV state descriptor that is to be used and displayed when input D2 is On and input D1 is Off (10).
Lock: Eng/PB
Default: PVState0
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) descriptor)
1-PVState1 (STATETXT(1) descriptor)
2-BadPV (BADPVTXT descriptor)
3-MovPV (MOVPVTXT descriptor)
4-PVState2 (STATETXT(2) descriptor)

Helpful Hint: D2D1_10 configuration requires NODINPTS = 2. Option PVState2 cannot be specified unless NOSTATES = 3. STATETXT(0–2) is configured for each DigComp or DevCtl point; BADPVTXT and MOVPVTXT are configured during Box Data Point configuration for all DigComp or DevCtl points in the box.

D2D1_11 (DigComp, DevCtl)

Type: E:$PVSTATS  D2D1 One_One PV State—Defines the PV state descriptor that is to be used and displayed when inputs D2 and D1 are both On (11).
Lock: Eng/PB
Default: BadPV
PtRes: HPM
Range: 0-PVState0 (STATETXT(0) descriptor)
1-PVState1 (STATETXT(1) descriptor)
2-BadPV (BADPVTXT descriptor)
3-MovPV (MOVPVTXT descriptor)
4-PVState2 (STATETXT(2) descriptor)

Helpful Hint: D2D1_11 configuration requires NODINPTS = 2. Option PVState2 cannot be specified unless NOSTATES = 3. STATETXT(0–2) is configured for each DigComp or DevCtl point; BADPVTXT and MOVPVTXT are configured during Box Data Point configuration for all DigComp or DevCtl points in the box.
DAMPING (STI)

**Type:** Real

**Lock:** Supr/View

**Default:** 0.0

**PtRes:** HPM

**Damping**—Defines the first-order PV filtering option for the smart transmitter. User can also implement PV filtering by using this parameter or the TF parameter; however, DAMPING is the preferred parameter. If DAMPING has been configured at the transmitter using the Universal Station, the STI IOP adjusts the entered value to one of the values in the range shown below for the appropriate transmitter type. For Multivariable transmitters with SNSRTYP = SFM the IOP will not adjust the damping value.

Any real number in the range of damping specified by the transmitter user manual can be used. It can be changed only when the STI point execution state PTEXECST is Inactive.

**Range:**

<table>
<thead>
<tr>
<th>Transmitter Type</th>
<th>$pt$</th>
<th>$stt$</th>
<th>$sfm$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spt</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stt</td>
<td>0.16</td>
<td>0.30</td>
<td>0.5</td>
</tr>
<tr>
<td>Sfm</td>
<td>0.32</td>
<td>0.70</td>
<td>1.0</td>
</tr>
<tr>
<td>0.48</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>3.10</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>6.3</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>12.7</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>8.00</td>
<td>25.5</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>16.0</td>
<td>51.1</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>32.0</td>
<td>102.3</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>NaN</td>
<td>NaN</td>
<td>NaN</td>
<td>NaN</td>
</tr>
</tbody>
</table>

DATE (HPM Box)

**Type:** Time

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** N/A

DAY (HPM Box)

**Type:** Integer

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** 1 to 31

DB_VALID(1)–(40) (HPM Box)

**Type:** E:$DBVALID

**Lock:** Engr

**Default:** Invalid

**PtRes:** HPM

**Range:**

- **Valid** (Database is valid)
- **Invalid** (Database is not valid)
DEADBAND(1)–(24) (Logic)

**Type:** Real  
**Lock:** Supr  
**Default:** 1.0  
**PtRes:** HPM  
**Range:** $\geq 0.0$

**Deadband Value**—Defines the value of the deadband for the specified logic block within the logic slot.

**Helpful Hint:** DEADBAND requires LOGALGID = EQ, NE, GT, GE, LT, or LE.

DEADBAND (PosProp, PIDPosPr)

**Type:** Real  
**Lock:** Supr  
**Default:** 5.0 %  
**PtRes:** HPM  
**Range:** 0.0 to 100.0 %

**Deadband in Percent of Full Scale**—Defines the error deadband.

DEADTIME (PosProp, PIDPosPr)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0.0 to 60.0 seconds

**Deadtime (in seconds)**—Additional pulse time required to overcome the friction in the motor when it begins to move or change direction. It is added to the calculated pulse time except when the pulse that was issued in the last cycle time was in the same direction (as the pulse this time), and the pulse width was equal to CYCLETIM.

DEBOUNCE (DigIn)

**Type:** Integer  
**Lock:** Engr/PB  
**Default:** 10 milliseconds  
**PtRes:** HPM  
**Range:** 0 to 50 milliseconds

**Contact Debounce Time in Milliseconds**—The length of time an input must remain in a new state for it to be declared as a valid event by the DISOE IOP. Refer to the Absolute Delay Across parameter located in the Digital Input Processor table of the HPM Specification and Technical Data.
**DECONF (STI)**

**Type:** E:$DECONF

**Lock:** Eng/View

**Default:** Pv_Sv_Db

**PtRes:** HPM

Digitally Enhanced Configuration Mode—Defines the contents of the data that will be sent by the smart transmitter to the STI point. The use of Pv_Db and Pv_Sv_Db is recommended because they offer database mismatch detection and on-process mismatch recovery.

This parameter can be changed only when the STI point execution state PTEXECST is Inactive.

**Range:**
- 0-Analog (Not Supported)
- 1-Pv (Transmits only the PV; 4-byte format)
- 2-Pv_Sv (Transmits the PV and the secondary variable (SV); 4-byte format)
- 3-PV_Db (Transmits the PV and the transmitter database; 6-byte format)
- 4-Pv_Sv_Db (Transmits the PV, SV, and the transmitter database; 6-byte format)

**Helpful Hint:** For the PV_Db and Pv_Sv_Db selections, one byte of the transmitter database is transmitted each time the PV is transmitted to the STI IOP.

---

**DELCV (IncrSum)**

**Type:** Real

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** N/A

Delta CV in Engineering Units—Indicates the calculated change in the CV output value in engineering units.

---

**DELCV (Pid)**

**Type:** Real

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** N/A

Delta CV in Percent—Indicates the calculated change in the CV output value in percent.
DEV (RegCtl)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

Deviation—Indicates the deviation (PV - SP) in engineering units.

DEVADDR (Array)

Type: Real
Lock: PtBld
Default: NaN
PtRes: HPM
Range: N/A

Serial Link Device Address—Indicates the serial link address of the device containing data.

DEVHIFL (RegCtl)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (No DEVHI alarm)
        On (DEVHITP has been exceeded)

Deviation High Alarm Flag—Indicates whether the DEVHITP has been exceeded.

DEVHIPR (RegCtl)

Type: E:ALPRIOR
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
        Printer (Alarm is reported to the printer but not historized and not annunciated)
        Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
        High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
        Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
        Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
        NoAction (Alarm is not reported to the system and not annunciated)

Deviation High Alarm Priority—Defines the priority of the deviation high alarm.

DEVHITP (RegCtl)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: ≥ 0.0, NaN

Deviation High Alarm Trip Point—Defines the upper limit for the deviation.

Helpful Hint: Alarm occurs when the PV is higher than SP + DEVHITP.
DEVLOFL (RegCtl)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (DEVLOTP has not been exceeded)
      On (DEVLOTP has been exceeded)

Deviation Low Alarm Flag—Indicates whether the DEVLOTP has been exceeded.

DEVLOPR (RegCtl)

Type: E:ALPRIOR
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
       Printer (Alarm is reported to the printer but not historized and not annunciated)
       Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
       High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
       Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
       Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
       NoAction (Alarm is not reported to the system and not annunciated)

Deviation Low Alarm Priority—Defines the priority of the deviation low alarm.

DEVLOTP (RegCtl)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: ≥ 0.0, NaN

Helpful Hint: Alarm occurs when the PV is lower than SP - DEVLOTP.
DHTIMMAX(1) - (5) (NIM PSDP)

**Type:** Real

**Maximum Time to Complete a Data Handler Request**—Specifies the maximum time to complete a Data Handler request in msec.

**Type:** Real

**Lock:** View

**Default:** 0

**PtRes:** NIM

**Range:** N/A

**DIAGCMD (ProcMod)**

**Type:** E: DIAGCMD

**Diagnostic Command**—

**Type:** Logical

**Lock:** Oper

**Default:** N/A

**PtRes:** HPM

**Range:**

*Helpful Hint:* DIAGCMD resets the ProcMod overrun statistics and AVGPU and MAXPU values.

**DISP_SIM (HPM Box)**

**Type:** Logical

**Simulation Indicator Display Switch**—see also SIM_TXT

**Type:** Logical

**Lock:** Prog

**Default:** On

**PtRes:** HPM

**Range:**

*Helpful Hint:* DISP_SIM (HPM Box) allows the simulation indicator to be displayed or hidden.

**Range:**

*Helpful Hint:* DISP_SIM (HPM Box) allows the simulation indicator to be displayed or hidden.
DISRC(1)–(2) (DigComp, DevCtl)

**Type:** Universal

**Ent.Prm:** Digital Composite and Device Control Input-Connection Source—Specify the sources whose values are to be fetched and delivered to Digital Composite data point inputs D1 and D2. The source can be specified using the "Tagname.Parameter" format or the hardware reference address format. Refer to the HPM Control Functions and Algorithms manual for a detailed description.

**Lock:** PtBld

**Default:** null.null

**PtRes:** HPM

**Range:** Use Tagname.Parameter format for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:

- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters, and must be a legitimate parameter name.

Some possible input-connection sources are:

- a."DigIn slot Tagname.PVFL"
- b."DigOut slot Tagname.SO"
- c."Logic slot Tagname.SO(nn)" where nn = 1–24
- d."Logic slot Tagname.Fl(nn)" where nn = 1–12
- e."ProcMod slot Tagname.Fl(nn)" where nn = 1–127
- f."Box Flag slot Tagname.PVFL"
- g."!Box.Fl(nnnn)" for a box flag that resides in the same box; nnnn = 1–16,384
- h."$NMhhBxx.Fl(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where

- MT is the IOP type, such as DI (Digital Input)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)
- Parameter name can be up to eight characters and must be a legitimate parameter name.

**DITYPE**

**Type:** E:$DITYPE

**Lock:** PtBld

**Default:** Status

**PtRes:** HPM

**Range:**

- 0-Status (Point is to be used for alarming and event reporting)
- 1-Latched (Point is to be used for event reporting)
- 2-Accum (Point is to be used for accumulating pulses)
**DLYTIME (DigIn)**

*Type:* Integer  
*Lock:* Supr  
*Default:* 5 seconds  
*PtRes:* HPM  

**Delay Time**—For an off-normal alarm, defines the time (in seconds) that a point with a previously detected alarm condition is guaranteed to remain in alarm, even if the condition clears. If an alarm condition exists when the delay timer expires, the point is held in alarm.

For a change of state (COS) alarm, if the PV is in the same state when the delay timer expires, future state changes are immediately alarmed. If the PV is in the opposite state, a second COS alarm is produced and the delay timer is restarted.

**Range:** 0 to 60 seconds

**DLYTIME(1)–(24) (Logic)**

*Type:* Real  
*Lock:* Supr  
*Default:* 1 second  
*PtRes:* HPM  

**Alarm Delay in Seconds for Logic Block**

**Range:** 1–8000 seconds

| Helpful Hint: | DLYTIME requires LOGALGID = Pulse, MinPulse, MaxPulse, OnDelay, OffDelay, or Watchdog. |
DODSTN(1)–(3) (DigComp, DevCtl)

**Type:** Universal

**Ent.Prm**

Digital Composite and Device Control Output-Connection Destination—Specifies up to three output connection destinations that are to receive the OP output from this point. The destination can be specified using the "Tagname.Parameter" format or the hardware reference address format. Refer to the HPM Control Functions and Algorithms manual for a detailed description.

**Lock:** PtBld

**Default:** null.null

"Tagname.Parameter" format or the hardware reference address format. Refer to the HPM Control Functions and Algorithms manual for a detailed description.

**PtRes:** HPM

**Range:** Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:

- Alphabetics A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters, and must be a legitimate parameter name.

Some possible output-connection destinations are:

- a."DigOut slot tagname.ONPULSE or OFFPULSE"
- b."DigOut slot Tagname.SO"
- c."Logic slot Tagname.Fl(nn)" where nn = 7–12
- d."ProcMod Tagname.Fl(nn)" where nn = 1–127
- e."Flag slot Tagname.PVFL"
- f."Box.Fl(nn)" for a box flag that resides in the same HPM box; nnnn = 1–16,384.
- g."$NMhhBxx.Fl(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095.

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where

- MT is the IOP type, such as DO (Digital Output)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant.
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)
- Parameter name can be up to eight characters and must be a legitimate parameter name.

**DOTYPE (DigOut)**

**Type:** E:$DOTYPE

**Lock:** PtBld

**Default:** Status

**PtRes:** HPM

**Range:**

- 0-Status (Status output type)
- 1-Pwm (Pulse Width Modulated output type)

**DSA**

**Type:** Integer

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:**

- 1 - 40 for primary IOPs
- 129 - 168 for secondary IOPs
**EIPPCODE**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ent_Id</th>
<th>Event-Initiated Processing Point Identifier—Defines the tag name of the point in the AM or CM that is to be notified when an event is detected by this point.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Engr</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Tag name of the data point can be up to 16 characters and the permissible character set is as follows: Alphabets A-Z (uppercase only) Numerics 0-9 (an all numeric tag name is not allowed) Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed. Embedded space characters are not allowed.</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** EIPPCODE configuration requires PNTTYPE = DigIn, DigComp, Logic, Flag or DevCtl and EVTOPT = Eip or Eip_Soe. For HPM Box Flag points, this parameter applies only to slots 1 through 128.

**EQUOBJNM**

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
<th>Equipment List Object Name—Specifies the Equipment List Object Name (CL object header)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Blank</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
## ERRCODE (Array)

<table>
<thead>
<tr>
<th>Type</th>
<th>String_8</th>
<th><strong>Serial Interface/Serial Link Communication Error Code</strong>—When the BADPVFL parameter = ON, this parameter provides additional information if initialized by the serial interface FTA driver program.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Spaces</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
</tbody>
</table>

### SI Array Point Error Code Values

#### HPM

**HPM Idle**—When the HPMM status is IDLE, Array point configuration may or may not be loaded to the SI IOP.

**Iop Comm**—When the HPMM status is RUN, Array point configuration is NOT loaded to the SI IOP.

#### SI IOP

**No_FTA**—Appears when the power adapter panel is not connected to the IOP.

**FTA_Comm**—Appears when the corresponding FTA is not connected to the power adapter panel, or when communication between the IOP and FTA has failed.

**CFG_Load**—Appears when configuration data is downloaded to the FTA.

**Mod_Idle**—Appears when configuration data is downloaded to the FTA and the IOP is in IDLE mode, or when the IOP operating state is switched from RUN to IDLE.

#### SI IOP FTA Common

- **Dev Addr**—The device address has a configuration error
- **Data Type**—The data type has a configuration error
- **StartIdx**—The start index has a configuration error
- **# Elemnt**—A number of elements configuration error has occurred
- **Config**—An application-specific configuration error has occurred
- **Inv Resp**—An invalid field device response has occurred
- **Parity, Checksum, MsgTmout, ChrTmout**—A field device communication error has occurred
- **Ex or xx**—An exception or other field device error has occurred. The “xx” error code is specific to the field device
- **Fac Test**—A factory test is in progress
- **OK**—No errors exist

### Range

N/A
ESWAUTO (RegCtl)

Type: Logical
Lock: Prog
Default: Off
PtRes: HPM
Range: Off

External Switching Flag for Automatic Mode—When On, means that this point's operating mode has been switched from some mode other than automatic to the automatic mode by an external source.

ESWCAS (RegCtl)

Type: Logical
Lock: Prog
Default: Off
PtRes: HPM
Range: Off

External Switching Flag for Cascade Mode—When On, means that this point's operating mode has been switched from some mode other than cascade to cascade mode, by an external source.

ESWENBST (RegCtl)

Type: E:ENBLSTAT
Lock: Oper
Default: Disable
PtRes: HPM
Range: 0-Disable (Does not allow external switching of point's mode)
       1-Enable (Allows external switching of point's mode)

Helpful Hint: ESWENBST cannot be changed if parameter SHUTDOWN is On or if parameter REDTAG is On.

ESWMAN (RegCtl)

Type: Logical
Lock: Prog
Default: Off
PtRes: HPM
Range: Off

External Switching Flag for Manual Mode—When On, means that this point's operating mode has been switched from some mode other than the manual mode to the manual mode by an external source.
EUDESC

Type: String_8
Lock: PtBld
Default: Blank
PtRes: NIM

**Engineering Units Descriptor**—An eight-character descriptor that defines the name of the engineering units (EU) that are displayed on the Group and Detail Displays for this point as shown in Figure N-1 (see NAME). In this figure, LBS/SEC is the engineering unit descriptor.

Range: Permissible character set consists of all characters on the Engineer’s Keyboard. Basically this set consists of alphabets A-Z, numerics 0-9, and the following special characters: space ! % & ’ ( ) * + - / : ; > < = ? _ , . $

EUNDESC (1)–(168)

Type: String_72
Lock: View
Default: Blanks
PtRes: HPM

**IOP Generic Descriptor**—Used as additional display text to help the operator diagnose potential problems with the IOP. It is primarily used with diagnostic displays.

Range: nn = 1-40 specifies one of the 40 acting primaries.
       nn = 129-168 specifies one of the 40 acting secondaries.

EVRCINPG

Type: Logical
Lock: View
Default: 
PtRes: HPM
Range: Off
       On

**NIM Event Recovery in Progress Flag**

HPM Parameter Reference Dictionary E-4 8/97
**EVTOPT (DigComp)**

| Type:     | E:$EVTOPT | Event Reporting Option—If EVTOPT = Eip and the PV changes or a PV alarm is generated, the AM or CM data point named EIPPCODE is notified and a "process special" on that data point takes place.
| Lock:     | PtBld     | Default: None
| PtRes:    | HPM       | Range: 0-None (Event-Initiated Processing is not allowed)
|           |           | 1-Eip (Process special is triggered in AM/CM)

Helpful Hint: EVTOPT configuration requires NODINPTS > 0.

**EVTOPT (DevCtl, DigIn)**

| Type:     | E:$EVTOPT | Event Reporting Option—If EVTOPT = Eip and the PV changes, the AM or CM data point named EIPPCODE is notified and a "process special" on that data takes place. If EVTOPT = Soe and a PV change occurs, Sequence Of Events Processing is notified. If EVTOPT = EipSoe, the actions in both apply.
| Lock:     | PtBld     | Default: None
| PtRes:    | HPM       | Range: 0-None (Neither Eip nor Soe is allowed)
|           |           | 1-Eip (Process special is triggered in AM/CM)
|           |           | 2-Eip, Soe (Eip and Soe are both allowed)
|           |           | 3-Soe (Point notifies Sequence of Events Processing)

Helpful Hint: EVTOPT configuration requires DITYPE = Status or Latched. If DITYPE = Latched, EVTOPT cannot = EIPSOE or SOE.

**EXTDATA (Array)**

| Type:     | E:$EXTDATA | External Data Option—Indicates if either the Array point flags, numerics, or strings are mapped from a serial interface.
| Lock:     | PtBld     | Default: None
| PtRes:    | HPM       | Range: None (None of the flags, numerics, or strings are mapped from a serial interface)
|           |           | IO_FL (IO flags are mapped from a serial interface)
|           |           | IO_NN (IO numerics are mapped from a serial interface)
|           |           | IO_STR (IO strings are mapped from a serial interface)
|           |           | UCN_FL (Reserved for future use)
|           |           | UCN_NN (Reserved for future use)
|           |           | UCN_STR (Reserved for future use)

Helpful Hint: You can map either flags, numerics, or strings from the Serial Interface to a single Array point.
EXTSWOPT

Type:  E:EXTSWOPT  
Lock:  Eng/PB  
Default:  None  
PtRes:  HPM

External Mode Switching Option—External mode switching is typically used to establish mode interlocks, or under certain process conditions, to restrict the use of a mode that invokes a higher level of control. Refer to the HPM Control Functions and Algorithms manual for a detailed description of external mode switching.

Range:  0-None (No external mode switching is allowed)  
        1-Ems (External source can change point’s mode)  
        2-Emp (Not implemented)
F (FlowComp)
Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Flow Input—Indicates the value of the uncompensated flow input. This input is a square-rooted, differential pressure input.

FAILCODE
Type: E:\$IOMHF
Lock: View
Default: N/A
PtRes: IOP

I/O Processor Hard Fail Status—

Range:
0-Unknown (Unknown status)
1-PowerDwn (This IOP Powered Down)
2-InvPrgEx (Invalid Program Execution)
3-EepromErr (EPROM Checksum Error)
4-RamCntEr (RAM Contents Error)
5-RamAdrEr (RAM Addressing Error)
6-DpaError (Device Physical Address Error)
7-DsaError (Device Soft Address Error)
8-RxBufOfl (I/O Link Receive Buffer Overflow)
9-IOLJaber (I/O Link Jaber Circuit Failure)
10-
11-BadPgImp (Illegal Value of Case Control)
12-AdCIncmp (A to D Conversion Incomplete)
13-AdOutOvf (A to D Output Value Overflow)
14-AdOutUdf (A to D Output is less than Zero)
15-AdCCalEr (A to D Calibration is incorrect)
16-BadDcLtc (Bad DC LTC)
17-Dmt_Tmot (Dead Man Timer Timeout)
18-MLtOutFl(Multiple Output Failure)
20-BadDaRng (Bad D to A Range)
21-MstrTmot (Master 68K Timeout)

FAILOPT(1)–(168) (IOP)
Type: E:FAILOPT
Lock: Eng/PB
Default: Unpower
PtRes: HPM

Failure Option for Outputs—Defines the state which an AO or DO IOP goes into if the IOP itself, or the HPMM fails. If the IOP failure is due to power loss, outputs go to unpowered regardless of the FAILOPT value. When power is restored to the module, outputs are reset regardless of the FAILOPT values.

Range:
0-Hold (Hold output at last good value)
1-Unpower (Remove power from the output)
FBTIME (DevCtl, DigComp)

**Type**: Integer  
**Lock**: Supr if CMDFALTM is changed from a non-zero value to a zero value, else Eng/PB  
**Default**: 0  
**PtRes**: HPM  
**Range**: 0 to 1000 seconds (0 indicates that command disagree alarming is disabled)

**Feedback Time**—Sets the amount of time (in seconds) that the point should wait before generating a "command disagree" alarm after the operator has issued a start/stop-type command to a field device.

**Helpful Hint**: FBTIME can be increased to compensate for a slow-responding field device that does not respond to the operator’s command in time to prevent a command-disagree alarm.

FF (PidFf)

**Type**: Real  
**Lock**: View  
**Default**: N/A  
**PtRes**: HPM  
**Range**: N/A

**Feed Forward Algorithm Input**—FF is the feedforward input signal value that is added to (FFOPT = Add) or multiplied by (FFOPT = Multiply) the PidFf algorithm's incremental output, before the full-value output is accumulated. FF is normally a parameter with a percentage value.

FFOPT (PidFf)

**Type**: E:FFOPT  
**Lock**: Eng/PB  
**Default**: Multiply  
**PtRes**: HPM  
**Range**: 0-Add (Scaled Feedforward + Feedback)  
1-Multiply (Feedback x Scaled, Biased Feedforward)

**Feed Forward Type**—Determines whether a PidFf algorithm’s feedforward input signal (FF) is added to or multiplied by the incremental output, before the full-value output is accumulated.

FL(i) (Array)

**Type**: Logical  
**Lock**: Determined by SPLOCK parameter  
**Default**: N/A  
**PtRes**: HPM  
**Range**: 1 ≤ i ≤ Array parameter NFLAG

**Array Point Flag Variables**—The flags are mapped from either the HPM box (defined by FLSTIX and NFLAG parameters), or from a serial interface IOP-connected device (when EXTDATA=IO_FL, mapping is defined by IOPNUM, FTANUM, DEVADDR, FLSTIX, and NFLAG parameters).
FL(1)–(12) (DevCtl, Logic)

**Type:** Logical

**Lock:** View; FL1-FL5

Prog; FL6

Oper; FL7-FL12

**Default:** FL2 = On, rest = Off

**PtRes:** HPM

**Range:** Off (Flag is off)

On (Flag is set)

**Logic Slot Flags**—Twelve flags, FL(1) to FL(12), are provided for each logic slot. The states of flags FL(1) to FL(6) are controlled by the HPM and cannot be changed by the user. FL(7)-FL(12) are assigned by the user for controlling the path of the logic in the respective logic slot. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

These flags are local to the logic slot and are different than the 127 flags provided with each process module, and the 1023 flags provided in each HPM box.

FL(1)–(127) (ProcMod)

**Type:** Logical

**Lock:** Determined by SPLOCK parameter

**Default:** Off

**PtRes:** HPM

**Range:** Off (Flag is off)

On (Flag is set)

**Local Flag Variables**—Each process module in the HPM has 127 local flags that can be used for implementing batch operations. These flags are local to the process module and are different than the 12 logic-slot flags, and the 1023 flags provided in each HPM box.

FL(1)–(16,384) (HPM Box)

**Type:** Logical

**Lock:** Oper

**Default:** Off

**PtRes:** HPM

**Range:** Off (Flag is off)

On (Flag is set)

**Box Flag Variables**—Each HPM box has a set of 16,384 local flag variables that can be used by process modules in this HPM to implement batch operations.

The first 2047 box flags are taggable. These flags are local to the HPM box and are different than the 12 logic-slot flags, and the 127 flags provided in each process module. The LCN index limit is 4095; there is no index limit for the UCN. Array points can be used to address flags with an index greater than 4095.

**Helpful Hint:** For the first 128 flags, the On state is alarmed.

FLDESC (Array)

**Type:** String_64

**Lock:** PtBld

**Default:** Spaces

**PtRes:** HPM

**Range:** N/A

**FL Array Descriptor**—Describes FL data for the Array point.

FLSTIX (Array)

**Type:** Real

**Lock:** PtBld

**Default:** 0.0

**PtRes:** HPM

**Range:** 0 to 99,999 (When EXTDATA = IO_FL, 0 can be a valid device index)

0 to 16,384 (When EXTDATA ≠ IO_FL, 0 indicates that no flags are configured)
**FORCE (HiLoAvg)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Forced Input Request Flag—Defines whether the operator, a user-written program, or an input connection has requested that an input be used as the forced input for this algorithm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Oper</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (No request to force an input)</td>
<td>On (Request has been made to force an input)</td>
</tr>
</tbody>
</table>

**Helpful Hint:** FORCE change requires FRCPERM = On.

---

**FRCPERM (HiLoAvg)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Forced Input Permissive—Defines whether an operator or a user-written program can force-select an input. FRCPERM must be On before the operator or a program can select an input to be used as a forced input to this algorithm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Eng/PB</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (Forced-selection function is disabled)</td>
<td>On (Forced- selection function is enabled)</td>
</tr>
</tbody>
</table>

---

**FREQ6050(1)–(168)**

<table>
<thead>
<tr>
<th>Type</th>
<th>E:FRQ6050</th>
<th>Frequency 60/50Hz—Defines the 60/50 Hz frequency configuration needed for a Low Level AI Mux or STI Temperature Transmitter. For the STI, if a mismatch occurs between this parameter and the transmitter’s internal 60 Hz/50 Hz frequency parameter, a database download from the STI IOP to the transmitter will clear this condition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Eng/PB</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>60Hz</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0-60 Hz, 1-50 Hz</td>
<td></td>
</tr>
</tbody>
</table>

---

**FRQUTAVG (NIM, HPM Box)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th>Average UCN Fetch Request Trip Time—The average time in milliseconds it takes to receive a response to this node’s UCN fetch requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

---

**FRQUTMAX (NIM, HPM Box)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th>Maximum UCN Fetch Request Trip Time—The maximum time in milliseconds it takes to receive a response to this node’s UCN fetch requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.
FRSPTAVG (NIM, HPM Box)

Type: Real  
Lock: View  
Default: NaN  
PtRes: HPM  
Range: N/A

Average UCN Fetch Response Trip Time—The average time in milliseconds for this node to respond to fetch requests from other UCN nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

FRSPTMAX (NIM, HPM Box)

Type: Real  
Lock: View  
Default: NaN  
PtRes: HPM  
Range: N/A

Maximum UCN Fetch Response Trip Time—The maximum time in milliseconds for this node to respond to fetch requests from other UCN nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

FSELIN (HiLoAvg)

Type: E:PINP  
Lock: Oper/PB  
Default: SelectP1  
PtRes: HPM  
Range: 1-SelectP1 (Input P1 is the forced input)
2-SelectP2 (Input P2 is the forced input)
3-SelectP3 (Input P3 is the forced input)
4-SelectP4 (Input P4 is the forced input)
5-SelectP5 (Input P5 is the forced input)
6-SelectP6 (Input P6 is the forced input)

Force Selected Input—Defines the one of six inputs to be used as the forced input to this algorithm.

Helpful Hint: FSELIN change by an operator requires FRCPERM = On.

FSTS (FlowComp)

Type: E:PVVALST  
Lock: View  
Default: Bad  
PtRes: HPM  
Range: 0-Bad (Value is bad and replaced with NaN)
1-Uncertn (Status of the value is uncertain)
2-Normal (Value is good)

Flow Input Value Status—Indicates the current status of flow input F.
FTA1TYPE, FTA2TYPE (HPM Box)

**Type:** E:$FTATYPE

**Lock:** View

**Default:** None

**PtRes:** HPM

**Range:** 0-None

1-TC

2-RTD

FTA1TYPE, FTA2TYPE (HPM Box)

Type of FTA Connected to the LLMUX IOP or RHMMUX IOP—The FTA type applies to both FTA positions (1 and 2). The FTA supplies 16 points per FTA for a total of 32 points.

**Range:**

0-

None

1-

TC

2-

RTD

FTACON(1)–(168) (HPM Box)

**Type:** E:$FTACON

**Lock:** View

**Default:** CONN_A

**PtRes:** HPM

**Range:**

0-CONN_A (Module is connected to FTA connector A)

1-CONN_B (Module is connected to FTA connector B)

Indicates which FTA connector is connected to this module. It is primarily used with the diagnostic displays.

nn = 1–40 specifies FTA connection for one of the 40 acting primaries. nn = 129–168 specifies FTA connection for one of the 40 acting secondaries.

FTANUM (Array)

**Type:** Integer

**Lock:** PtBld

**Default:** 1

**PtRes:** HPM

**Range:** 1 to 10

IOP FTA Number—Indicates the FTA number of the serial interface IOP.

Helpful Hint: Only FTA Numbers 1 and 2 are presently applicable.

FTAPRES(1)–(168)

**Type:** Logical

**Lock:** View

**Default:** HPM

**PtRes:** HPM

**Range:** Off (FTA Missing)

On (FTA Present)

IOP FTA Present Flag—For primary and secondary IOPs.
-G-

**G (FlowComp)**

*Type:* Real  
*Lock:* View  
*Default:* 1.0  
*PtRes:* HPM  
*Range:* N/A

**Specific Gravity Input**—Indicates the value of the measured or calculated specific gravity or molecular weight.

**GAINOPT (Pid)**

*Type:* E:GAINOPT  
*Lock:* Eng/PB  
*Default:* Lin  
*PtRes:* HPM  
*Range:* 0-Lin (Applies linear gain, with overall gain \( K = K_{LIN} \))

1-Gap (Reduces the sensitivity of control action when the PV is within a narrow band around the setpoint. If the PV is outside the gap, overall gain \( K = K_{LIN} \). If \( SP - GAPLO < PV < SP + GAPHI \), \( K = K_{LIN} \) times \( KGAP \))

2-Nonlin (Makes control action proportional to the error \( PV - SP \) squared with overall gain \( K = K_{LIN} \) times \( KNL \), where \( KNL = NLFM + (NLGAIN \times PV - SP) / 100 \))

3-Ext (Applies external gain. Overall gain \( K = K_{LIN} \) times \( KEXT \), where \( KEXT \) is the positive external gain modifier)

**GAPHI (Pid)**

*Type:* Real  
*Lock:* Supr  
*Default:* 0.0  
*PtRes:* HPM  
*Range:* \( \geq 0.0 \)

**Gap High Limit**—Defines the upper limit of the gap in the same engineering units as the PV.

**GAPLO (Pid)**

*Type:* Real  
*Lock:* Supr  
*Default:* 0.0  
*PtRes:* HPM  
*Range:* \( \geq 0.0 \)

**Gap Low Limit**—Defines the bottom limit of the gap in the same engineering units as the PV.
GENDESC (1–(12))

Type: String_8

Generic Descriptors—Define up to 12 generic descriptors that can be assigned to logic-slot parameters. As an example, six descriptors could be assigned to six logic-slot inputs, two descriptors to the logic block flags which will describe the current state of the logic slot based on the inputs, and two descriptors to the SO outputs from the logic slot. Refer to the description of the PRMDESC parameter, and to the HPM Control Functions and Algorithms manual for a detailed description.

Range: Permissible character set for the eight-character generic descriptors consists of all characters on the Engineer’s Keyboard. Basically this set consists of alphabets A-Z, numerics 0-9, and the following special characters: space  !  "  %  &  '  (  )  *  +  -  /  :  ;  >  <  =  ?  _  ,  .  $

Helpful Hint: Example: GENDESC(7) is the descriptor for parameter PRMDESC(7), etc.

GENDESC(nn)

Type: String_72

Generic Descriptor—Used as additional display text to help the operator diagnose potential problems with the IOP. It is primarily used with diagnostic displays.

Range: nn = 1–40 specifies one of the 40 acting primaries.

nn = 129–168 specifies one of the 40 acting secondaries.

GISRC(1—4) (RegCtl, RegPV)

Type: String

General Input Source—Specifies the Tag.Parameter source of General Input Connection.

Range:

GIDSTN(1—4) (RegCtl, RegPV)

Type: String

Parameter Destination General Input Connection—Specifies the RegPV/RegCtl parameter destination of the General Input Connection.

Range:

GIENBL(1—4) (RegCtl, RegPV)

Type: String

General Input Connection Enable Flag—
GOSRC(1—4) (RegCtl, RegPV)


Type: 
Lock: 
Default: 
PtRes: HPM
Range:

GODSTN(1—4) (RegCtl, RegPV)

Parameter Destination General Output Connection—Specifies the Tag parameter destination of the General Output Connection.

Type: 
Lock: 
Default: 
PtRes: HPM
Range:

GOENBL(1—4) (RegCtl, RegPV)

General Output Connection Enable Flag—

Type: 
Lock: 
Default: 
PtRes: HPM
Range:

GSTS

Gravity Input Value Status—Indicates the status of the gravity input value.

Type: E:PVVALST 
Lock: View 
Default: Normal 
PtRes: HPM 
Range: 0-Bad (Value is bad and replaced with NaN) 
1-Uncertn (Status of the value is uncertain) 
2-Normal (Value is good)
HIGHAL (AnalgIn, RegCtl, RegPV)

Type: E:ALMTYPE
Lock: View
Default: NoAlarm
PtRes: NIM

Highest Alarm Detected—Indicates the highest alarm currently detected at the data point. This parameter is used by the system to ensure that when two or more different types of alarms occur on a point at the same time, the most important or highest level alarm appears on the point’s Group, Detail, and Alarm Summary displays. For example, if both the PV High High and PV High alarm priorities are set to Emergency, and both are in alarm, HIGHAL contains the PVHH value.

Range:
- NoAlarm (No alarm exists—lowest level alarm)
- AdvDev (Advisory Deviation)
- DevHi (Deviation High)
- DevLo (Deviation Low)
- PVRocN (PV Rate Of Change Negative)
- PVRocP (PV Rate Of Change Positive)
- PVHi (PV High)
- PVHH (PV High High)
- PVLo (PV Low)
- PVLL (PV Low Low)
- BadCtl (Bad Control)
- BadPV (Bad PV—highest level alarm)
- BOC (Bad Output alarm)

HIGHAL (DevCtl, DigComp, DigIn, Flag, Logic)

Type: E:ALMTYPE
Lock: View
Default: NoAlarm
PtRes: NIM

Highest Alarm Detected—Indicates the highest alarm currently detected at the data point. This parameter is used by the system to ensure that when two or more different types of alarms occur on a point at the same time, the most important or highest level alarm appears on the point’s Group, Detail, and Alarm Summary displays.

Range:
- NoAlarm (No alarm has been detected)
- OffNorm (Current PV state is not the configured PVNORMAL state. For a flag point, the off-normal state (STATE1) is the alarmed state.)
- UnCEvt (Uncertain event was detected. Does not apply to a flag point.)
- CmdDis (Command Disagree; field device did not respond to commanded output state. Does not apply to a flag point.)
- BadPV (PV is bad)
- C1 - C4ALM (1 to 4 custom logic alarms)
- Chngofst (State has changed)
- Cmdfail (PV failed to change after OP changed)
- SVHI (SECVAR>SVHITP)
- SVHH (SECVAR>SVHHTP)
- BadSV (SECVAR is Bad)
- OVRD0 (Override Interlock I0)
- OVRDI1 (Override Interlock I1)
- OVRDI2 (Override Interlock I2)
- OVRDSI0 (Safety Override Interlock)
- BadCtl (Bad Control) (DevCtl and DigComp only)
HIGHALPR (AnalGIn, RegCtl, RegPV)

**Type:** E:ALPRIOR  
**Lock:** View  
**Default:** NoAction  
**PtRes:** NIM  
**Range:**  
- **Emergency** (Alarm is historized, annunciated, and reported to all alarm summary displays)  
- **High** (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)  
- **Low** (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)  
- **JnlPrint** (Alarm is historized and reported to the printer but not annunciated)  
- **Printer** (Alarm is reported to the printer but not historized and not annunciated)  
- **Journal** (Alarm is historized but not reported to Universal Stations and not annunciated)  
- **NoAction** (Alarm is not reported to the system and not annunciated)

**HISVPEAK (DevCtrl)**

**Type:** Real  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** ≥ 0

**HLCALIB(1)–(168)**

**Type:** Logical  
**Lock:** Eng/Pb  
**Default:** HPM  
**PtRes:** HPM  
**Range:**  
- **Off** - Calibration is not in progress  
- **On** - Calibration is in progress

**HOLDCMD (RampSoak)**

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  
**Range:**  
- **Off**  
- **On**
**HOUR (HPM Box)**

*Type:* Integer  
*Current Hour*—The value of the LCN time in the HPM.

*Lock:* View

*Default:* N/A

*PtRes:* HPM

*Range:* 0 to 23

Only full array access is supported.

**HWYCTLST (UCN)**

*Type:* E:$NODFSTA  
*UCN Network Functional State*

*Lock:* Supr

*Default:* Basic

*PtRes:* NIM

*Range:*  
- **Full** (All LCN devices can do read/write operations to this UCN)  
- **Basic** (AM and CM cannot write to this UCN)
### I0–2 (DevCtl, DigComp)

**Type:** Logical

**Lock:** Engr

**Default:** Off

**PtRes:** HPM

**Override Interlocks for Output States 0-2**—Override interlocks force the commanded output to a specific state regardless of the condition of the permissive interlocks or the previous point state. The operator and user program cannot change the output state when any override interlock is On. An override interlock is provided for each of the three states. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**Range:**
- Off (Override interlock has no effect on the point state)
- On (Override interlock sets the point to the respective state)

**Helpful Hint:**
1. When I0 is On, forces the output to STATE0, regardless of the permissives or any other overrides.
2. When I1 is On and I0 is Off, forces the output to a STATE1, regardless of the permissives or any other overrides.
3. When I2 is On and I0 and I1 are both Off, forces the output to STATE2 regardless of the permissives or any other overrides.
4. I0-I2 change by the engineer, requires PTEXECST = InActive or PNTSTATE = Idle for each interlock.

### I0CONF (DigComp, DevCtl)

**Type:** Logical

**Lock:** Oper

**Default:** Off

**PtRes:** HPM

**Override Interlock 0 Alarm Confirmation Flag**—Indicates that the Override Interlock 0 Alarm needs to be confirmed.

**Range:** N/A

### I0DESC-I2DESC (DigComp)

**Type:** String_8

**Lock:** Engr

**Default:** Blank

**PtRes:** HPM

**I0-I2 Alarm Descriptor**—The override Interlock for States 0, 1, or 2 indicating which text should be copied into the OVRDDESC parameter when an override alarm occurs. The text appears in the Alarm Display and can be configured to indicate the cause for the alarm.

**Range:** 8 Character String

### I1CONF (DigComp, DevCtl)

**Type:** Logical

**Lock:** Oper

**Default:** Off

**PtRes:** HPM

**Override Interlock 1 Alarm Confirmation Flag**—Indicates that the Override Interlock 1 Alarm needs to be confirmed.

**Range:** N/A
### I2CONF (DigComp, DevCtl)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Override Interlock 2 Alarm Confirmation Flag—Indicates that the Override Interlock 2 Alarm needs to be confirmed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Oper</td>
<td></td>
</tr>
<tr>
<td>Default:</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### IN0–12 (GenLin)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th>Input Coordinates 0–12—Define the input value at the respective coordinate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>Supr</td>
<td>IN0 &lt; IN1 &lt; IN2 ......., &lt; IN12</td>
</tr>
<tr>
<td>Default:</td>
<td>NaN</td>
<td></td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>&gt; prev. coord. &lt; next coord.</td>
<td></td>
</tr>
</tbody>
</table>

### INITMAN

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Initialization Manual Flag—When On, indicates that this point is in Initialization Manual. The mode of the point does not change; however, INIT appears on the point’s detail or group display to indicate that the point is in Initialization Manual. While the point is in Initialization Manual, an operator, supervisor, or engineer cannot change the point’s output. The output is indisposable because initialization is being requested from downstream. Upon leaving Initialization Manual, the point’s output is initialized from the point’s secondary as determined by the point’s output connection.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default:</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>Off (Mode ≠ Initialization Manual) On (Mode = Initialization Manual)</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** OP changes with Operator, Supervisor, or Engineer access level, requires MODE = Man and INITMAN = Off. SP changes with Operator, Supervisor, or Engineer access level, for non-PID algorithms requires MODE = Auto and INITMAN = Off, while for PID algorithms requires that MODE = Auto, and also that INITMAN = Off and PTEXECST = Active if PVTRACK = Track.

### INITMAN (DigComp, DevCtl, RegCtl)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Initialization Manual Flag—On, indicates that an output is storing to a DO point that has its INITREQ flag set and the point is forced into initialization. When the DO point becomes available, the initialization state is cleared.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default:</td>
<td>On</td>
<td></td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>Off (Mode ≠ Initialization Manual) On (Mode = Initialization Manual)</td>
<td></td>
</tr>
</tbody>
</table>
INITREQ(1)–(4) (RegCtl)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM

 Initialization Request Flags (1–4)—Indicates whether an initialization request has been made. Each flag represents a request to the primary point pushing to the corresponding input to be initialized as follows:

Flag 1: SP or X1
Flag 2: RATIO or X2
Flag 3: X3
Flag 4: X4

**Range:**
- Off (No initialization request)
- On (Initialization request)

INITREQ (Array)

**Type:** Logical  
**Lock:** View  
**Default:** On when EXTDATA = IO_FL, IO_NN, or IO_STR  
Off when EXTDATA = None  
**PtRes:** HPM

 Initialization Request Flag—Indicates whether a Serial Interface-connected device can be written to, where OFF = yes, or ON = no. The flag is always OFF if EXTDATA = None.

**Range:**
- Off (EXTDATA=None, or Serial interface-connected device can be written to)
- On (Serial interface-connected device cannot be written to)

INITREQ (AO, DO)

**Type:** Logical  
**Lock:** View  
**Default:** On  
**PtRes:** HPM

 Initialization Request Flag—When On, indicates that control strategies in the HPM cannot manipulate the output to the field. It is set to ON when:

- the PWM type output is configured
- the point is inactive
- the module is idle
- there is a soft failure such that the channel is not working
- The output is connected to standby-manual device

**Range:**
- Off (No initialization request)
- On (Initialization request)

INITREQ(0)–(2) (DigComp, DevCtl)

**Type:** Logical  
**Lock:** View  
**Default:** On  
**PtRes:** HPM

 Initialization Request Flag—When On, indicates that CL programs or logic cannot change the output to State(i), where i = 0, 1, or 2.

**Range:**
- Off
- On

INITVAL

**Type:** Real  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** N/A

Initialization Value—Indicates the value to which the primary point is to be initialized.
INPTDIR (DigIn)

Type: E:POLARITY
Lock: Eng/PB
Default: Direct
PtRes: HPM

Range:

Direct
- State 0 (lower) box lighted => \( PV_{RAW} = \text{Off} \)
- State 1 (upper) box lighted => \( PV_{RAW} = \text{On} \)

Reverse
- State 0 (lower) box lighted => \( PV_{RAW} = \text{On} \)
- State 1 (upper) box lighted => \( PV_{RAW} = \text{Off} \)

Digital Input Direction—Defines the contact conditions required to light the upper or lower boxes on a Group or Detail Display for a digital input point. See Figure I-1.
### IOLASTS (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>I/O Link Cable A Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (I/O Link cable A not in error) On (I/O Link cable A in error)</td>
<td></td>
</tr>
</tbody>
</table>

### IOLBSTS (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>I/O Link Cable B Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (I/O Link cable B not in error) On (I/O Link cable B in error)</td>
<td></td>
</tr>
</tbody>
</table>

### IOLCHAER (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>I/O Link Channel A Error Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

### IOLCHASL (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>I/O Link Channel A Silence Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

### IOLCHBER (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>I/O Link Channel B Error Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

### IOLCHBSL (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>I/O Link Channel B Silence Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>
IOLCHERT (HPM Box)

Type: Integer  
Lock: EngOnly  
Default: 10  
PtRes: HPM  
Range: ≥ 0

I/O Link Channel Error Threshold—Defines the acceptable number of I/O Link channel errors per minute before disabling the periodic I/O Link channel swap.

IOLCMD (HPM Box)

Type: E:$IOLCMD  
Lock: EngOnly  
Default: None  
PtRes: HPM  
Range: 0-None (No effect)
1-SelChnA (Select I/O Link Channel A)
2-SelChnB (Select I/O Link Channel B)
3-EnbPerSw (Enable periodic swapping of IOL cables)
4-DisPerSw (Disable periodic swapping of IOL cables)
5-RsIoLCom (Reset IOL communication error count to 0)

IOLHWREV (HPM Box)

Type: String_2  
Lock: View  
Default: Blank  
PtRes: HPM  
Range:

HPMM I/O Link Interface Processor Card Hardware Revision—

IOLPERSW (HPM Box)

Type: E:ENBLSTAT  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: 0-Disable (Swapping of I/O Link cables A & B is disabled)
1-Enable (Swapping of I/O Link cables A & B is enabled)

IOLPSERR (ProcMod)

Type: E:Pastatus  
Lock: View  
Default: NoError  
PtRes: HPM  
Range: NoError

Helpful Hint: This parameter should be used with IOLPSOPT.
IOLPSOPT (ProcMod)

Type: E:$IOLPSOPT I/O Link Poststore Failure Option —

Lock: Engr
Default: Fail
PtRes: HPM

Helpful Hint: The program should check the value of IOLPSERR if this parameter is continue.

Range: Fail (program fails on a bad IOL store)
Continue (program continues on a bad IOL store)

IOLREV (HPM Box)

Type: Integer HPMM I/O Link Software Revision—

Lock: View
Default: Blank
PtRes: HPM

Range:

IOLVERS (HPM Box)

Type: Integer HPMM I/O Link Software Version—

Lock: View
Default: Blank
PtRes: HPM

Range:

IOMACTYP(1)—(168)

Type: E:$PMMDTY IOP Actual Type — Actual type of IOP at module address.

Lock: View
Default: None
PtRes: HPM

Range: None (Not Configured)
LLAI (Low Level Analog Input)
HLAI (High Level Analog Input)
DI (Digital Input)
DO (Digital Output)
AO (Analog Output)
HPMM (HPM Module)
LLMUX (Low Level Analog Input Multiplexer) Also includes RHMUX (Remote Hardened Analog Multiplexer)
STIM (Smart Transmitter Interface Module)
PI (Pulse Input)
### IOMCARD(1)–(168) (HPM Box)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>1-15</td>
</tr>
</tbody>
</table>

**I/O module card position for the acting primary/secondary**

(used for diagnostic displays).

**nn = 1 - 40** correspond to card positions of the 40 acting primaries

**nn = 129 - 168** correspond to card positions of the 40 acting secondaries

### IOMCARDA(1)–(40) (HPM Box)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default:</td>
<td>0 in IOP database; per PKGOPT on GDF</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>0 - 15 (0 specifies Not Connected)</td>
</tr>
</tbody>
</table>

**I/O module A card position.** 1-40 specifies one of the 40 logical I/O modules. The corresponding IOP must be connected to FTA connector A. Applies to the primary IOP only.

### IOMCARDB(1)–(40) (HPM Box)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default:</td>
<td>0 in IOP database; none on GDF</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>0 - 15 (0 specifies Not Connected)</td>
</tr>
</tbody>
</table>

**I/O module B card position.** 1-40 specifies one of the 40 logical I/O modules. The corresponding IOP must be connected to FTA connector B. Applies to primary IOP only.

### IOMCHAER(1)–(168)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>0 - 255</td>
</tr>
</tbody>
</table>

**IOP Channel A Error Count**—for a specific IOP

### IOMCHASL(1)–(168)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>0 - 255</td>
</tr>
</tbody>
</table>

**IOP Channel A Silence Count**—for a specific IOP

### IOMCHBER(1)–(168)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock:</td>
<td>View</td>
</tr>
<tr>
<td>Default:</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>0 - 255</td>
</tr>
</tbody>
</table>

**IOP Channel B Error Count**—for a specific IOP
IOMCHBSL(1)–(168)

Type: Integer IOP Channel B Silence Count—for a specific IOP
Lock: View
Default: N/A
PtRes: HPM
Range: 0 - 255

IOMCMD (HPM Box)

Type: E:$IOMCMD IOP Module Command—Indicates IO module state, or whether to swap redundant pairs.
Lock: Oper
Default: None
PtRes: HPM
Range: Run
Idle
Swap

IOMCOMER(1)–(168)

Type: E$:IOMCOMMIOP IOP Communications Error Status—for a specific IOP
Lock: View
Default: N/A
PtRes: HPM
Range: None
-Invalert - Invalid alert; message bit problem
-Invdest - Invalid destination
-Invchcnt - Invalid character count; message corrupted
-Invsourc - Invalid source
-Invcmd - Invalid command
-Checksum - Checksum error
-No_resp - No response
-Chtimeout - Channel time out
-Msgovrun - Message overrun
-Gaperror - Gap error; message gap too long
-Lpbackerr - Loopback error
-Nth_0 - Next token holder equals zero
-Tknrecov - Token recovery in progress
-Rplbufov - Reply buffer overflow

IOMFILE(1)–(168) (HPM Box)

Type: Integer I/O Module File Position for the Acting Primary/Secondary
Lock: View
Default: N/A
PtRes: HPM
Range: 0 - 8 (0 specifies Not Connected)

nn = 1 - 40 are file positions of the 40 acting primaries.
nn = 129 - 168 are file positions of the 40 acting secondaries.
IOMFILEA(1)–(40) (HPM Box)

Type: Integer
Lock: PtBld
Default: 0 in IOP data base; per PKGOPT on GDF
PtRes: HPM
Range: 0 - 8 (0 specifies Not Connected)

I/O Module A File Position—1-40 specifies one of the 40 logical I/O modules. The corresponding IOP must be connected to FTA connector A. Applies to the primary IOP only.

IOMFILEB(1)–(40) (HPM Box)

Type: Integer
Lock: PtBld
Default: 0 in IOP data base; none on GDF
PtRes: HPM
Range: 0 - 8 (0 specifies Not Connected)

I/O Module B File Position—1-40 specifies one of the 40 logical I/O modules. The corresponding IOP must be connected to FTA connector B. Applies to the primary IOP only.

IOMFWREV(1)–(168)

Type: Ascii_2
Lock: View
Default: N/A
PtRes: HPM
Range: X.Y (X = Version, Y = Revision)
(For Release 300, X = 3)

IOP Card Firmware Revision Status
(This is not the same as the external letter code on the card)

IOMHWREV(1)–(168)

Type: Ascii_2
Lock: View
Default: N/A
PtRes: HPM
Range: Hexadecimal characters 00–FF

IOP Card Hardware Revision Status
The status of R300 boards appears as $2x, the status of R210 appears as $0x, where x is the version (0=A, 1=B, 2=C, etc.)
IOMLHFST(1)–(168)

**Type:** E:$IOMHF  **Input/Output Processor Last Hard Fail Status**—Refer to the *HPM Service Manual* for a detailed description and the recommended corrective action.

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** 0=Unknown (Unknown Status)
1=PowerDwn (This IOP Powered Down)
2=InvPrgEx (Invalid Program Execution)
3=EpromErr (EPROM Checksum Error)
4=RamCntEr (RAM Contents Error)
5=RamadrEr (RAM Addressing Error)
6=DpaError (Device Physical Address Error)
7=DsaError (Device Soft Address Error)
8=RxBufOfl (I/O-Link Receive Buffer Overflow)
9=IOLJaber (I/O-Link Jabber Circuit Failure)
11=BadPgJmp (Illegal Value of Case Control)
12=AdCIncmp (A-to-D Conversion Incomplete)
13=AdOutOvf (A-to-D Output Value Overflow)
14=AdOutUdf (A-to-D Output is less than Zero)
15=AdCCalEr (A-to-D Calibration is incorrect)
16=BadDcLtc (Bad DC LTC)
17=Dmt_Tmot (Dead Man Timer Timeout)
18=MLtOutFl (Multiple Output Failures)
20=BadDaRng (Bad D-to-A Range)
21=MstrTmot (Master 68 k Timeout)

IOMNUM

**Type:** Integer

**Lock:** PtBld

**Default:** N/A

**PtRes:** HPM

**Range:** 1 to 40

IOMOPER(1)–(168) (HPM Box, IOP)

**Type:** E:$PRIMSEC  **Input/Output Processor In Operation**

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** 0=Primary (Primary IOP is operating)
1=Secondary (Secondary IOP is operating)
IOMREALT (HPM Box)

Type: E:$PMMDTY  Actual Input/Output Processor Type
Lock: View
Default: None
PtRes: HPM
Range: 0-None (Not Configured)
  1-LLAI
  2-HLAI (High-Level Analog Input)
  3-DI (Digital Input)
  4-DO (Digital Output)
  5-AO (Analog Output)
  7-LLMUX (Low-Level Analog Input Multiplexer) also includes RHMUX (Remote Hardened Analog Multiplexer)
  14-STIM (Smart Transmitter Interface Module)
  17-PI (Pulse Input)

IOMRECHN(1)–(168) (HPM Box)

Type: E:$RECCHN  IOP Receive Channel
Lock: View
Default: N/A
PtRes: HPM
Range: ChannelA
       ChannelB

IOMSEVER(1)–(168) (HPM Box)

Type: E:$SEVCHRTY  Error Severity Based on Input/Output Processor State
Lock: View
Default:
nn = 1 - 40 specifies the severity of 1 of the 40 acting primaries
nn = 129 - 168 specifies the severity of 1 of the 40 acting secondaries

PtRes: HPM
Range: Ok (I/O Processor has no errors and is OK)
       Fail (I/O Processor has failed)
       Inform (I/O Processor should be calibrated soon)
       Warning (I/O Processor is on the verge of failing)
IOMSTS(1)–(168) (HPM Box)

**Type:** E:$IOMSTS Input/Output Module State

**Lock:** View

**Default:** N/A

**PtRes:** HPM

**Range:** 0-**PowerOn** (Transient state when power is turned on)

1-**Idle** (In the Idle State)
2-**OK** (Running)
3-**NoResp** (No Response)
4-**IdleSF** (In the Idle State and has a Soft Failure)
5-**SoftFail** (Running and has a Soft Failure)
6-**CommErr** (Communication Error)
7-**ConfigMis** (Configuration Mismatch)
8-**NotConfig** (This IOP is Not Configured)
9-**NonExist** (This IOP does Not Exist)

**UnAvail** (Transient state during which status for this IOP is unavailable)

IOMTYPE(1)–(168) (IOP)

**Type:** E:$PMMDTY Input/Output Processor Type

**Lock:** View

**Default:** None

**PtRes:** HPM

**Range:** 0-**None** (Not Configured)

1-**LLAI** (Low Level Analog Input)
2-**HLAI** (High Level Analog Input, 16 slot)
3-**DI** (Digital Input, 32 slot)
4-**DO** (Digital Output, 32 slot)
5-**AO** (Analog Output, 8 slot)
7-**LLMUX** (Low Level Analog Input Multiplexer) also includes RHMUX (Remote Hardened Analog Multiplexer)
10-**SI** (Serial Interface)
14-**STIM** (Smart Transmitter Interface Module)
16-**DISOE** (Digital Input, Sequence of Events)
17-**PI** (Pulse Input)
24-**AO16** (Analog Output, 16 slot)
25-**DO32** (Digital Output, 32 slot)
IOMTYPE (HPM Box)

Type: E:$PMMDTY Configured Input/Output Processor Type
Lock: PtBld
Default: NotConfig
PtRes: HPM
Range: 0-NotConfig (Not Configured)
        1-LLAI (Low-Level Analog Input)
        2-HLAI (High-Level Analog Input)
        3-DI (Digital Input)
        4-DO (Digital Output)
        5-AO (Analog Output)
        7-LLMUX (Low Level Analog Input Multiplexer) also includes RHMUX (Remote Hardened Analog Multiplexer)
        14-STIM (Smart Transmitter Interface Module)
        17-PI (Pulse Input)
        -DISOE (Digital Input, Sequence of Events)
        -SI (Serial Interface)
        -AO-16 (Analog Output)
        -DO-32 (Digital Output)

IONTOKEN (HPM Box)

Type: Integer IOP Next Token Holder
Lock: View
Default: N/A
PtRes: HPM
Range: 0, or 128 to 255

NOTE

This parameter is available to the nodes on the LCN, but cannot be accessed on the UCN, either by HPM/CL programs or print connections.

IOPDESC(1 - 40)

Type: String_8 IOP Description—Provides an 8-character description of the IOP.
Lock: View
Default: Spaces
PtRes: HPM

Helpful Hint: An 8-character string is read from the IOP’s EPROM and stored in the HPMM. The text string appears on the IOP Detail Display. Even if the IOP fails, an operator can identify the IOP/FTA for maintenance. Not all IOPs have this feature yet.

Range: 8 characters
### IOPIDAY (HPM Box)

- **Type:** Integer
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM

**Range:**

### IOPIMON (HPM Box)

- **Type:** Integer
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM

**Range:** N/A

### IOPIYEAR (HPM Box)

- **Type:** Integer
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM

**Range:** N/A

### IOPNUM (Array)

- **Type:** Integer
- **Lock:** PtBld
- **Default:** N/A
- **PtRes:** HPM

**Range:** 1 to 127

### IOPSTR1(1)–(40) (HPM Box)

- **Type:** String_64
- **Lock:** View
- **Default:** Spaces
- **PtRes:** SI

**Range:** N/A

**Description:** Serial Interface IOP Module Number—Defines the module number of the serial interface IOP.

**Description:** IOP String for FTA #1—Contains user-defined string data shown in the Box Detail display such as the FTA application name, its revision number, and date. 

**NN = 1-40 specifies the Serial Interface IOP module number.**

### IOPSTR2 (1)–(40) (HPM Box)

- **Type:** String_64
- **Lock:** View
- **Default:** Spaces
- **PtRes:** SI

**Range:** N/A

**Description:** IOP String for FTA #2—Contains user-defined string data shown in the Box Detail display such as the FTA application name, its revision number, and date. 

**NN = 1-40 specifies the Serial Interface IOP module number.**
IORECCHN (HPM Box)

**Type:** E:$RECCHN  
**I/O Link Receive Cable**—The cable the I/O module is currently listening on.

**Lock:** PtBid  
**Default:** None  
**PtRes:** HPM  
**Range:**  
- A (I/O module is listening on Cable A)  
- B (I/O module is listening on Cable B)

IOREDOPT(1)–(40) (HPM Box)

**Type:** E:$REDOPT  
**IOP Redundancy Option**—Indicates if an IOP is configured for redundancy.

**Lock:** PtBid  
**Default:** NonRedun  
**PtRes:** HPM  
**Range:**  
- 0: Redun  
- 1: NonRedun

IOSTKNDR

**Type:** Integer  
**IOP Token Drop Count**

**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** 0 to 32767

IOSCNNCYC(1 – 40)

**Type:** Integer  
**Control base cycle number**—  
The index to this parameter specifies the IOP number for which this information is being accessed.

**Lock:** PtBid  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0 - 16

IOSCNPER(1 – 40) (AnalogIn)

**Type:** Real  
**IO data Scan Period**—the I/O data scan period in seconds for IO processors that support Analog Input point types. The index to this parameter specifies the IOP number for which this information is being accessed.

**Lock:** PtBid  
**Default:** 0.0  
**PtRes:** HPM  
**Range:**  
- 0.0  
- 0.0625  
- 0.125  
- 0.25  
- 0.5  
- 1.0
K (AutoMan)

Type: Real  
Gain Constant for X2 Input—Refer to the HPM Control Functions and Algorithms manual for a detailed description.

Lock: Supr
Default: 1.0
PtRes: HPM
Range: N/A

K (MulDiv, RegCtl Summer)

Type: Real  
Overall Gain—

Lock: Supr
Default: 1.0
PtRes: HPM
Range:

K (Pid)

Type: Real  
Overall Gain—Value of K depends on the chosen gain option. Refer to the HPM Control Functions and Algorithms manual for a detailed description.

Lock: Supr
Default: 1.0
PtRes: HPM
Range: 0.0 to 240.0

K (PosProp)

Type: Real  
Gain Constant

Lock: Supr
Default: 1.0
PtRes: HPM
Range: 0.0 to 10.0

K1 (PidErfb)

Type: Real  
External Reset Feedback Gain

Lock: Supr
Default: 0.0
PtRes: HPM
Range: 0.0 to 1.0

K1 (PIDPosPr)

Type: Real  
Gain Constant

Lock: Supr
Default: 1.0
PtRes: HPM
Range: 0.0 to 10.0
K1–K2 (RatioCtl)

Type: Real  K1 = Ratio Scale Factor; K2 = Scale Factor for X2 Input—When used in conjunction with the Calcultr algorithm, K1 must be equal to C1, and K2 must be equal to C2.
Lock: Supr
Default: 1.0
PtRes: HPM
Range: N/A

K1–K3 (MulDiv)

Type: Real  Gain Constants for X1–X3 Inputs
Lock: Supr
Default: 1.0
PtRes: HPM
Range:

K1–K4 (RegCtl Summer)

Type: Real  Gain Constants for X1–X4 Inputs
Lock: Supr
Default: 1.0
PtRes: HPM
Range:

K1–K4 (IncrSum)

Type: Real  Gain Constants for X1–X4 Inputs
Lock: Supr
Default: 1.0
PtRes: HPM
Range: ≥ 0.0

KEXT(Pid)

Type: Real  External Gain Modifier—Defines the external gain modification factor. It can be entered by a user-written program, or it can be an input from another data point.
Lock: Prog
Default: 1.0
PtRes: HPM
Range: 0.0 to 240.0

KEYWORD

Type: String_8  Keyword Descriptor—An eight-character descriptor that is used to describe an important aspect of this particular data point. For example, in Figure N-1 (see NAME) the keyword for the data point is REFLUX.
Lock: PtBld
Default: Blank
PtRes: NIM
Range: Alphabets A-Z (upper case only).
Numerics 0-9 (an all numeric keyword is not allowed).
Underscore (_) cannot be used as the first character or the last character in a keyword.
Consecutive underscores are not allowed. Do not use quote marks (").
KFF (PidFf)

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: ≥ 0.0 to ≤ 1.0

Gain for Feed Forward Input—Scale factor which is used in converting the FF input value to percent.

KGAP (Pid)

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: 00 to 1.0

Gap Gain Factor—Defines the gain-modification factor.

KLIN (Pid)

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: 0.0 to 240.0

Linear Gain Factor—Defines the linear gain in percent per percent.

KNL (Pid)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

Nonlinear Gain Modifier—Indicates the calculated value of the nonlinear gain modifier.
L(1)–(12) (DevCtl, Logic)

**Type:** Logical, Real  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** Real

*Helpful Hint:* L, if accessed from the LCN, must be accessed as a Logical data type.

**Value of the External Input**—L(1)–L(12) are the 12 inputs to a logic slot fetched with input connections from other points. Each input can be a Boolean, an Integer, or a Real number. Integer input values are converted to real numbers before being stored into the database.

**LCNRECHN (HPM Box)**

**Type:** E:$RECCHN  
**Lock:** View

**Default:** ChannelA  
**PtRes:** HPM  
**Range:** 0-ChannelA (NIM is listening to LCN channel A)  
1-ChannelB (NIM is listening to LCN channel B)

**LDNGNODE (HPM Box)**

**Type:** Integer  
**Lock:** View  
**Default:** ChannelA  
**PtRes:** HPM  
**Range:**

**LIBADOP (DevCtl, Logic)**

**Type:** E:$LIBADOP  
**Lock:** PtBld  
**Default:** Hold  
**PtRes:** HPM  
**Range:** 0-On (On state is substituted for bad input)  
1-Off (Off state is substituted for bad input)  
2-Hold (Last good value is substituted for bad input)

**LIBRYNUM**

**Type:** Integer  
**Lock:** PtBld  
**Default:** 1  
**PtRes:** NIM  
**Range:** 1-3

**NIM Library Number**—Specifies the number of the NIM Library being configured. For Parameter Entry Display use only.
LIBRYTXT(1)–(1000)

Type: String_8
Lock: PtBld
Default: N/A
PtRes: NIM
Range: N/A

LIBRYTXT(1)–(1000)

Type: String_8
Lock: PtBld
Default: N/A
PtRes: NIM
Range: N/A

LIBDESC(1)–(12) (DevCtl)

Type: String_8
Lock: Engr
Default: Blank
PtRes: HPM
Range: 8 Character String

LIDESC(1)–(12) (DevCtl)

Type: String_8
Lock: Engr
Default: Blank
PtRes: HPM
Range: 8 Character String

LINEPERD (1)–(168)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: 15616.0 to 21759.0

LINEPERD (1)–(168)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: 15616.0 to 21759.0
LISRC(1)–(12) (DevCtl, Logic)

Type: Universal

Logic Input Connection Source—Define the parameters whose current values are to be supplied to one or more of up-to-12 logic slot or Device Control inputs.

Lock: PtBld

The parameters can be specified using the "Tagname.Parameter" format or the hardware reference address format. Refer to the HPM Control Functions and Algorithms manual for a detailed description.

Default: null

PtRes: HPM

Range: Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:
- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters and must be a legitimate parameter name.

Some possible input-connection sources are:
- "AnalgIn slot Tagname.PV"
- "DigIn slot Tagname.PVFL"
- "Logic slot Tagname.SO(nn)" where nn = 1–24
- "Logic slot Tagname.Fl(nn)" where nn = 1–12
- "Logic slot Tagname.NN(nn)" where nn = 1–8
- "ProcMod slot Tagname.Fl(nnn)" where nnn = 1–127
- "ProcMod slot Tagname.NN(nn)" where nn = 1–80
- "RegCtl slot Tagname.PV"
- "RegPV slot Tagname.PV"
- "Box Flag slot Tagname.PVFL"
- "Box Numerics slot Tagname.NN" where nnnnn = 1–16,384
- "Box.FL(nnnn)" for a box flag that resides in the same box where nnnnn = 1–16,384
- "$NMhhBxx.FL(nnnn)$" for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095 (data access limit)

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where
- MT is the IOP type, such as DI (Digital Input)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)
- Parameter name can be up to eight characters and must be a legitimate parameter name.

LMREV (DevCtl)

Type: E:POLARITY

Local Manual Polarity—Indicates whether point processing inverts the local manual input value.

Lock: Engr/PB

Default: Direct

PtRes: HPM

Range: Direct (Value is not inverted)
- Reverse (Value is inverted)
**LMSRC (DevCtl, PosProp, PIDPosPr)**

<table>
<thead>
<tr>
<th>Type:</th>
<th>Universal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ent.Prm</td>
<td>Local Manual Source—The input connection for the local manual input. Only inputs with logical data types are valid.</td>
</tr>
<tr>
<td>Lock:</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default:</td>
<td>Null.null</td>
</tr>
<tr>
<td>PtRes:</td>
<td>HPM</td>
</tr>
<tr>
<td>Range:</td>
<td>Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows: Alphabets A-Z (uppercase only) Numerics 0-9 (an all numeric tag name is not allowed) Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed. Embedded space characters are not allowed. An * is used to default to this point's tag name. Parameter name can be up to eight characters and must be a legitimate parameter name. Some possible input-connection sources are: a.&quot;DigIn slot Tagname.PVFL&quot; b.&quot;Logic slot Tagname.SO(nn)&quot; where nn = 1–24 c.&quot;Logic slot Tagname.Fl(nn)&quot; where nn = 1–12 d.&quot;ProcMod slot Tagname.Fl(nn)&quot; where nnn = 1–127 e.&quot;Box Flag slot Tagname.PVFL&quot; f.&quot;!Box.FL(nnnn)&quot; for a box flag that resides in the same box where nnnn = 1–16,384 g.&quot;$NMhhBxx.FL(nnnn)&quot; for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095 (data access limit) Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where MT is the IOP type, such as DI (Digital Input) mm is the IOP Card number (1–40) The letter &quot;S&quot; is a constant ss is the slot number on the IOP Card (refer to SLOTNUM parameter) Parameter name can be up to eight characters and must be a legitimate parameter name.</td>
</tr>
</tbody>
</table>
LOADFLAG

Type: String_2
Lock: View
Default: HPM
Range: Hexadecimal characters 00 to FF

LOADPCKT

Type: Integer
Lock: View
Default: HPM
Range:

LOADSCOP (NIM)

Type: E:$LOADSCP
Lock: PtBld
Default: NIMAndPm
PtRes: NIM

Load Scope—Defines the scope of the point-build procedure for NIM and HPM configuration. The point information is loaded to both the NIM and HPM or to the NIM only. A value of NIMONLY is typically used to configure points into the NIM only during installation of a new system without HPMs.

NOTE

When points are built to a NIM and the NIM is restarted with no database, the points need to be reloaded from checkpoint or the points must be reconfigured. If the database is to be reconfigured, the HPMM must be in Idle, and the point execution state must be Inactive. This allows the point build operation to override the database that already exists there.

NOTE

To delete active entities from the HPM database, the point must be put to the inactive state. An alternative is to delete the entity in the NIM only by changing the LOADSCOP parameter for the NIM to NimOnly and deleting the point. Be sure to restore LOADSCOP to NimAndPM after deleting points.

Range: NimOnly (Configured data is to be loaded into the NIM only)
       NimAndPm (Configured data is to be loaded into the NIM and HPM)
LOADSTAT
Type: E:LOADSTAT  Load Status
Lock: View
Default: HPM
PtRes: HPM
Range:
  Not load
  Loaded
  Loading
  Unloading

LOCALMAN (AnalqOut, RegCtl)
Type: Logical  Local Manual Flag—Indicates whether the associated hardware output of this point is being controlled by a manually-operated analog display.
Lock: View
Default: Off
PtRes: HPM
Range:
  Off (Output is not being controlled by an Analog Display)
  On (Output is being controlled by an Analog Display)

LOCALMAN (DigComp, DevCtl)
Type: Logical  Local Manual Flag—When On, indicates that the output(s) is being locally controlled and not by the HPM. When this flag is on, it usually indicates that the "hand/off/auto" switch is not in the "auto" position.
Lock: Prog
Default: Off
PtRes: HPM
Range:
  Off
  On

LOCPRIM(1—4)
Type: Logical  Local Primary—Returns the tag name of a primary point in the same HPM that is storing to this point’s parameters.
Lock: View
Default: HPM
PtRes: HPM
Range:
  1 = SP or X1
  2 = Ratio or X2
  3 = X3
  4 = X4

Helpful Hint: LOCPRIM returns a null entity ID if the connection is not configured or the primary point is in a different node (such as, a peer-to-peer connection).
# LODSTN(1)–(12) (Logic)

<table>
<thead>
<tr>
<th><strong>Type:</strong></th>
<th>Blind Record in an Array (1..12)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lock:</strong></td>
<td>PtBld</td>
</tr>
<tr>
<td><strong>Default:</strong></td>
<td>null.null</td>
</tr>
<tr>
<td><strong>PtRes:</strong></td>
<td>HPM</td>
</tr>
<tr>
<td><strong>Range:</strong></td>
<td>Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters, and the permissible character set is as follows:</td>
</tr>
</tbody>
</table>
  - Alphabets A-Z (uppercase only)  
  - Numerics 0-9 (an all numeric tag name is not allowed)  
  - Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.  
  - Embedded space characters are not allowed.  
  - An * is used to default to this point's tag name.  
  - Parameter name can be up to eight characters, and must be a legitimate parameter name. |

Some possible output-connection destinations are:

- a."DigOut slot tagname.ONPULSE or OFFPULSE"
- b."DigOut slot Tagname.SO"
- c."Logic slot Tagname.Fl(nn)" where nn = 7–12
- d."ProcMod Tagname.Fl(nn)" where nn = 1–127
- e."Flag slot Tagname.PVFL"
- f."!Box.FL(nnnn)" for a box flag that resides in the same HPM box where nnnn = 1-16,384.
- g."$NMhhBxx.FL(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the UCN number; xx is the HPM box number of the destination parameter, and nnnn = 1-4095 (data access limit).

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where MT is the IOP type, such as DO (Digital Output)  
mm is the IOP Card number (1-40)  
The letter "S" is a constant  
ss is the slot number on the IOP Card (refer to SLOTNUM parameter)  
Parameter name can be up to eight characters and must be a legitimate parameter name.
### LODSTN(1)–(2) (DevCtl)

**Type:** Blind Record

**Device Control Output Connection Destination**—Specifies up to 2 destinations to which the current values of the Device Control slot outputs are supplied. The destinations can be specified using the "Tagname.Parameter" format or the hardware reference address format. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**Lock:** PtBl

**Default:** Null

**PtRes:** HPM

**Range:** Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:
- Alphabetics A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters and must be a legitimate parameter name.

Some possible output-connection destinations are:
- a. "DigOut slot tagname.ONPULSE or OFFPULSE"
- b. "DigOut slot Tagname.SO"
- c. "Logic slot Tagname.Fl(nn)" where nn = 7–12
- d. "ProcMod Tagname.Fl(nn)" where mnn = 1–127
- e. "Flag slot Tagname.PVFL"
- f. "Box.FL(nnnn)" for a box flag that resides in the same HPM box where nnnn = 1-16,384.
- g. "SNMbhBxx.FL(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the UCN number, xx is the HPM box number of the destination parameter, and nnnn = 1-4095 (data access limit).

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where:
- MT is the IOP type, such as DI (Digital Input)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)

Parameter name can be up to eight characters and must be a legitimate parameter name.

### LOENBL(1)–(2) (DevCtl)

**Type:** E:$PMDVPRM

**Device Control Output Enable**—Allows the respective output connection defined by LODSTN to write the value of the specified Device Control parameter to the destination. The logic output is allowed when the enable function, selected from the list below, is On. If the FL1 parameter is specified and the output data type is logical, output occurs only during change (normally, it is continuous).

**Lock:** PtBld

**Default:** FL2

**PtRes:** HPM

**Range:**
- FL1...FL12 [Local flag; either a 1 (On) or a 0 (Off)]
- D1, D2 [Digital PV inputs, either a 1 (On) or a 0 (Off)]
- S10 [Safety interlocks, either a 1 (On) or a 0 (Off)]
- I0, I1, I2 [Interlocks, either a 1 (On) or a 0 (Off)]
- P0, P1, P2 [Permissives, either a 1 (On) or a 0 (Off)]
- PISO1..PISO12 [Primary Input Gate Values (logical)]
- SISO1..SISO12 [Secondary Input Gate Values (logical)]
- PGSO1..PGSO4 [Primary Gate Output Values (logical)]
- SGSO1, SGSO2 [Secondary Gate Output Values (logical)]
- L1..L12 [Logic input value to device control slot (logical)]
## LOENBL(1)–(12) (Logic)

**Type:** E:$PMMLGPM  
**Lock:** PtBld  
**Default:** FL2  
**PtRes:** HPM  

**Logic Output Enable**—Allows the respective output connection defined by LODSTN to write the value of the specified logic-slot parameter to the destination. The logic output is allowed when the enable function, selected from the list below, is On. If the FL1 parameter is specified and the output data type is logical, output occurs only during change (normally, it is continuous).

**Range:**  
FL1...FL12 [Local flag; either a 1 (On) or a 0 (Off)]  
SO1...SO24 [Logic-block output; either a 1 (On) or a 0 (Off)]  
L1...L12 [Logic input value to logic slot (logical)]

## LOGALGiD(1)–(24) (Logic)

**Type:** E:$PMMLGAL  
**Lock:** PtBld  
**Default:** NULL  
**PtRes:** HPM  

**Logic Block Algorithm Identifier**—Defines the logic algorithm to be used for a particular logic block. A different logic algorithm can be specified for each logic block within a logic slot. Refer to the HPM Control Functions and Algorithms manual for a detailed description of each logic algorithm.

<table>
<thead>
<tr>
<th>Algorithm ID</th>
<th>Description</th>
<th>Input(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-NULL</td>
<td>No logic algorithm is executed</td>
<td></td>
</tr>
<tr>
<td>1-AND</td>
<td>AND Gate</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>2-OR</td>
<td>OR Gate</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>3-NOT</td>
<td>NOT Gate</td>
<td>S1</td>
</tr>
<tr>
<td>4-NAND</td>
<td>NAND Gate</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>5-NOR</td>
<td>NOR Gate</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>6-XOR</td>
<td>XOR Gate</td>
<td>S1, S2</td>
</tr>
<tr>
<td>7-QOR2</td>
<td>Qualified OR Gate with 2 Inputs On</td>
<td>S1, S2, S3, S4</td>
</tr>
<tr>
<td>8-QOR3</td>
<td>Qualified OR Gate with 3 inputs On</td>
<td>S1, S2, S3, S4</td>
</tr>
<tr>
<td>9-SWITCH</td>
<td>Switch</td>
<td>S1, S2</td>
</tr>
<tr>
<td>10-EQ</td>
<td>Compare equal with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>11-NE</td>
<td>Compare not equal with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>12-GT</td>
<td>Compare &gt; than with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>13-GE</td>
<td>Compare &gt; than or = with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>14-LT</td>
<td>Compare &lt; than with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>15-LE</td>
<td>Compare &lt; than or = with deadband</td>
<td>S1, R2, DEADBAND</td>
</tr>
<tr>
<td>16-CheckBad</td>
<td>Check for Bad</td>
<td>S1, S2</td>
</tr>
<tr>
<td>17-Pulse</td>
<td>Fixed-size Pulse</td>
<td>S1, DLYTIME</td>
</tr>
<tr>
<td>18-MinPulse</td>
<td>Pulse with minimum time limit</td>
<td>S1, DLYTIME</td>
</tr>
<tr>
<td>19-MaxPulse</td>
<td>Pulse with maximum time limit</td>
<td>S1, DLYTIME</td>
</tr>
<tr>
<td>20-Delay</td>
<td>Either Direction</td>
<td>S1</td>
</tr>
<tr>
<td>21-OnDly</td>
<td>Off-On Delay</td>
<td>S1, DLYTIME</td>
</tr>
<tr>
<td>22-OffDly</td>
<td>On-Off Delay</td>
<td>S1, DLYTIME</td>
</tr>
<tr>
<td>23-WatchDog</td>
<td>Watchdog Timer</td>
<td>FL6</td>
</tr>
<tr>
<td>24-FlipFlop</td>
<td>Flip Flop</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>25-ChDetect</td>
<td>Change Detect</td>
<td>S1, S2, S3</td>
</tr>
<tr>
<td>26-DISCREP3</td>
<td>Discrepancy Gate with 3 inputs plus delay</td>
<td>S1, S2, S3, DLYTIME</td>
</tr>
</tbody>
</table>

*Inputs S1–S3 can be inverted as required*
LOGICSRC (DigComp, DevCtl)

**Type:** Ent_Id

**Lock:** PtBld

**Default:** Null

**PtRes:** NIM

**Range:** Tag name can be up to sixteen characters and the permissible character set is as follows:
- Alphabetics A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.

**LOGMIX (Logic)**

**Type:** E:$LOGMIX

**Lock:** PtBld

**Default:** 12_24_4

**PtRes:** HPM

**Logic Mix—** Defines the number of input connections, logic blocks, and output connections this logic slot contains.

<table>
<thead>
<tr>
<th>Input Connections</th>
<th>Number of Logic Blocks</th>
<th>Output Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>LISRC(1)-LISRC(12)</td>
<td>12</td>
<td>LOSRC(1)-LOSRC(12)</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

**LOSRC(1)—(2) (DevCtl)**

**Type:** E:$PMDVPRM

**Lock:** PtBld

**Default:** FL1

**PtRes:** HPM

**Device Control Output Connection Source—** Defines the Device Control parameter that is to provide its value to the output connection specified by parameter LODSTN(n), Device Control Output Connection Destination.

- FL1...FL12 [Local flag; either a 1 (On) or a 0 (Off)]
- D1, D2 [Digital PV inputs, either a 1 (On) or a 0 (Off)]
- S10 [Safety interlocks, either a 1 (On) or a 0 (Off)]
- I0, I1, I2 [Interlocks, either a 1 (On) or a 0 (Off)]
- P0, P1, P2 [Permissives, either a 1 (On) or a 0 (Off)]
- PISO1..PISO12 [Primary Input Gate Values (logical)]
- SISO1..SISO12 [Secondary Input Gate Values (logical)]
- PGSO1..PGSO4 [Primary Gate Output Values (logical)]
- SGSO1, SGSO2 [Secondary Gate Output Values (logical)]
- L1..L12 [Logic input value to device control slot (either logical or real)]
- NN1..NN8 [Local numerics (real)]
- PINN1..PINN12 [Numeric constant for arithmetic comparisons (real)]
- SECVAR [Secondary variable input value (real)]
LOSRC(1)–(12) (Logic)

Type: E:$PMMLGPM Logic Output Connection Source—Defines the logic-slot parameter that is to provide its value to the output connection specified by parameter LODSTN(n), Logic Output Connection Destination.
Lock: Eng/PB
Default: FL1
PtRes: HPM
Range: FL1...FL12 [Local flag; either a 1 (On) or a 0 (Off)]
SO1...SO24 [Logic block output; logical 1 or 0]
L1...L12 [Input to the logic slot (logical or real value)]
NN1...NN8 [Local numeric; data type of Real]

LOWERTIM

Type: Real Lower Output Pulse Time (In Seconds)—Indicates the lower output pulse time in seconds. This value is clamped to MAXPULSE or CYCLETIM, whichever is lower. If LOWERTIM is smaller than RP*MINPULSE, no pulse is issued.
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

LOWRDSTN

Type: Universal Lower OP Pulse Destination—Defines the destination of the Lower output pulse. LOWRDSTN must point to parameter ONPULSE or parameter OFFPULSE of a DigOut point.
Lock: PtBld
Default: Null
PtRes: HPM
Range: ONPULSE OFFPULSE

LOWRRATE

Type: Real Lower OP Stroke Rate in Percent/Second
Lock: Supr
Default: 100.0 %/sec.
PtRes: HPM
Range: >0.0 percent/second

LRL (STI)

Type: Real Lower Range Limit—Indicates the lower range limit of the PV at the smart transmitter. This limit is fixed and cannot be changed. Refer to the description of the STI_EU parameter for the LRL engineering units.
Lock: View
Default: NaN
PtRes: HPM
Range: N/A, NaN
LRV (STI)

**Type:** Real

**Lock:** Supr/View

**Default:** NaN

**PtRes:** HPM

**Range:** N/A, NaN

**Lower Range Value**—Defines the lower end of the operating range for the PVRAW value. User entry for PVEULO is the user-entered engineering-unit value that corresponds to LRV. Refer to description of the STI_EU parameter for the LRV engineering units.

This parameter can be changed only when the STI point execution state PTEXECST is Inactive.

LSEQNUMR

**Type:** Integer

**Lock:** Eng

**Default:** 0

**PtRes:** IOP

**Range:** ?

**Last Sequence Number**—Specifies the sequence number of the last personality image file packet received by the IOP.

LSIOLORN(0) - (4) (HPM Box)

**Type:** Integer

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** ≥ 0

**Last Hour's I/O Link Fetch/Store Overruns**—Indicates the number of I/O Link access overruns that have been detected in the last hour.

LSIOLORN is set equal to the contents of CRIOLORN, every hour on the hour.

LSPPXORN(0 - 8) (HPM Box)

**Type:** Integer

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** ≥ 0

**Last Hour's Point Processing Overruns Per Cycle**—Indicates the number of point processing overruns that have been detected in the last hour.

LSPPXORN is set equal to the contents of parameter CRPPXORN, every hour on the hour.

LSTWHNER (ProcMod)

**Type:** Integer

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** ≥ 0

**Last When Error**—The CL Fail/Error code masked by the “When Error” clause.

LSUCNORN (HPM Box)

**Type:** Integer

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** ≥ 0

**Last Hour's UCN Access Overruns**—LSUCNORN is set equal to the contents of parameter CRUCNORN, the current hour's UCN Access Overruns, every hour on the hour.
M (IncrSum, ORSel, Switch)
Type: Integer  Number of Inputs
Lock: PtBld
Default: 2
PtRes: HPM
Range: 2 to 4

MAINDAT (DevCtl, DigComp)
Type: Time  Maintenance Reset Statistics Date—The date and time of the reset of maintenance
Lock: Engr  statistics that can also be written by the engineer.  Statistics can be reset by the
Default: Time of Point  operator only when the device is red tagged, while programs can reset them at any
Build  time.  Resetting is accomplished by setting the RESETFL to ON.
PtRes: HPM
Range: Time Stamp (DD MMM YY HH:MM:SS)

[Helpful Hint: This parameter is reset when the RESETFL parameter = ON.]

MAINTOPT (DevCtl, DigComp)
Type: Logical  Maintenance Option—Indicates if the maintenance statistics option is used.
Lock: PtBld
Default: Off
PtRes: HPM
Range: Off (Maintenance statistics are not available)
        On (Maintenance statistics are available)

MANMODFL (RegCtl)
Type: Logical  Manual Mode Flag— Indicates whether the current mode of the slot is Manual.
Lock: View
Default: N/A
PtRes: HPM
Range: Off (Current mode is other than Manual)
        On (Current mode is Manual)

MANOPCMD
Type: E:$MANOPCM  Manual Output Pulse Command— Defines the output pulse command issued
Lock: Oper  by the operator for raising and lowering the output.  See also,
Default: None  MANOPTIM.
PtRes: HPM
Range: 0= None (No change)
      1= Raise_1 (Raise output by 1 MANOPTIM each keystroke)
      2= Lower_1 (Lower output by 1 MANOPTIM each keystroke)
      3= Raise_10 (Raise output by 10 MANOPTIMs each keystroke)
      4= Lower_10 (Lower output by 10 MANOPTIMs each keystroke)
**MANOPTIM**

*Type:* Real  
*Manual Output Pulse Time (in seconds)—Defines the width of the raise or lower output pulse that is issued by the operator.*

*Lock:* Eng/PB  
*Default:* 1.0

*PtRes:* HPM  
*Range:* 0.0 to 60.0 seconds

**MASKTIM (DevCtl)**

*Type:* Integer  
*Masktime—The amount of time the SECVAR parameter alarms are masked after a change in the output state.*

*Lock:* Supr  
*Default:* 0

*PtRes:* HPM  
*Range:* 0 to 1000 seconds

**MAXCNFPU (HPM Box)**

*Type:* Real  
*Maximum Configurable PUs—Specifies*  

*Lock:* View  
*Default:* N/A

*PtRes:* HPM  
*Range:*

**Helpful Hint:**

**MAXPU (ProcMod)**

*Type:* Real  
*Maximum PUs—Specifies the maximum PUs used for point processing.*

*Lock:* View  
*Default:* 0

*PtRes:* HPM  
*Range:*

**Helpful Hint:**

**MAXPULSE**

*Type:* Real  
*Maximum Pulse Time Limit—Defines the maximum pulse time limit. If the calculated pulse time is greater than this value then a pulse of length MAXPULSE is issued.*

*Lock:* Supr  
*Default:* 60

*PtRes:* HPM  
*Range:*

NaN  
MINPULSE to 60.0 seconds
MAXSLOTS

**Type:** Real  
**Lock:** View  
**Default:** 0  
**PtRes:** IOP  
**Range:** 0 - 127 slots

**Maximum Available Slots**—Returns the maximum number of slots that can be configured in an IOP.

**Helpful Hint:** Applies to the following IOP types: AO16, DI32 and DO32.

MAXTIM0H (DevCtl, DigComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 0  
**PtRes:** HPM  
**Range:** N/A

**Maximum Time Allowed in State 1**—The maximum amount of time (based on the PV) in hours allowed for state 1.

MAXTIM1H (DevCtl, DigComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 0  
**PtRes:** HPM  
**Range:** N/A

**Maximum Time Allowed in State 1**—The maximum amount of time (based on the PV) in hours allowed for state 2.

MAXTIM2H (DevCtl, DigComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 0  
**PtRes:** HPM  
**Range:** N/A

**Maximum Time Allowed in State 2**—The maximum amount of time (based on the PV) in hours allowed for state 3.

MAXTRAN0–2 (DevCtl, DigComp)

**Type:** Time  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0 (There is no limit)

**Maximum Number of Transitions into State**—This is the maximum number of transitions allowed in each state, and is the target value for maintenance statistics.

MDMHWREV (HPM Box, NIM)

**Type:** String_2  
**Lock:** View  
**Default:**  
**PtRes:** HPM, NIM  
**Range:** Hexadecimal Characters 00 to FF

**Modem Hardware Revision**
MEMFWREV

Type: String_2  Memory Firmware Revision
Lock: View
Default: 
PtRes: HPM
Range: Hexadecimal Characters 00 to FF

MEMHWREV

Type: String_2  Memory Hardware Revision
Lock: View
Default: 
PtRes: HPM
Range: Hexadecimal Characters 00 to FF

MINPULSE

Type: Real  Minimum Pulse Time Limit—Defines the minimum pulse time limit for the 
Lock: Supr  Raise pulse. If the calculated pulse time value is smaller than this value, no 
Default: 0.0  pulse is issued.
PtRes: HPM
Range: 0.0 seconds to MAXPULSE
NaN

MINUTE (HPM Box)

Type: Integer  Current Minute—Value of the LCN time in the HPM.
Lock: View
Default: N/A
PtRes: HPM
Range: 0 to 59

MNFASIC (HPM Box)

Type: Integer  HPMM Communications Control Card ASIC Revision—
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 31

MNFCCDAY (HPM Box)

Type: Integer  HPMM Communications Control Card Manufacturing Date-Day—
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 31
MNFCCINF (HPM Box)
Type: String_8  HPMM Communications Control Card Manufacturing Information—
Lock: View
Default: 0
PtRes: HPM
Range:

MNFCCMTH (HPM Box)
Type: Integer  HPMM Communications Control Card Manufacturing Date-Month—
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 12

MNFCCSER (HPM Box)
Type: String_24  HPMM Communications Control Card Serial Number—
Lock: View
Default: 0
PtRes: HPM
Range:

MNFCCYR (HPM Box)
Type: Integer  HPMM Communications Control Card Manufacturing Date-Year—
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 99

MNFFPGA (HPM Box)
Type: Integer  HPMM I/O Link Card FPGA Revision—
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 31

MNFIODAY (HPM Box)
Type: Integer  HPMM I/O Link Card Manufacturing Date-Day
Lock: View
Default: 0
PtRes: HPM
Range: 1 - 31
**MNFIOINF (HPM Box)**

**Type:** String_8

HPMM IO Link Processor Card Manufacturing Information

**Lock:** View

**Default:** Blank

**PtRes:** HPM

**Range:** 0 - 99

---

**MNFIOYMTH (HPM Box)**

**Type:** Integer

HPMM IO Link Card Manufacturing Date-Month

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** 1 - 12

---

**MNFIOYER (HPM Box)**

**Type:** String_24

HPMM IO Link Card Serial Number

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:**

---

**MNFIOYR (HPM Box)**

**Type:** Integer

HPMM IO Link Card Manufacturing Date-Year

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** 0 - 99

---

**MNFMDDAY (HPM Box)**

**Type:** Integer

HPMM UCN Interface Card Manufacturing Date-Day

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** 1 - 31

---

**MNFMDINF (HPM Box)**

**Type:** String_8

HPMM UCN Interface Card Manufacturing Information

**Lock:** View

**Default:** Blank

**PtRes:** HPM

**Range:**
MNFMDMTH (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>HPMM UCN Interface Card Manufacturing Date-Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>1 - 12</td>
<td></td>
</tr>
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MNFMDSER (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>String_24</th>
<th>HPMM UCN Interface Card Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

MNFMDYR (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>HPMM UCN Interface Card Manufacturing Date - Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 - 99</td>
<td></td>
</tr>
</tbody>
</table>

MODATTR

<table>
<thead>
<tr>
<th>Type</th>
<th>E:MODATTR</th>
<th>Mode Attribute—Defines whether the operator or the sequence program has the authority to change certain parameters of this data point. At the Universal Station, the mode attribute is displayed next to the mode of the data point. If the mode attribute is Program, a -P appears to the left of MODE. If the attribute is operator, blanks are displayed to the left of mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Oper</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Operator</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0-Operator</td>
<td>Operator can set Mode, OP, SP, Ratio, Bias</td>
</tr>
<tr>
<td></td>
<td>1-Program</td>
<td>Program can set Mode, OP, SP, Ratio, Bias</td>
</tr>
<tr>
<td></td>
<td>2-Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-None</td>
<td>No mode attribute</td>
</tr>
</tbody>
</table>

Helpful Hint: MODATTR change requires SHUTDOWN = Off and REDTAG = Off. When the "normal mode" button on the Operator's keyboard is pressed, MODATTR = NMODATTR unless NMODATTR = None.
MODE (AnalglOut)

**Type:** E:MODE

**Lock:** Oper

**Default:** Man

**PtRes:** HPM

**Range:**
- **1-Man** (Operator or Program provides the point’s output value (OP))
- **2-Cas** (Data point receives its output value from a primary data point. If RCASOPT is DDC, data point receives its output value from an AM point.)
- **5-Normal** (Parameter NMODE determines this point’s mode)

**Helpful Hint:**
1. MODE change by a program requires MODATTR = Program and REDTAG = Off.
2. MODE change by an operator requires MODATTR = Operator, MODEPERM = Permit, and REDTAG = Off.

MODE (DigComp, DevCtl)

**Type:** E:MODE

**Lock:** Oper

**Default:** Man

**PtRes:** HPM

**Range:**
- **1-Man** (Operator or Program controls slot’s output (OP))
- **5-Normal** (Parameter NMODE contains slot’s mode)

**Helpful Hint:**
1. MODE change by a program requires MODATTR = Program, SHUTDOWN = Off, and REDTAG = Off.
2. MODE change by an operator requires MODATTR = Operator, MODEPERM = Permit, SHUTDOWN = Off, and REDTAG = Off.

MODE (RegCtl)

**Type:** E:MODE

**Lock:** Oper

**Default:** Man

**PtRes:** HPM

**Range:**
- **1-Man** (Operator or discontinuous program controls slot’s output (OP), regardless of any automatic control strategy)
- **2-Cas** (Upstream slot’s OP is this slot’s SP)
- **3-Auto** (OP value is computed by the configured RegCtl algorithm, and the setpoint (SP) comes from the local setpoint (LSP) location in the RegCtl point. An operator or a discontinuous program can change the setpoint value.
- **4-Bcas** (Local cascade mode where the RegCtl point receives its setpoint from the OP of a primary data point, even though the entry for the RCASOPT parameter is Spc, DdcRsp, or Rsp (where the AM provides the setpoint). In this way, should the AM or the NIM fail, the control strategy will shed to the local cascade mode.)
- **5-Normal** (Parameter NMODE determines the normal mode of this slot)

**Helpful Hint:**
1. MODE change by a program requires MODATTR = Program and REDTAG = Off.
2. MODE change by an operator requires MODATTR = Operator, MODEPERM = Permit, and REDTAG = Off.
MODEAPPL(1)–(4) (DevCtl, DigComp, RegCtl)

Type: Logical
Lock: View
Default: Man=On
MODEAPPL[1]=Off
MODEAPPL[Auto]=Off
Mode Applicability—Defines changes for Regulatory Control points:
MODEAPPL[3]=Off
MODEAPPL[BCas]=Off
MODEAPPL[Cas]=Off
Static for DevCtl
and Digcomp points
PtRes: HPM
Range: N/A

MODEPERM (AO)

Type: E:MODEPERM
Lock: Eng/PB
Default: Permit
PtRes: HPM
Range: 0-Permit (Operator can change this point's mode)
1-NotPerm (Operator cannot change this point's mode)

MODEPERM (DevCtl, DigComp, RegCtl)

Type: E:MODEPERM
Lock: Eng
Default: Permit
PtRes: HPM
Range: 0-Permit (Operator can change this point's mode)
1-NotPerm (Operator cannot change this point's mode)

MODNUM

Type: Integer
Lock: PtBld
Default: N/A
PtRes: NIM
Range: 0 to 40 (0 is reserved for the HPMM)

MOMSTATE (DevCtl, DigComp)

Type: E:$MOMSTAT
Lock: Eng/PB
Default: None
PtRes: HPM
Range: 0-None (No momentary output states)
1-Mom_1 (State 1 is momentary if NOSTATES = 2 or 3)
2-Mom_0 (State 0 is momentary if NOSTATES = 2)
3-Mom_2 (State 2 is momentary if NOSTATES = 3)
4-Mom_1_2 (State 1 and State 2 are momentary; valid if NOSTATES = 3)
**MONPER (HPM Box)**

*Type:* Integer  
*Lock:* Eng  
*Default:* 3600  
*PtRes:* HPM  
*Range:* 4 - 3600 (must be in multiples of 4 seconds)

**MONPER (Monitoring Period)**—Specifies the monitoring period in seconds.

**MONTH (HPM Box)**

*Type:* Integer  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:* 1 to 12 (January to December)

**MONTH (Current Month)**—The value of the LCN date in the HPM.

**MOVPVFL**

*Type:* Logical  
*Lock:* View  
*Default:* Off  
*PtRes:* HPM  
*Range:* Off (PV is not moving)  
On (PV is moving)

**MOVPVFL (Moving PV Flag)**—Indicates whether the PV is moving from one state to another state.

**MOVPVTXT (HPM Box, DevCtl, DigComp)**

*Type:* String_8  
*Lock:* PtBld  
*Default:* MOVING  
*PtRes:* NIM  

**MOVPVTXT (Moving PV Text Descriptor)**—Defines the state descriptor that is displayed when the Digital Composite or Device Control point is changing states (moving from one state to another), or is in-between states. This descriptor, defined on the HPM box point, is displayed for all digital composite or device control points in this HPM box if PVTXTOPT = OFF. This parameter contains the text for a configured moving PV on a per point basis if the PVTXTOPT is ON.

**Range:** The permissible character set for the up to eight character descriptor is as follows:
- Alphabetics A-Z (uppercase only)
- Numerics 0-9
- Underscore (_)

**MPCFWREV (HPM Box)**

*Type:* String_2  
*Lock:* View  
*Default:* Blank  
*PtRes:* HPM  

**MPCFWREV (HPM Master Processor Card Firmware Revision)**

**MPCHWREV (HPM Box)**

*Type:* String_2  
*Lock:* View  
*Default:* Blank  
*PtRes:* HPM  

**MPCHWREV (HPM Master Processor Card Hardware Revision)**
MSGPEND (ProcMod)

Type: Logical
Lock: View
Default: None
PtRes: HPM
Range: N/A

Sequence Message Pending—Indicates that a confirmable sequence message requiring confirmation has been issued to the operator.

MSGTXT(0)–(15) (NIM)

Type: String_8 in an Array (0..15)
Lock: PtBld
Default: Blank
PtRes: NIM
Range: 0 to 15

Status Message Text—Indicates the text for the self-defined enumeration of STSMSG. MSGTXT(0) is always NONE, and cannot be configured. Refer to “Status Messages” in the Control Functions and Algorithms Manual for more information.

MXRMPDEV (RampSoak)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: ≥ 0.0, NaN

Maximum Ramp Deviation Value—If the PV falls behind the SP during a ramp segment by more than the value of MXRMPDEV, the ramping action is stopped until the PV reaches the SP.

MXSOKDEV (RampSoak)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: ≥ 0.0, NaN

Maximum Soak Deviation Value—If the PV falls behind the SP during a soak segment by more than the value of MXSOKDEV, the soak timer is stopped until the PV reaches SP.
N (Calcultr)

Type: Integer
Lock: PtBld
Default: 1
PtRes: HPM
Range: 1 to 6

Number of Inputs—Defines the number of inputs to this algorithm.

N (HiLoAvg, Summer)

Type: Integer
Lock: PtBld
Default: 2
PtRes: HPM
Range: 2 to 6 inputs

NAME

Type: String_16
Lock: PtBld
Default: N/A
PtRes: NIM

Point Name—Identifies this point to the system and on displays, reports, and logs. Figure N-1 shows examples of the Group and Detail Displays on which the point name appears.

Digital Input, Digital Output, Analog Output, Flag, and Numeric-type data points do not have to be configured by using the point builder (DEB). All other types of data points have to be configured by using the DEB and require that a point name be specified during the point build process.

Range: Point name can be up to 16 characters, and the permissible character set is as follows:
- Alphabetics A-Z (uppercase only)
- Numerics 0-9 (an all numeric point name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
Figure N-1 — Locations of Terms on Group and Detail Displays
NARRSLOT (HPM Box)

**Type:** Integer  
**Lock:** PtBld  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 500

NARRSLOT (HPM Box) refers to the number of array slots in an HPM. The default value is 0, and the range is from 0 to 500.

NCTLSLOT (HPM Box)

**Type:** Integer  
**Lock:** PtBld  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 250

NCTLSLOT (HPM Box) refers to the number of regulatory control slots in an HPM. It is recommended to refer to the HPM Control Functions and Algorithms manual for a detailed description of HPM processing capacity. The default value is 0, and the range is from 0 to 250.

NDCSLOT (HPM Box)

**Type:** Integer  
**Lock:** PtBld  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 999

NDCSLOT (HPM Box) refers to the number of digital composite slots in an HPM. It is recommended to refer to the HPM Control Functions and Algorithms manual for a detailed description of HPM processing capacity. The default value is 0, and the range is from 0 to 999.

NDEVSLCT (HPM Box)

**Type:** Integer  
**Lock:** PtBld  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 400

NDEVSLCT (HPM Box) refers to the number of device control points configured. It is recommended to refer to the HPM Control Functions and Algorithms manual for a detailed description of HPM processing capacity. The default value is 0, and the range is from 0 to 400.

NEIPRQU (NIM PSDP)

**Type:** Real  
**Lock:** View  
**Default:** 0  
**PtRes:** NIM  
**Range:** N/A

NEIPRQU (NIM PSDP) refers to the number of event initiated processing requests. It is recommended to refer to the NIM PSDP manual for a detailed description of NIM processing capacity. The default value is 0, and the range is N/A.
NEVTAVG (HPM Box)

Type: Real  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

**Type:** Average number of Events per Second—Average number of events generated by the HPM per second.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

NEVTMAX (HPM Box)

Type: Real  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

**Type:** Maximum number of Events per Second—Maximum number of events generated by the HPM per second.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

NFASTCTL (HPM Box)

Type: Integer  
Lock: PtBld  
Default: 0  
PtRes: HPM  
Range: 0 to 100, cannot exceed NCTLSLOT

NFASTDC (HPM Box)

Type: Integer  
Lock: PtBld  
Default: 0  
PtRes: HPM  
Range: 0 to 999, cannot exceed NDCSLOT

NFASTDEV (HPM Box)

Type: Integer  
Lock: PtBld  
Default: 0  
PtRes: HPM  
Range: 0 to 100, cannot exceed NDEVSLOT
NFASTLOG (HPM Box)
Type: Integer  Number of Fast Logic Slots—Fast slots are processed four times per second.
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 100, cannot exceed NLOGSLOT

NFASTPV (HPM Box)
Type: Integer  Number of Fast Regulatory PV slots—Fast slots are processed four times per second.
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 100, cannot exceed NPVSLOT

NFLAG (HPM Box)
Type: Integer  Number of Flags in HPM Box Data Point—The HPM always provides 16, 384 box flag variables.
Lock: View
Default: 16, 384
PtRes: HPM
Range: 16,384

NFLAG (Array)
Type: Integer  Number of Flags in Array Point FL Array—Defines the number of mapped flags from either the HPM box (EXTDATA= IO_FL) or a serial interface IOP-connected device (EXTDATA=IO_FL).
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 512 (When EXTDATA = IO_FL)
0 to 1023 (When EXTDATA ≠ IO_FL)

NI0–2 (DevCtl, DigComp)
Type: Logical  Inverted Interlocks Value—The negative value of the corresponding interlock.
Lock: Engr
Default: On
PtRes: HPM
Range: On (Interlock inactive)
Off (Interlock active)

Helpful Hint: This parameter can be changed by the engineer only if the point is inactive or if the HPM is idle.
### NIMDAY (NIM)

**Type:** Integer  
**Lock:** View  
**Default:** 1  
**PtRes:** NIM  
**Range:** 1 to 31

**Helpful Hint:** This parameter is accessed using $NTWRKuu.NIMDAY (where uu = UCN Network number).

### NIMMONTH (NIM)

**Type:** Integer  
**Lock:** View  
**Default:** 1  
**PtRes:** NIM  
**Range:** 1 to 12

**Helpful Hint:** This parameter is accessed using $NTWRKuu.NIMMONTH (where uu = UCN Network number).

### NIMREV (NIM)

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** NIM  
**Range:** N/A

**Helpful Hint:** This parameter is accessed using $NTWRKuu.NIMREV (where uu = UCN Network number).

### NIMVERS (NIM)

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** NIM  
**Range:** N/A

**Helpful Hint:** This parameter is accessed using $NTWRKuu.NIMVERS (where uu = UCN Network number).

### NIMYEAR (NIM)

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** NIM  
**Range:** 0 - 99

**Helpful Hint:** This parameter is accessed using $NTWRKuu.NIMYEAR (where uu = UCN Network number).
### NLFM

**Type:** Integer  
**Lock:** Supr  
**Default:** 1  
**PtRes:** HPM  
**Range:** 0 or 1

**Nonlinearity Form**—Defines the form of the nonlinear gain.

### NLGAIN (Pid)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0.0 to 240.0

**Nonlinear Gain**—Defines the value of the nonlinear gain factor $K_{NL}$.

### NLOC (VdtLdLag)

**Type:** Integer  
**Lock:** Eng  
**Default:** 30  
**PtRes:** HPM  
**Range:** 2 to 30

**Number of Locations in Delay Table**

### NLOGSLOT (HPM Box)

**Type:** Integer  
**Lock:** PtBld  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 400

**Number of Logic Slots in the HPM**—Refer to the *HPM Control Functions and Algorithms* manual for a detailed description of HPM processing capacity.

### NMIN (HiLoAvg)

**Type:** Integer  
**Lock:** Supr  
**Default:** 1  
**PtRes:** HPM  
**Range:** 1 to N (N is the number of inputs selected by N parameter)

**Minimum Number of Good Inputs**—Defines the minimum number of valid inputs (PV status is good or uncertain) to this algorithm.
NMODATTR (RegCtl)

**Type:** E:MODATTR  
**Lock:** Engr  
**Default:** None  
**PtRes:** HPM  
**Range:**  
- 0-Operator (MODATTR can be set equal to Operator)  
- 1-Program (MODATTR can be set equal to Program)  
- 2-Normal  
- 3-None (MODATTR is not affected by this parameter)

**Normal Mode Attribute**—Defines whether an operator or a program can change certain parameters such as the mode, SP, or OP of a data point when the point is in the normal mode.

**Helpful Hint:** If NMODATTR = Operator or Program and the "normal mode" button on the Operator's keyboard is pressed, MODATTR = NMODATTR. If NMODATTR is to be changed, the engineer must change it.

NMODE (AnalgOut)

**Type:** E:MODE  
**Lock:** Engr/PB  
**Default:** None  
**PtRes:** HPM  
**Range:**  
- 0-None (No configured "normal" operating mode)  
- 1-Man (Manual is configured "normal" mode)  
- 2-Cas (Cascade is configured "normal" mode)

**Normal Mode**—Allows user to define the normal mode for this data point.

**Helpful Hint:** NMODE configuration for the Cas option requires RCASOPT = Ddc.

NMODE (DevCtl, DigComp)

**Type:** E:MODE  
**Lock:** View  
**Default:** Man  
**PtRes:** HPM  
**Range:**  
- 1-Man (Manual is the "normal" operating mode)

**Normal Mode**—Allows user to define the normal mode for this data point.

NMODE (RegCtl)

**Type:** E:MODE  
**Lock:** Engr  
**Default:** None  
**PtRes:** HPM  
**Range:**  
- 0-None (No configured "normal" operating mode)  
- 1-Man (Manual is the "normal" operating mode)  
- 2-Cas (Cascade is the "normal" operating mode)  
- 3-Auto (Automatic is the "normal" operating mode)  
- 4-Bcas (Backup Cascade is the "normal" operating mode)

**Helpful Hint:** Mode. If NMODATTR = None and the "normal mode" button on the Operator's keyboard is pressed, MODE is set to the contents of NMODE.
NMODETRK (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>E:$NMODETR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default</td>
<td>Enable</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>Enable</td>
</tr>
</tbody>
</table>

**Normal Mode Tracking Supression**—Enable/disable Normal Mode and Normal Mode attribute from tracking mode and mode attribute changes.

NMSGTXT (NIM)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 15</td>
</tr>
</tbody>
</table>

**Number of Message Text Items**—Defines the number of message text items that you can enter. See MSGTXT.

NN(i) (Array)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Determined by SPLOCK</td>
</tr>
<tr>
<td>Default</td>
<td>N/A</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>(1 \leq i \leq \text{Array parameter NNUMERIC} )</td>
</tr>
</tbody>
</table>

**Array Point Numeric Variables**—Numerics are mapped from either the HPM box (defined by NNUMERIC and NNSTIX parameters) or from a serial interface IOP-connected device (when EXTDATA=IO_NN, mapping is defined by the IOPNUM, FTANUM, DEVADDR, NNSTIX, and NNUMERIC parameters).

NN(1)–(8) (DevCtl, Logic)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Supr</td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Numerics 1-8**—Eight numerics are provided with each device control and logic slot. The numerics can be used as reference values for the comparison logic algorithms, or they can be used as source parameters for the output connections when writing predefined analog constants to other points. The values of the numerics can be changed from the Universal Station, by other device control logic slots, or by user-written programs.

NN(1)–(80) (ProcMod)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Determined by SPLOCK</td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Numeric Variables**—Each process module in the HPM has 80 numerics that can be used for implementing batch operations.

NN(1)–(16,384) (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Oper</td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Numeric Value**—This is an array of up to 16,384 numeric variables. The upper bound of this array is determined by the NNUMERIC parameter. Numerics NN(1) to NN (2047) are taggable. Numerics NN(1) to NN (4095) are accessible from the LCN by using hardware form [!Box.NN( )]. Numerics 4096 through 16,384 are accessible only through Array points.
NNDESC (Array)

Type: String_64
Lock: PtBld
Default: Spaces
PtRes: HPM
Range: N/A

NNDESC (Array) — Describes NN data for the Array point.

NNINSET(1)–(10) (DevCtl)

Type: Integer
Lock: Supr
Default: 0
PtRes: HPM
Range: 0 to 32767

NNINSET(1)–(10) — A set of 10 integers that are used by the primary input gate IN_SET algorithm.

NNSTIX (Array)

Type: Real
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 99,999 (When EXTDATA=IO_NN, 0 can be valid device index)
0 to Box parameter NNUMERIC (When EXTDATA=IO_NN, 0 indicates no numerics are configured)

NNSTIX (Array) — Defines the start index in Box NN variables, or a serial interface-connected device.

NNUMERIC (HPM Box)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 16,384

NNUMERIC (HPM Box) — The number of box numerics is determined in intervals of 16 numerics.

NNUMERIC (Array)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 - 16 (Floats), 0 - 32 (Integers), 0 - 64 (Byte Integers) When EXTDATA = IO_NN
0 to 240 When EXTDATA ≠ IO_NN

NNUMERIC (Array) — Defines the number of numerics mapped from either the HPM box (EXTDATA=IO_NN), or a serial interface IOP-connected device (EXTDATA=IO_NN). For external data, the valid range depends on how numeric data is organized in the device.
NOCINPTS (RegCtl)

Type: Integer  
Lock: PtBlcl  
Default: Based on CTLALGID, CTLEQN, M  
PtRes: HPM  
Range: 0 to 4

**Number of Control Input Connections**—Defines the number of control input connections for this algorithm.

NOCOPTS (RegCtl)

Type: Integer  
Lock: PtBlcl  
Default: 1  
PtRes: HPM  
Range: 0 to 4

**Number of Control Output Connections**—Defines the number of control output connections from this RegCtl point.

**Helpful Hint:** Control output engineering ranges (CVEULO, CVEUHI) must be entered for CTLALGID = PidErfb and Rampsoak, and must be entered for CTLALGID = Pid, PidFf, and RatioCtl when NOCOPTS = 0. For CTLALGID = Pid, PidFf, and RatioCtl, with NOCOPTS > 0, the CV ranges are obtained from a secondary output connection.

NODEASSN (HPM Box)

Type: E:$NODEASN  
Lock: PtBlcl  
Default: ThisNIM  
PtRes: NIM  
Range: ThisNIM

**Node Assignment**—Defines whether the NIM on this logical UCN or a NIM on another logical UCN is the primary NIM for this UCN node.

**RemotNIM** (A NIM on another logical UCN is responsible for configuring, checkpointing, and restoring the database through this UCN node.)
NODECMD (HPM Box)

Type: E: $PMCMD

Node Command—Defines the command issued to the HPM.

Lock: Eng

Default: None

PtRes: HPM

Range: 0-None (No request made to the HPM)
1-Run (HPM requested to go to the Run state)
2-Idle (HPM requested to go to an Idle state)
3-Warmstrt (Warm Start requested)
4-Coldstrt (Cold Start requested)
5-Pause (HPM requested to go to the Simul_Pause state)
6-Resume (HPM requested to go to the Simul_Run state)

NODECONF (HPM Box)

Type: E:$PMCONF

Node Configuration for the HPM—Currently not used. This parameter must always be set to manual.

Lock: View

Default: Manual

PtRes: HPM

Range: Manual

NODENUM (NIM)

Type: Integer

Node Number—Defines the address of the NIM on the UCN.

Lock: PtBld

Default: N/A

PtRes: NIM

Range: 1 to 64

NOTE

The node number assigned to the NIM should be the lowest node number on the UCN (see Timesync).

NODENUM (HPM Box)

Type: Integer

Node Number—Defines the address of the HPMs on the UCN. NODENUM assigned for any HPM must be odd whether PKGOPT equals Option 1 (nonredundant) or Option 2 (redundant). Because of this restriction and because the NIM takes up one odd address and the next even address, the maximum number of HPM’s that can be on the UCN is 31. The primary HPMM is assigned an odd address, the associated secondary (redundant) HPMM is assigned the next (even) address.
NODEOPER

Type: E:$PRIMSEC  Node Operating Mode
Lock: View
Default: NIM
PtRes: NIM (HPM/NIM is the acting primary node)
Range: Primary (HPM/NIM is the acting primary node)
        Secondary (HPM/NIM is the acting secondary)

NODESC (Logic)

Type: Integer  Number of Generic Descriptors—Defines the number of user-defined
generic descriptors that are to be used on this logic slot. For each descriptor, the
parameter in the logic slot to which the generic descriptor is attached is defined
by the PRMDESC(n) parameter, and the corresponding descriptors are defined by
the GENDESC(n) parameters. This allows the user to customize the descriptors
used for displaying the logic slot on the Universal Station displays.

NODESTAT (HPM Box)

Type: E:$NODESTA  HPM Node Status
Lock: View
Default: N/A
PtRes: HPM
Range: OffNet (HPM is not running on UCN)
        OK (HPM is configured and running)

NODESTAT (NIM)

Type: E:$NODESTA  NIM's Node Status
Lock: View
Default: N/A
PtRes: NIM
Range: OffNet (NIM is not running on UCN)
        OK (NIM is configured and running)

NODESTS (NIM)

Type: E:$DSPSTAT  NIM Node Summary Status—Indicates the current overall status of the NIM.
Lock: View
Default: N/A
PtRes: NIM
Range: OffNet (NIM cannot communicate with HPMM)
        OK (NIM is performing normally)
**NODESTS (HPM Box)**

**Type:** E:$DSPSTAT  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  

**Range:**  
0-OK (HPM is performing normally)  
1-IOIDL (At least one IOP has entered the idle state)  
2-IDLE (HPMM has entered the idle state)  
3-PF_IOIDL (Partial failure in one or more idle IOPs)  
4-PF_IDLE (Partial failure in HPMM that is in idle state)  
5-PartFail (Partial failure in HPMM that is in run state)  
6-Fail (HPMM has sent a "failed" message to the NIM)  
7-Alive (No event reports or point processing)  
8-Loading (HPMM's personality or database is loading)  
9-PowerOn (Transitional state when power applied to HPMM)  
10-OffNet (NIM cannot communicate with HPMM)  
12-NotConf (HPMM cannot be found on the UCN)  
13-ConfMis (IOP mismatch in NIM Box point)  
19-Standby  
20-S_OK (OK in I/O simulation mode)  
21-S_IOIDL (IOIDL in I/O simulation mode)  
22-S_IDLE (IDLE in I/O simulation mode)  
23-S_PFIOIL (PF_IOIDL in I/O simulation mode)  
24-S_PFIDLE (PF_IDLE in I/O simulation mode)  
25-S_PtFail (PartFail in I/O simulation mode)  
26-S_Pause (HPM is in the simulation pause state)  
27-StandbySF  
28-Upgrade  
29-UpgradeSF

*Helpful Hint:* Loading the HPMM's operating personality requires NODESTS = Alive.

**NODETYP (NIM)**

**Type:** E:$UCNNDTY  
**Lock:** PtBld  
**Default:** NIM  
**PtRes:** NIM  

**Range:** NIM (Network Interface Module)

**NODETYP (HPM Box)**

**Type:** E:$UCNNDTY  
**Lock:** PtBld  
**Default:** HPM  
**PtRes:** NIM  

**Range:** HPM (High-Performance Process Manager)
**NODETYP (HPM Points)**

*Type:* E:$UCNNDTY  
*UCN Node Type*—Defines which node type supports this point.

*Lock:* PtBlk

*Default:* HPM

*PtRes:* NIM

*Range:* HPM (High-Performance Process Manager)

**NODFSTAT (HPM Box)**

*Type:* E:$NODFSTA  
*Node's Functional Status*—Defines the status of the UCN node.

*Lock:* Supr

*Default:* Basic

*PtRes:* NIM

*Range:*  
- **Full** (All LCN devices can read/write from/to this node)
- **Basic** (AM and CM cannot write to this node)

**NODINPTS (DevCtl, DigComp)**

*Type:* Integer  
*Number of Digital Inputs*—Defines the number of digital input connections to this data point.

*Lock:* PtBlk

*Default:* 1

*PtRes:* HPM

*Range:*  
- 0 (No inputs)
- 1 (One input)
- 2 (Two inputs)

**NODOPTS (DevCtl, DigComp)**

*Type:* Integer  
*Number of Digital Outputs*—Defines the number of digital output connections from this data point.

*Lock:* PtBlk

*Default:* 1

*PtRes:* HPM

*Range:*  
- 0 (No outputs)
- 1 (One output)
- 2 (Two outputs)
- 3 (Three outputs)
NOGINPTS (RegPV, RegCtl)

Type: Number of General Input Connections—
Lock: 
Default: 
PtRes: HPM
Range: 0 - 4

Helpful Hint: NOGINPTS + NOGOPTS cannot exceed four.

NOGOPTS (RegPV, RegCtl)

Type: Number of General Output Connections—
Lock: 
Default: 
PtRes: HPM
Range: 0 - 4

Helpful Hint: NOGINPTS + NOGOPTS cannot exceed four.

NOLINPTS (DevCtl, Logic)

Type: Integer
Lock: View (Logic), Device Control slot.
Default: 12 (Logic)
0 (DevCtl)
PtRes: HPM
Range: 0 to 12

NOLOGBLK (Logic)

Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: 0 to 24

NOLOPTS (DevCtl, Logic)

Type: Integer
Lock: View (Logic)
Default: N/A
PtRes: HPM
Range: 0 to 12 (Logic), 0 to 2 (DevCtl)
NOOVRUN (ProcMOD)

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range:  

Number of Overruns—Indicates the number of times the point has overrun its CNFPU allocation since the last reset.

Helpful Hint: NOOVRUN is reset along with AVGPU and MAXPU

NOOVRUN (ProcMod)

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range: 0 - 4  

Number of Overruns—Specifies the number of times the point has overrun its CNFPU allocation since the last reset.

NOPGATE (DevCtl)

Type: Integer  
Lock: PtBld  
Default: 0  
PtRes: HPM  
Range: 0 to 4  

Number of Primary Gates—Indicates the number of primary gates configured for a particular Device Control slot.

Helpful Hint: All configured primary gates must have at least one input.

NOPINPTS (RegPV)

Type: Integer  
Lock: View  
Default: Based on PVALGID, PVEQN, N  
PtRes: HPM  
Range: 0 to 6  

Number of PV Input Connections—Defines the number of PV input connections to this algorithm.
**NOPTS(0 - 64)**

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range:

*Helpful Hint:* The total count may not be equal to the sum of all cycles because most points are in more than one cycle.

**NORMCYCL**

Type: Integer  
Lock: PtBid  
Default:  
PtRes: HPM  
Range:

*Normal Execution Cycle*—Specifies the normal execution cycle.

**NORQUAVG (NIM, HPM Box)**

Type: Real  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

*Average number of Nodes to which UCN Requests are made*—Indicates the average number of UCN nodes per second that this node is requesting communications with.

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

**NORQUMAX (NIM, HPM Box)**

Type: Real  
Lock: View  
Default: 0  
PtRes: HPM  
Range: N/A

*Maximum number of Nodes to which UCN Requests are made*—Indicates the maximum number of UCN nodes per second that this node is requesting communications with.

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.
### NORSPAVG (NIM, HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Average number of Nodes to which UCN Responses are made**—Indicates the average number of UCN nodes per second that this node is responding to.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

### NORSPMAX (NIM, HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Maximum number of Nodes to which UCN Responses are made**—Indicates the maximum number of UCN nodes per second that this node is responding to.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

### NORSSEQ (RampSoak)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Eng/PB</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>2 to 12</td>
</tr>
</tbody>
</table>

**Number of Ramp/Soak Pairs in the Sequence**

### NOSGATE (DevCtl)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>PtBld</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 2</td>
</tr>
</tbody>
</table>

**Number of Secondary Gates**—Indicates the number of secondary gates configured for a particular Device Control slot.

**Helpful Hint:** All configured secondary gates must have at least one input.

### NOSIOVRD (DevCtl, DigComp)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
</tr>
<tr>
<td>Default</td>
<td>0.0</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
</tr>
<tr>
<td>Range</td>
<td>0 (No limit)</td>
</tr>
</tbody>
</table>

**Number of Safety Interlock Overrides**—The number of safety interlock overrides that have accumulated since the most recent reset of maintenance statistics.
NOSTATES (DevCtl, DigComp)

Type: Integer
Lock: PtBld
Default: 2
PtRes: HPM

Number of Digital States—Defines the number of states in this point.
- State 1 is the first active state
- State 0 is the inactive (middle) state
- State 2 is the second active state

Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

Range: 2 (Two states can be configured: STATE 0 and STATE 1)
3 (Three states can be configured: STATE 0, STATE 1, and STATE 2)

NOTRAAVG (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

Average number of Nodes to which UCN Transactions are made. This value indicates the average number of UCN nodes (per second) that this node is communicating with (both requests and responses).

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

NOTRAMAX (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

Maximum number of Nodes to which UCN Transactions are made. This value indicates the maximum number of UCN nodes (per second) that this node is communicating with (both requests and responses).

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

NOTRANS0–2 (DevCtl, DigComp)

Type: Real
Lock: View
Default: 0.0
PtRes: HPM
Range: 0 (No limit)

Accumulated Transitions—The number of transitions to each state of the OPPFINAL parameter since the most recent reset of maintenance statistics. The MAXTRAN parameter does not limit the number of transactions unless the user writes a program to read MAXTRAN, comparing it to NOTRANS, and thereby causing it to stop.

NPARAVG (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

Average number of UCN Parameter Accesses per Second—Average number of UCN parameter accesses per second between this node and all other nodes, including both requests and responses.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.
**NPARMAX (NIM, HPM Box)**

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

**Type:** Real

**Lock:** View

**Default:** 0

**PtRes:** HPM

**Range:** N/A

Maximum number of UCN Parameter Accesses per Second—Maximum number of UCN parameter accesses per second between this node and all other nodes, including both requests and responses.

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

---

**NPMSLOT (HPM Box)**

- **Type:** Integer
- **Lock:** PtBld
- **Default:** 0
- **PtRes:** HPM
- **Range:** 0 to 250

Number of Process Module Slots—Refer to the *HPM Control Functions and Algorithms* manual for a detailed description of HPM processing capacity.

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**NPRQUAVG(0-64) (NIM, HPM Box)**

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

Average number of UCN Parameter Requests—Average number of UCN parameter requests per second issued from this node to node n.

*NOTE*

The node address (n) is an odd number (1, 3, 5, ...63). Using an even number results in a **Parameter_Invalid** error. Using n = 0 returns average total number of parameter requests to all other nodes.

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.

---

**NPRQUMAX(0-64) (NIM, HPM Box)**

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

Maximum number of UCN Parameter Requests—Maximum number of UCN parameter requests per second issued from this node to node n.

*NOTE*

The node address (n) is an odd number (1, 3, 5, ...63). Using an even number results in a **Parameter_Invalid** error. Using n = 0 returns maximum total number of parameter requests to all other nodes.

*Helpful Hint:* This statistic can be viewed on the Toolkit Displays.
NPRSPAVG(0-64) (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

**Average number of UCN Parameter Responses**—Average number of UCN parameter responses per second issued from this node to node n.

**NOTE**

The node address (n) is an odd number (1, 3, 5,...63). Using an even number results in a Parameter_Invalid error. Using n = 0 returns average total number of parameter responses to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

NPRSPMAX(0-64) (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

**Maximum number of UCN Parameter Responses**—Maximum number of UCN parameter responses per second issued from this node to node n.

**NOTE**

The node address (n) is an odd number (1, 3, 5,...63). Using an even number results in a Parameter_Invalid error. Using n = 0 returns maximum total number of parameter responses to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

NPVSLOT (HPM Box)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 125

**Number of Regulatory PV Slots**—Refer to the *HPM Control Functions and Algorithms* manual for a detailed description of HPM processing capacity.
**NRMATRFL (DigComp, DevCtl, RegCtl)**

**Type:** Logical  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** ON - (point is in the configured Normal mode attribute)  
Off - (point is not in the configured Normal Mode attribute or Normal Mode attribute is not configured)

*Helpful Hint:* If Normal mode attribute is not configured then the value returns to OFF.

**NRMMODFL (RegCtl)**

**Type:** Logical  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM  
**Range:** On - (Point is in configured normal mode)  
Off - (Point is not in the configured normal mode or normal mode is not configured)

**NSCANITM (HPM Box)**

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 - 50
NSIO (DevCtl, DigComp)

Type: Logical
Lock: Engr
Default: On
PtRes: HPM
Range: On (Safety interlock inactive)
       Off (Safety interlock active)

**Helpful Hint:** This parameter can be changed by the engineer only if the point is inactive, or if the HPM is idle.

NSTRING (HPM Box)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 16,384

NSTRING (Array)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 8 (When EXTDATA=IO_STR)
       0 to 240 (When EXTDATA# IO_STR)

**Helpful Hint:** When EXTDATA# IO_STR, the range for this parameter applies regardless of the value of the STRLEN parameter (up to 240 strings, either 8, 16, 32, or 64 characters in length can be mapped to the Array point from the HPM box). When EXTDATA=IO_STR, only 64 characters of string data are available (i.e., one 64-character string, two 32-character strings, four 16-character strings, or eight 8-character strings).

NTIME (HPM Box)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 4,096
NTIME (Array)

Type: Integer
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to 240

**Number of Times in Array Point Time Array**—Defines the number of Times the Array point has mapped from the HPM box.

NTIMER (HPM Box)

Type: Integer
Lock: View
Default: 64
PtRes: HPM
Range: 64

**Number of Timer Points in the HPM Box Data Point**

NTRA AVG (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

**Average number of UCN Transactions**—Average number of UCN transactions (requests and responses) per second between this node and all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

NTRAMAX (NIM, HPM Box)

Type: Real
Lock: View
Default: 0
PtRes: HPM
Range: N/A

**Maximum number of UCN Transactions**—Maximum number of UCN transactions (requests and responses) per second between this node and all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.
### NTRQUAVG(0-64) (NIM, HPM Box)

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

**Average number of UCN Transaction Requests**—Average number of UCN transaction requests per second issued from this node to node n.

**NOTE**

The node address (n) is typically an odd number (1, 3, 5,...63). Using an even number results in a *Parameter_Invalid* error. Using n = 0 returns average total number of transaction requests to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

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### NTRQUMAX(0-64) (NIM, HPM Box)

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

**Maximum number of UCN Transaction Requests**—Maximum number of UCN transaction requests per second issued from this node to node n.

**NOTE**

The node address (n) is an odd number (1, 3, 5,...63). Using an even number results in a *Parameter_Invalid* error. Using n = 0 returns maximum total number of transaction requests to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

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### NTRSPAVG(0-64) (NIM, HPM Box)

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

**Average number of UCN Transaction Responses**—Average number of UCN transaction responses per second issued from this node to node n.

**NOTE**

The node address (n) is an odd number (1, 3, 5,...63). Using an even number results in a *Parameter_Invalid* error. Using n = 0 returns average total number of transaction responses to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.
### NTRSPMAX(0-64) (NIM, HPM Box)

- **Type:** Real
- **Lock:** View
- **Default:** 0
- **PtRes:** HPM
- **Range:** N/A

**Maximum number of UCN Transaction Responses**—Maximum number of UCN transaction responses per second issued from this node to node n.

**NOTE**

The node address (n) is an odd number (1, 3, 5,...63). Using an even number results in a **Parameter_Invalid** error. Using n = 0 returns maximum total number of transaction responses to all other nodes.

**Helpful Hint:** This statistic can be viewed on the Toolkit Displays.

### NTWKNUM

- **Type:** Integer
- **Lock:** PtBld
- **Default:** N/A
- **PtRes:** NIM
- **Range:** 1 to 20

**Network Number**—Defines on which UCN the NIM and HPMs reside.

### NXTPINAM

- **Type:** String_8
- **Lock:** Eng
- **Default:** N/A
- **PtRes:** IOP
- **Range:** ?

**Next Personality Image File**—Defines the personality Image file that will be loaded on the next personality load request for this IOP.

### NXTSOAKV (RampSoak)

- **Type:** Real
- **Lock:** View
- **Default:** N/A
- **PtRes:** HPM
- **Range:** \( \geq 0.0 \)

**Next Soak Value**
**OFFNRMFL**

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (No alarm)  
On (Current PV state is not the same as the configured PVNORMAL state.)

**OFFNRMFL—Off-Normal Alarm Flag**—Indicates whether an off-normal alarm has been detected at this data point.

**OFFNRMPR**

**Type:** E:ALPRIOR  
**Lock:** ENGR  
**Default:** Low  
**PtRes:** NIM  
**Range:** Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)  
High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)  
Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)  
JnlPrint (Alarm is historized and reported to the printer but not annunciated)  
Printer (Alarm is reported to the printer but not historized and not annunciated)  
Journal (Alarm is historized but not reported to Universal Stations and not annunciated)  
NoAction (Alarm is not reported to the system and not annunciated)

**OFFNRMPR—Offnormal Alarm Priority**—Indicates priority of the off normal or change of state alarms.

**OFFPULSE (DigOut)**

**Type:** Real  
**Lock:** Oper  
**Default:** N/A  
**PtRes:** HPM  
**Range:** 0.0 to 60.0 seconds

**OFFPULSE (DigOut)—Off Pulse Command**—Command that sets output SO to Off for the specified number of seconds. At the end of the pulse time, SO is set to On. If 0.0 is entered for OFFPULSE, SO is immediately set to On.

**Helpful Hint:** OFFPULSE can be written to by only those entities that possess the HPMM Cont_Ctl (continuous control) access level. These are Digital Composite points, Logic points, and Regulatory Control Position Proportional points.
OLDAV (DigIn)

Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: ≥ 0

Old Accumulated Value—The value of parameter AV (accumulated value) just before the accumulator was reset. This parameter makes the previous accumulated value available for those functions that need it.

OLDAV (Totalizr)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: ≥ 0.0

Old Accumulated Value—The value of parameter PVCALC (calculated PV) just before it is reset. This parameter makes the previous total available to those functions that need it.

ONPULSE (DigOut)

Type: Real
Lock: Oper
Default: N/A
PtRes: HPM
Range: 0.0 to 60.0 seconds

On Pulse Command—Command that sets output SO to On for the specified number of seconds. At the end of the pulse time, SO is set to Off. If 0.0 is entered for ONPULSE, SO is immediately set to Off.

Helpful Hint: ONPULSE can be written to by only those entities that possess the HPMM Cont_Ctl (continuous control) access level. These are Digital Composite points, Logic points, and Regulatory Control Position Proportional points.

OP (AnalgOut)

Type: Real
Lock: Oper
Default: -6.9% of full scale
PtRes: HPM
Range: -6.9 to 106.9%

Output in Percent—Defines the output value from this point in percent.

Helpful Hint: To manually change the output value requires MODE = Man and REDTAG = Off.
OP (DevCtl, DigComp)

**Type:** \( E:SD-ENM:STATETXT \)  
**Lock:** Oper  
**Default:** STATETXT(0)  
**PtRes:** HPM  
**Range:**  
1. STATETXT(0) Descriptor  
2. STATETXT(1) Descriptor  
3. STATETXT(2) Descriptor (internally set to $NULL$ for two-state devices)  
4. STATETXT(3) None (Not configurable)

**Helpful Hint:** OP indicates text for the last commanded output state (i.e., On, Run, etc.). Output state change requires MODE = Man, SHUTDOWN = Off, and REDTAG = Off.

OP (DigOut)

**Type:** Real  
**Lock:** Prog  
**Default:** 0.0%  
**PtRes:** HPM  
**Range:** 0.0 to 100.0%

**Pulsed Digital Output**—OP is the percent on-time for the pulsed output. It can be written to by only the controlling slot in the HPMM, such as from the PosProp RegCtl algorithm. Output change requires DOTYPE = Pwm. OP (DigOut) has the same access-level requirement as OFFPULSE and ONPULSE; the writing entity must have an HPMM access level of Cont_Ctrl (continuous control). For Status Outputs, use SO.

For direct action, pulse-on time is calculated as follows:

\[
\text{Pulse On-Time} = \frac{\text{OP\%} \times \text{PERIOD}}{100}
\]

For reverse action:

\[
\text{Pulse On-Time} = \frac{100\% - \text{OP\%} \times \text{PERIOD}}{100}
\]

Refer to PERIOD parameter for length of period.

OP (RegCtl)

**Type:** Real  
**Lock:** Oper  
**Default:** -6.9% of full scale  
**PtRes:** HPM  
**Range:** -6.9 to 106.9%

**Regulatory Control Output**—OP is derived from CV, the variable calculated by the control algorithm. OP is checked for minimum output change, output rate-of-change, and output high and low limits. If any of the limits is exceeded, OP is adjusted or clamped as applicable. OP remains in percent of full scale if it is going to a final control element through an IOP Card. If OP is going to a secondary data point, its value is converted to the engineering units of the receiving data point’s setpoint (SP).

**Helpful Hint:** OP change requires MODE = Man, SHUTDOWN = Off, and REDTAG = Off. If the OP is manually set above or below the OP limits and the mode is then changed to automatic or cascade, a process bump may occur.
OPALDB (RegCtl)

**Type:** Real  
**Lock:** EngPB  
**Default:** 5 Output Units  
**PtRes:** HPM  
**Range:** 0 to 25 Output Units

**Output Alarm Dead Band**—The deadband for the Regulatory Control OP alarm. It is used to prevent excessive recurrence of alarms by adjusting the range of the output at which the alarm "returns to normal." Available on Release 510 and later software.

**Helpful Hint:** The value of OPALDB must be less than or equal to (OPHITP - OPLOTP)/2.

OPCHAR

**Type:** Logical  
**Lock:** PtBld  
**Default:** Off  
**PtRes:** HPM  

**Output Characterization Option**—Defines whether the output characterization option is to be used for this data point. If this option is to be implemented, the user must supply the values for the input coordinates (OPIN 1–4) and output coordinates (OPOUT 1–4). Refer to the HPM Control Functions and Algorithms manual for a detailed description of output characterization.

**Range:**  
On (Output characterization is to be used)  
Off (Output characterization is not to be used)

OPCMD (DevCtl, DigComp)

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  
**Range:**  
Off (Commands the output state to State0)  
On ( Commands the output state to State1)

**Helpful Hint:** If state change did not occur, OPCMD has to be set to the current state, and then to the desired state.

OPCMD

**Type:** E:$OPCMD  
**Lock:** View  
**Default:** NA  
**PtRes:** HPM  
**Range:**  
0-Idle (Output is not being affected by Output Command)  
1-Lower (Output is being lowered)  
2-Raise (Output is being raised)
**OPEU**

*Type:* Real  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:* N/A

**Final Percent Output Sent to Control Element**—Output value after direct or reverse control action and output characterization have all been applied. If output has been configured for direct action (OPTDIR), 0.0% represents 4 mA to the control element and 100% represents 20 mA. If configured for reverse action, 0.0% represents 20 mA, and 100% represents 4 mA.

**OPFINAL (AO)**

*Type:* Real  
*Lock:* View  
*Default:* -6.9% of full scale  
*PtRes:* HPM  
*Range:* N/A

**Final Percent Output Sent to Control Element**—The output value that was last stored. This value can differ from the OP parameter if a sealin has occurred, state change is active, or the Array/SI read-back check evaluates OPFINAL to be NONE. If LOCALMAN = ON, then OP and OPFINAL follow the PV.

**OPFINAL (DevCtl, DigComp)**

*Type:* E:SD_ENM:STATETXT  
*Lock:* Oper  
*Default:* Statetxt(0)  
*PtRes:* HPM  

**Final Output Sent to Control Element**—The output value that was last stored. This value can differ from the OP parameter if a sealin has occurred, state change is active, or the Array/SI read-back check evaluates OPFINAL to be NONE. If LOCALMAN = ON, then OP and OPFINAL follow the PV.

**OPHAFI (RegCtl)**

*Type:* Logical  
*Lock:* View  
*Default:* Off  
*PtRes:* HPM  

**Output High Alarm Flag**—Indicates when a Regulatory Control Output High alarm has been detected at this data point. This flag is set when the output value (OP) exceeds OPHITP and is reset when OP is below OPHITP minus the deadband. Available on Release 510 and later software.

**Range:** Off (OP High alarm is off)  
On (OP High alarm is on)

**Helpful Hint:** Refer to the diagram with OPLAFL.
OPHIFL (RegCtl)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Output High Limit Flag—Indicates whether the OP value has reached its upper limit specified by OPHILM. If this parameter is set by a program, it will inhibit “raise” commands.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Prog</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off</td>
<td>On (OP value has reached its upper limit)</td>
</tr>
</tbody>
</table>

OPHILM

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th>Output High Limit in Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Supr</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>105.0%</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>OPLOLM to 106.9%, NaN</td>
<td></td>
</tr>
</tbody>
</table>

Helpful Hint: Entering NaN disables limit checking by forcing OPHILM to its extreme value (106.9%).

OPHIPR (RegCtl)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>EngPB</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>NIM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>JnlPrint (Alarm is historized and reported to the printer but not annunciated) Printer (Alarm is reported to the printer but not historized and not annunciated) Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays) High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display) Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated) Journal (Alarm is historized but not reported to Universal Stations and not annunciated) NoAction (Alarm is not reported to the system and not annunciated)</td>
<td></td>
</tr>
</tbody>
</table>
**OPHISRC**

**Type:** Universal  
**Ent.PrM** Output High Flag Input Source—Defines the input connection that fetches the OPHIFL parameter to determine windup state.

**Lock:** PtBld  
**Default:** Null  
**PtRes:** HPM  
**Range:** Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:
- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters and must be a legitimate parameter name.

Some possible input-connection sources are
- a. "DigIn slot Tagname.PVFL"
- b. "Logic slot Tagname.SO(nn)" where nn = 1–24
- c. "Logic slot Tagname.Fl(nn)" where nn = 1–12
- d. "ProcMod slot Tagname.Fl(nn)" where nn = 1–127
- e. "Box Flag slot Tagname.PVFL"
- f. "Box.Fl(nn)" for a box flag that resides in the same box where nnn = 1–16, 384
- g. "$NMhhBxx.FL(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095 (Data access limit)

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where MT is the IOP type, such as DI (Digital Input)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)
- Parameter name can be up to eight characters and must be a legitimate parameter name.

**OPHITP (RegCtl)**

**Type:** Real  
**Lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:** OPOLOTp to OPHILM, NaN

*Helpful Hint:* The Regulatory Control Output High alarm is only available for points configured as full. The alarm is disabled if OPHITP is not configured.

**OPIN0**

**Type:** Real  
**Lock:** View  
**Default:** -6.9%  
**PtRes:** HPM  
**Range:** N/A  

Input Coordinate Number 0 in Percent—Defines the OPIN0 coordinate when output characterization has been selected (OPCHAR is On). This coordinate is fixed at -6.9%.
OPIN1–4

**Type:** Real  
**Lock:** Supr  
**Default:** N/A  
**PtRes:** HPM  
**Range:** $\geq$ previous coordinate  
$\leq$ next coordinate

**Input Coordinate Number 1, 2, 3, or 4 in Percent**—Define the OPIN1–OPIN4 coordinates when output characterization has been selected (OPCHAR is On).

OPIN5

**Type:** Real  
**Lock:** View  
**Default:** 106.9%  
**PtRes:** HPM  
**Range:** N/A

**Input Coordinate Number 5 in Percent**—Defines the OPIN5 coordinate when output characterization has been selected (OPCHAR is On). This coordinate is fixed at 106.9%.

OPLAFL (RegCtl)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM

**Output Low Alarm Flag**—Indicates if a Regulatory Control Output Low alarm has been detected at this data point. This flag is set when the output value (OP) is less than OPLOTP and is reset when OP is above OPLOTP plus the deadband. Available on Release 510 and later software.

**Range:** Off (OP Low alarm is off).  
On (OP Low alarm is on).

The drawing below illustrates the relationship of the output high/low alarm flags, the low alarm trip point OPLOTP, and the deadband OPALDB.
**OPLOFL**

- **Type:** Logical
- **Lock:** Prog
- **Default:** Off
- **PtRes:** HPM
- **Range:**
  - Off (OP is above the low limit)
  - On (OP has reached the low limit)

**Output Low Limit Flag**—Indicates whether the output value OP has reached the low limit. This parameter must be set by a program or logic point. It will inhibit "raise" commands.

**OPLOLM**

- **Type:** Real
- **Lock:** Supr
- **Default:** -5.0%
- **PtRes:** HPM
- **Range:**
  - -6.9% to OPHILM,
  - NaN

Helpful Hint: Entering NaN disables limit checking by forcing OPLOLM to its extreme value (-6.9%).

**OPLOPR (RegCtl)**

- **Type:** E:Alprior
- **Lock:** EngPB
- **Default:** Low
- **PtRes:** NIM
- **Range:**
  - JnlPrint (Alarm is historized and reported to the printer but not annunciated)
  - Printer (Alarm is reported to the printer but not historized and not annunciated)
  - Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
  - High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
  - Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
  - Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
  - NoAction (Alarm is not reported to the system and not annunciated)
OPLOSRC

Type: Universal  
Ent.Prm: Output Low Flag Input Source—Indicates which input connection fetches the OPLOFL parameter to determine the windup state.

Lock: HPM
Default: PtBld
PtRes: Null

Range: Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:
- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters and must be a legitimate parameter name.

Some possible input-connection sources are
- a."DigIn slot Tagname.PVFL"
- b."Logic slot Tagname.SO(nn)" where nn = 1–24
- c."Logic slot Tagname.Fl(nn)" where nn = 1–12
- d."ProcMod slot Tagname.Fl(nnn)" where nnn = 1–127
- e."Box Flag slot Tagname.PVFL"
- f."Box.Fl(nnnn)" for a box flag that resides in the same box where nnnn = 1–4095
- g."$NMhhBxx.FL(nnnn)" for a box flag that resides in a different HPM box on the same UCN; hh is the NIM UCN address, xx is the HPM box number, and nnnn = 1–4095 (Data access limit)

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where
- MT is the IOP type, such as DI (Digital Input)
- mm is the IOP Card number (1–40)
- The letter "S" is a constant
- ss is the slot number on the IOP Card (refer to SLOTNUM parameter)
- Parameter name can be up to eight characters and must be a legitimate parameter name.

OPLOTOP (RegCtl)

Type: Real  
Lock: Supr
Default: NaN
PtRes: HPM

Range: OPLOLM to OPHITP, NaN

Helpful Hint: The Regulatory Control Output Low alarm is only available for points configured as full. The alarm is disabled if OPLOTOP is not configured.
OPMCHLM

Type: Real
Lock: Supr
Default: 0.0
PtRes: HPM
Range: \( \geq 0.0, \text{NaN} \)

**Helpful Hint:**
OP changes only if new output \% - old output \% is greater than the percentage in parameter OPMCHLM. Entering NaN disables limit checking by forcing OPMCHLM to its extreme value (0.0).

OPOUT0

Type: Real
Lock: View
Default: -6.9%
PtRes: HPM
Range: N/A

**Output Coordinate Number 0 in Percent**—Defines the OPOUT0 coordinate when output characterization has been selected (OPCHAR = On). This coordinate is fixed at a value of -6.9%.

OPOUT1–4

Type: Real
Lock: Supr
Default: N/A
PtRes: HPM
Range: \( \geq \text{previous coordinate}, \leq \text{next coordinate} \)

**Output Coordinates Number 1, 2, 3, or 4 in Percent**—Define the OPOUT1–OPOUT4 coordinates when output characterization has been selected (OPCHAR is On).

OPOUT5

Type: Real
Lock: View
Default: 106.9%
PtRes: HPM
Range: N/A

**Output Coordinate Number 5 in Percent**—Defines the OPOUT5 coordinate when output characterization has been selected (OPCHAR = On). This coordinate is fixed at a value of 106.9%.

OPRATRFL (DevCtl, DigComp, RegCtl)

Type: Logical
Lock: View
Default: N/A
PtRes: HPM
Range: Off (Current mode attribute is Program or None), On (Current mode attribute is Operator)

**Operator Mode Attribute Flag**—Indicates whether the current mode attribute is Operator.
OPRINPUT (ProcMod)

**Type:** Real  
**Lock:** Oper  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** N/A

**Operator Input**—Defines the value entered by the operator in response to the last sequence message.

OPROCLM

**Type:** Real  
**Lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:** ≥ 0.1  
NaN

**Output Rate of Change Limit in Percent Per Minute**

Helpful Hint: Entering NaN disables limit checking.

OPTDIR (AO)

**Type:** E:POLARITY  
**Lock:** Eng/PB  
**Default:** Direct  
**PtRes:** HPM  
**Range:** 0-Direct (For final OP: 0% = 4 mA; 100% = 20 mA)  
1-Reverse (For final OP: 0% = 20 mA; 100% = 4 mA)

**Analog Output Direct/Reverse Action**—Defines the output action of the OPFINAL value of the data point.

OPTDIR (DigOut)

**Type:** E:POLARITY  
**Lock:** Eng/PB  
**Default:** Direct  
**PtRes:** HPM  
**Range:** 0-Direct (OP is the % On time)  
1-Reverse (OP is the % Off time)

**Output Direction**—Defines the direct/reverse action of the PWM digital output.

OROOFFSET (ORSel)

**Type:** Logical  
**Lock:** Eng/PB  
**Default:** On  
**PtRes:** HPM  
**Range:** Off (No override offset is applied)  
On (Offset of Gain times Error is applied)

**Override Offset**—When OROOFFSET is On, override initialization of Pid-type algorithm points connected to this ORSel algorithm applies an override offset equal to Gain times Error (PV - SP).
**OROPT (DevCtl, DigComp)**

<table>
<thead>
<tr>
<th>Type: Logical</th>
<th>Override Option—Allows the operator to bypass permissive and override interlocks by setting BYPASS On.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock: Eng/PB</td>
<td></td>
</tr>
<tr>
<td>Default: Off</td>
<td></td>
</tr>
<tr>
<td>PtRes: HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>On (Override option enabled)</td>
</tr>
<tr>
<td></td>
<td>Off (Override option disabled)</td>
</tr>
</tbody>
</table>

**OROPT (ORSel)**

<table>
<thead>
<tr>
<th>Type: Logical</th>
<th>Override Option—Defines whether the operator can put the point in a bypass state where any of the X1-X4 inputs can be bypassed. Also, when on, the feedback value is propagated to nonselected primaries of the override selector algorithm. Refer to the <em>HPM Control Functions and Algorithms</em> manual for a detailed description.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock: Eng/PB</td>
<td></td>
</tr>
<tr>
<td>Default: Off</td>
<td></td>
</tr>
<tr>
<td>PtRes: HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>Off (No override)</td>
</tr>
<tr>
<td></td>
<td>On (Inputs can be overridden)</td>
</tr>
</tbody>
</table>

**OUT0–12 (GenLin)**

<table>
<thead>
<tr>
<th>Type: Real</th>
<th>Output Coordinates 0-12—Define the output value at the respective coordinates.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock: Supr</td>
<td></td>
</tr>
<tr>
<td>Default: NaN</td>
<td></td>
</tr>
<tr>
<td>PtRes: HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>Any value but NaN</td>
</tr>
</tbody>
</table>

**OVERFLOW**

<table>
<thead>
<tr>
<th>Type: Logical</th>
<th>Accumulation Overflow Flag—Indicates whether the accumulated value has overflowed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock: View</td>
<td></td>
</tr>
<tr>
<td>Default: Off</td>
<td></td>
</tr>
<tr>
<td>PtRes: HPM</td>
<td></td>
</tr>
<tr>
<td>Range:</td>
<td>Off (No overflow)</td>
</tr>
<tr>
<td></td>
<td>On (Overflow)</td>
</tr>
</tbody>
</table>
### OVERLAP (Array)

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 through the number of Array slots (NARRSLOT)

**Overlapping Array Slot Number**—Indicates the Array slot number containing the data being referenced by the slot currently being built.

### OVERPHAS (ProcMod)

**Type:** E:JUMPDIR  
**Lock:** ONPROC and CNTLLOCK parameters  
**Default:** Blank  
**PtRes:** HPM  
**Range:**
- 0-Forward (Skip to next phase)
- 1-Backward (Go back to previous phase)

**Override Current Phase**—Allows the operator to override the current phase of the sequence by skipping forward to the next phase, or backward to the previous phase. A phase can be overridden in this manner only when the sequence execution state is PAUSE, FAIL, or ERROR.

### OVERSTAT (ProcMod)

**Type:** E:JUMPDIR  
**Lock:** ONPROC and CNTLLOCK parameters  
**Default:** Blank  
**PtRes:** HPM  
**Range:**
- 0-Forward (Skip to next statement)
- 1-Backward (Go back to previous statement)

**Override Current Statement**—Allows the operator to override the current statement of the sequence by skipping forward to the next statement, or backward to the previous statement. A statement can be overridden in this manner only when the sequence execution state is PAUSE, FAIL, or ERROR.

### OVERSTEP (ProcMod)

**Type:** E:JUMPDIR  
**Lock:** ONPROC  
**Default:** Blank  
**PtRes:** HPM  
**Range:**
- 0-Forward (Skip to next step)
- 1-Backward (Go back to previous step)

**Override Current Step**—Allows the operator to override the current step of the sequence by skipping forward to the next step, or backward to the previous step. A step can be overridden in this manner only when the sequence execution state is PAUSE, FAIL, or ERROR.
OVERVAL

Type: Integer  Overview Value in Percent—Defines the amount of deviation (PV - SP, in percent) that causes the PV to reach the overview limit. For digital points, the display shows the current state of the point.

Lock: Eng/PB  Default: 25  PtRes: NIM  As shown in Figure O-1, The baseline shows the normal operating value for this PV.

Range: 0 to 100 (Entering a 0 suppresses the value; value is not shown on the display)

---

OVRCTIM (DevCtl)

Type: Time  Time Over High Trip Limit—The amount of time the SECVAR parameter is continuously greater than the SECVAR high trip limit.

Lock: View  Default: 0  PtRes: HPM  Range: Duration (0 to 9999 days, with a resolution to 1 second)

OVRDALOP (DevCtl, DigComp)

Type: E:SOVRALOP  Override Alarm Option—The override alarm option for I0, I1, and I2 parameters.

Lock: Eng/PB  Default: None  PtRes: HPM  Range: 0:None (No override alarming)
1:Auto_Rtn (Return to normal when override is cleared)
2:Cnfm_Rqd (Confirm to clear, after interlock is cleared)
OVRDALPR (DevCtl, DigComp)

**Type:** E:ALPRIOR  
**Override Alarm Priority**—Defines the priority of an override alarm.

**Lock:** Engr

**Default:** Low

**PtRes:** HPM

**Range:**
- JnlPrint (Alarm is historized and reported to the printer but not annunciated)
- Printer (Alarm is reported to the printer but not historized and not annunciated)
- Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
- High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
- Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
- Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
- NoAction (Alarm is not reported to the system and not annunciated)

OVRDCONF (DevCtl, DigComp)

**Type:** Logical  
**Override Confirmation Flag**—Indicates one of the four override alarms SI0CONF or I0CONF-I2CONF has not yet been confirmed. This flag is also used to confirm the alarm.

**Lock:** Oper

**Default:** Off

**PtRes:** HPM

**Range:**
- Off (An alarm is not waiting for confirmation)
- On (An alarm is waiting for confirmation)

OVRDDDESC (DevCtl, DigComp)

**Type:** String_8  
**Override Alarm Descriptor**—Input connections and logic gating are examined in order to determine which input was the source of change for the interlock. For the Device Control point, descriptor text for this parameter is taken from LIDESC (1-12). Descriptive text for the Digital Composite point is taken from SI0 DESC or I0-I2 DESC parameters.

**Lock:** View

**Default:** Blank

**PtRes:** HPM

**Range:**
- SI0 Desc (Current interlock or input descriptor)
- I0 - I2 Desc (Current interlock or input descriptor)
- L1 - L12 Desc (Current interlock or input descriptor, Device Control only)

OVRDI0FL, OVRDI1FL, OVRDI2FL, OVRDSIIFL (DevCtl, DigComp)

**Type:** Logical  
**Override and Safety Override Alarm Flag**—Indicates that an override is active, or that a confirmable override was cleared, but not yet confirmed.

**Lock:** View

**Default:** Off

**PtRes:** HPM

**Range:**
- Off (Override flag is not active)
- On (Override flag is active)
### P (FlowComp)

**Type:** Real  
**Pressure Input**—Indicates the measured actual gage pressure.

**Lock:** View

**Default:** 1.0

**PtRes:** HPM

**Range:** $\geq 0.0$

### P0 (FlowComp)

**Type:** Real  
**Zero Reference for Pressure**—P0 is the zero reference pressure input and is in the same engineering units as the P input. P0 is typically 14.696 if P is in psig or 101.325 if P is in kiloPascals. Enter the absolute value of the number.

**Lock:** Supr

**Default:** 0.0

**PtRes:** HPM

**Range:** N/A

### P0–P2 (DevCtl, DigComp)

**Type:** Logical  
**Permissive Interlocks for Output States 0, 1, & 2**—Permissive interlocks are controlled by logic slot outputs, and each interlock determines whether the operator and user program are allowed to use the respective state, or are locked out from that state. A permissive interlock (P0-P2) is provided for each state (STATE0-STATE2). The permissive interlocks themselves never cause the outputs to change. P0-P2 can be changed by a logic block or a program when the point is active and the mode attribute is Program. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.

**Lock:** Engr

**Default:** On

**PtRes:** HPM

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off (Respective state is locked out)</td>
<td></td>
</tr>
<tr>
<td>On (Respective state is permitted to be used)</td>
<td></td>
</tr>
</tbody>
</table>

**Helpful Hint:** P0–P2 configuration requires PTEXECST = InActive or PNTSTATE = Idle.

### P1–P6 (RegPV)

**Type:** Real  
**PV Inputs 1-6**—Indicates the current values at the inputs to the RegPV algorithm. For Totalizers, P2 is the floating point input of AV.

**Lock:** View

**Default:** NaN

**PtRes:** HPM

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A, NaN</td>
<td>NaN</td>
</tr>
</tbody>
</table>
P1STS–P6STS
Type: E:PVVALST  P1–P6 Status—Indicate the status of the up to six inputs at the RegPV
Lock:  View    algorithm.
Default:  Bad
PtRes:  HPM
Range:  0-Bad (Value is bad and replaced with NaN)
        1-Uncertn (Status of the value is uncertain)
        2-Normal (Value is good)

PAUSETIM (DevCtl, DigComp)
Type:  Integer  State 0 Pause Time—The amount of time to pause in State 0 on an OP state
      Lock:  Supr    change, if the STCHGOPT parameter equals STATE0.
      Default:  0
      PtRes:  HPM
       Range:  0 to 1000 seconds

PERIOD (ProcMod, Timer)
Type:  Real  Period—Defines the processing period in seconds.
      Lock:  View
      Default:  1 seconds
      PtRes:  HPM
       Range:  1 seconds

PERIOD (DevCtl, DigComp, Logic, RegCtl, RegPV)
Type:  Real  Period—Defines the processing period in seconds.
      Lock:  View
      Default:  1 second
      PtRes:  HPM
       Range:  0.25, 0.5, or 1.0 seconds

PERIOD
Type:  Real  Period—specifies the scan period in seconds.
      Lock:  PtBld
      Default:  .25 sec for Logic, DigComp, & DevCtl
                .50 sec for RegPv and RegCtl
                1.00 sec for ProcMod
      PtRes:  HPM
       Range:  0.0625, 0.125, 0.25, 0.5, 1.0, 2.0, and 4.0 seconds

PERIOD (DigOut)
Type:  Real  Period—Defines length of period for an SO output from DigOut point that has
      Lock:  Eng/PB  been configured for a PWM output.
      Default:  10.0 seconds
      PtRes:  HPM
       Range:  1.0 to 120.0 seconds
PFDLYFL (RegCtl, RegPV, DevCtl, DigComp, Logic, ProcMod)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (prefetch data is available for slot execution.)
(On (prefetch data is not available for slot execution.))

Prefetch Delayed Flag—Set when prefetch data is not available for slot execution.

PGALGID(1)–(4) (DevCtl)

Type: E:GTALGID
in an Array
(1..4)
Lock: PtBld
Default: Null
PtRes: HPM
Range: NULL (No algorithm)
AND (And Gate algorithm)
OR (Or Gate algorithm)
NAND (Nand Gate algorithm)
NOR (Nor Gate algorithm)
XOR (Exclusive Or Gate algorithm)
PAND (Pulse Nand Gate algorithm)
POR (Pulse Or Gate algorithm)
PNAND (Pulse Nand Gate algorithm)
PNOR (Pulse Nor Gate algorithm)
PXOR (Pulse Exclusive-Or Gate algorithm)

Primary Gate Algorithm ID— Defines the algorithm IDs for primary gates. The Boolean logic gates beginning with “P” have a user-defined pulse size.

PGDSTN(1)–(4) (DevCtl)

Type: E:GATDSTN
in an Array
(1..4)
Lock: PtBld
Default: None
PtRes: HPM
Range: None (No destination)
SI0 (Output goes to Safety Interlock)
I0, I1, I2 (Output goes to Interlock)
P0, P1, P2 (Output goes to Permissives)
SOCMD0, SOCMD1, SOCMD2 (Output is commanded to go to SOCMD0, 1 or 2)
OPCMD (Output is commanded to go to OPCMD parameter)
SG1, SG2 (Output goes to Secondary gates 1 or 2)

Primary Gate Destination— Defines the output destination of the primary gate.

PGPLSWTH(1)–(4) (DevCtl)

Type: Integer
in an Array
(1..4)
Lock: Supr
Default: 0
PtRes: HPM
Range: 0 to 8000 seconds

Primary Gate Pulse Width—Indicates the pulse width for primary gates whose algorithm starts with a “P”.
PGSO(1)–(4) (DevCtl)

Type: Logical

Lock: View
Default: Off
PtRes: HPM

Range: Off

PGSO

Primary Gate Status Output—Indicates the output value of the primary gate.

in an Array (1..4)

PHASE (ProcMod)

Type: String_8

Lock: View
Default: Spaces
PtRes: HPM

Range: N/A

PHASENAME

Phase Name—Indicates the current phase of the sequence executing in the process module.

PHASEAL (ProcMod)

Type: Logical

Lock: View
Default: Off
PtRes: HPM

Range: On (Phase has not been completed in the specified time)
       Off (No phase alarm)

PHASETIM (ProcMod)

Type: Integer

Lock: View
Default: 0 seconds
PtRes: HPM

Range: 0 to 9999 minutes

PHREMTIM (ProcMod)

Type: Time

Lock: View
Default: 0 seconds
PtRes: HPM

Range: N/A

Phase Time Remaining—Indicates the time remaining in time duration before a phase alarm is generated. This value is displayed in the HPM Detail display.
PIALGID (1)–(12) (DevCtl)

Type: E:$I1ALGID in an Array
Lock: PtBld
Default: Null
PtRes: HPM
Range: NULL (No algorithm)

INVERT (Invert Logical algorithm)
GT (Greater Than algorithm)
GE (Greater Than or Equal To algorithm)
LT (Less Than algorithm)
LE (Less Than or Equal To algorithm)
EQ (Equal To algorithm)
NE (Not Equal To algorithm)
GT2 (Greater Than algorithm)
GE2 (Greater Than or Equal To algorithm)
LT2 (Less Than algorithm)
LE2 (Less Than or Equal To algorithm)
EQ2 (Equal To algorithm)
NE2 (Not Equal To algorithm)
IN_SET (Compares the input to values in the INSET array)

PIADEADB(1)–(12) (DevCtl)

Type: Real in an Array
Lock: Supr
Default: 1.0
PtRes: HPM
Range: >0

PIDFORM

Type: E:PIDFORM
Lock: Eng/PB
Default: Interact
PtRes: HPM
Range: 0-Interact [(Proportional + Integral) x Derivative]
1-Ideal (Proportional + Integral + Derivative)

PIDSTN(1)-(6)

Type: Ent.Prm
Lock: View
Default: Based on PVALGID, PVEQN, & N
PtRes: HPM
Range: 1–8 character valid parameter name
### PINN (1)–(12) (DevCtl)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** <> NaN

**Primary Input Constants Numeric**—The numeric constant for arithmetic comparisons of primary input gates using XX algorithms.

### PISO (1)–(12) (DevCtl)

**Type:** Logical in an Array (1..12)  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off On

**Primary Input Gate Output Value**—Indicates the output value of the primary input gate.

### PISRC(1)–(12) (DevCtl)

**Type:** E:$GATESRC in an Array (1..12)  
**Lock:** PtBld  
**Default:** Null  
**PtRes:** HPM  
**Range:** NULL (No source for input) L1..L12 (These values correspond with the LISRC(1)—(12) parameter)

**Primary Input Source**—The source for the second input of primary input gates for arithmetic comparison algorithms that use a second external input (i.e., XX2 algorithms).

### PISR(1)–PISR(6)

**Type:** Ent.Prm  
**Lock:** PtBld  
**Default:** null.null  
**PtRes:** HPM  
**Range:** Use Tagname.Parameter for tagged points where Tag name can be up to 16 characters and the permissible character set is as follows:
- Alphabets A-Z (uppercase only)
- Numerics 0-9 (an all numeric tag name is not allowed)
- Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
- Embedded space characters are not allowed.
- An * is used to default to this point's tag name.
- Parameter name can be up to eight characters, and must be a legitimate parameter name.

**PV Input Connection Source**—Define the parameters whose current values are to be fetched and then written to the up to six RegPV algorithm inputs. The source parameter name can be specified using the "Tagname.Parameter" format. Refer to the *HPM Control Functions and Algorithms* manual for a detailed description.
PIUOTDCF (STI, LLMUX, RHMUX)

**Type:** Logical  
**Lock:** Eng/View  
**Default:** On  
**PtRes:** HPM

Open Thermocouple Detection Enable—Defines whether the point is to detect an open thermocouple condition. This parameter is configurable for each STI point that is connected to a smart temperature transmitter and for each LLMUX point.

NOTE: There is no special point type for RHMUX. The LLMUX point type also applies to the RHMUX IOP.

This parameter is a view-only parameter when the point execution state PTEXECST is Active.

**Range:**  
- **On** (Detect an open thermocouple condition)  
- **Off** (Do not detect an open thermocouple)

PIUOTDCF(1)–(168) (LLAI)

**Type:** Logical  
**Lock:** Supr  
**Default:** On  
**PtRes:** HPM

LLAI Open Sensor Detection Enable—Defines whether an open-sensor condition is to be detected for all eight LLAI points.

**Range:**  
- **On** (Detect open-sensor conditions)  
- **Off** (Do not detect open-sensor conditions)

PKGOPT (HPM Box)

**Type:** E:$PKGOPT  
**Lock:** PtBld  
**Default:** REDUN_2F  
**PtRes:** HPM

HPMM Hardware Packaging Option. The tables below show the default hardware location for each choice.

**Range:**  
1-REDUN (HPMMs in two 7-slot files/can have up to 40 IOPs)  
2-REDUN_2F (HPMMs in two 15-slot files/can have up to 40 IOPs)  
3-REDUN_IO (HPMMs/two separate 15-slot files/can have full redundant IOPs)  
4-NODEFAULT (Sets file/card positions of IOPs to 0. Used to bypass all defaults for IOP File/Card positions).

**Helpful Hints:** Parameter NODENUM must be equal to an odd number no matter which option is selected for PKGOPT.

During Node Specific configuration, if you choose Redun_IO, you must type in file and card numbers for the IOP cards. Refer to the tables below or the HPM Node Specific Configuration Form if necessary.

An HPMM can be operated as a non-redundant node independent of the PKGOPT selected.

The options are illustrated or discussed further in the following pages:
The Primary and Secondary HPMM Cards must be in Left File Card slots 1 & 2 and Right Card File, Card slots 9 & 10.

The File and Card position of the IOPs are defaulted as follows:

<table>
<thead>
<tr>
<th>Hardware</th>
<th>File</th>
<th>Card Slot</th>
<th>Hardware</th>
<th>File</th>
<th>Card Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOM-A 1-5</td>
<td>1</td>
<td>3-7</td>
<td>IOM-A 11-25</td>
<td>2</td>
<td>1-15</td>
</tr>
<tr>
<td>IOM-A 6-10</td>
<td>1</td>
<td>11-15</td>
<td>IOM-A 26-40</td>
<td>3</td>
<td>1-15</td>
</tr>
</tbody>
</table>

**NOTE**

To operate the HPMM as non-redundant, configure PKGOPT = REDUN as above but install only one of the HPMM card sets above. The backplane slot positions vacated by the second HPMM cards can be used to house IOP cards if necessary.
The Primary and Secondary HPMMs must be in File 1, Card slots 1 & 2 and in File 2, Card Slots 1 & 2.

File and Card positions of the IOPs are defaulted as follows:

<table>
<thead>
<tr>
<th>Hardware</th>
<th>File</th>
<th>Card Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOM-A 1 - 13</td>
<td>1</td>
<td>3 - 15</td>
</tr>
<tr>
<td>IOM-A 14 - 26</td>
<td>2</td>
<td>14 - 26</td>
</tr>
<tr>
<td>IOM-A 27 - 40</td>
<td>3</td>
<td>1 - 14</td>
</tr>
</tbody>
</table>

**NOTE**

To operate the HPMM as non-redundant, configure PKGOPT = REDUN_2F as above but install only one of the HPMM card sets above. The backplane slot positions vacated by the second HPMM cards can be used to house IOP cards if necessary.
The Primary and Secondary HPMMs must be in File 1, Card Slots 1 & 2 and in File 2, Card Slots 1 & 2.

The File and Card position of the IOPs are defaulted as follows:

<table>
<thead>
<tr>
<th>Hardware</th>
<th>File</th>
<th>Card Slot</th>
<th>Hardware</th>
<th>File</th>
<th>Card Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOM-A 14-28</td>
<td>3</td>
<td>1 - 15</td>
<td>IOM-B 14 - 28</td>
<td>4</td>
<td>1 - 15</td>
</tr>
<tr>
<td>IOM-A 29-40</td>
<td>5</td>
<td>1 - 12</td>
<td>IOM-B 29 - 40</td>
<td>6</td>
<td>1 - 12</td>
</tr>
</tbody>
</table>

Note that on download of this configuration to the HPM, the PKGOPT is changed back to REDUN_2F.

**NODEFALT**

The HPMM File(s) may be like any of the previous three configurations and up to 40 IOPs are allowed. The IOP file/Card positions must be configured by the user. Note that on download to the HPM, PKGOPT changes to REDUN, or REDUN_2F based on the actual hardware.

**I/O Simulator Option**

The optional I/O Simulator can be used to build points for this (the host) HPM or another HPM. When using the I/O Simulator personality you may choose a packaging option (PKGOPT) that is different from the physical backplane/hardware configuration of the host HPMM. The intent is to let you choose a PKGOPT based on either the host's hardware configuration or that of another HPMM. This allows you to create databases for other HPMs using a single HPM I/O Simulator independent of its actual physical configuration. The following rules apply:

<table>
<thead>
<tr>
<th>Host HPM Configuration</th>
<th>Other HPM Configuration</th>
<th>PKGOPT Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>7 - Slot</td>
<td>REDUN or NODEFALT</td>
</tr>
<tr>
<td>Any</td>
<td>15 - Slot</td>
<td>REDUN_2F, REDUN_IO, or NODEFALT</td>
</tr>
</tbody>
</table>
## PMEVOVFL

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (No overflow)  On (Overflow has occurred)</td>
<td></td>
</tr>
</tbody>
</table>

## PMMCHAER (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

## PMMCHASL (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

## PMMCHBER (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
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<tr>
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<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>

## PMMCHBSL (HPM Box)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>≥ 0</td>
<td></td>
</tr>
</tbody>
</table>
PMMCMD (HPM Box)

Type: E:$PMMCMD  HPMM Command
Lock: OnProc
Default: None
PtRes: HPM

NOTE

When points are built to a NIM and the NIM is restarted with no database, the points need to be reloaded from checkpoint or the points must be reconfigured. If the database is to be reconfigured, the HPMM must be in Idle, and the point execution state must be Inactive. This allows the point build operation to override the database that already exists there.

Range: 0=None (No command request has been issued)
1=Run (To "Run" state for processing points)
2=Idle (To "Idle" state for reloading the database)
3=RsIoLCom (Reset I/O Link communication error count = 0)
4=ShutDown (To "Alive" state for reloading personality)
5=RsUcnLsb (Reset the Local Statistics Block to zeroes)
6=SelChnA (Select Input/Output Link Channel A)
7=SelChnB (Select Input/Output Link Channel B)
8=Warmstrt (Warm Start)
9=Coldstrt (Cold Start)
10=SwapPri (Switchover to the redundant HPMM)

PMMCOMER (HPM Box)

Type: E:$IOMCOMM  HPMM I/O Link Communication Error Status
Lock: View
Default: N/A
PtRes: HPM

Range: 0=None (No communication errors)
1=InvAlert (Invalid Alert—message bit problem)
2=InvDest (Invalid Destination)
3=InvChCnt (Invalid Character Count)
4=InvSource (Invalid Source)
5=InvCmd (Invalid Command)
6=Checksum (Data record Checksum Error)
7=No_Resp (No Response)
8=ChTimOut (Channel Time Out)
9=MsgOvRun (Message Overrun)
10=GapError (Message gap is too long)
11=LpBckErr (Loop Back Error)
12=NTH_0 (Next Token Holder equals zero)
13=TknRecov (Token Recovery in progress)
14=RplBufOv (Reply Buffer Overflow)
PMMCTLST (HPM Box)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (Control processor has not failed)
        On (Control processor has failed)

PMMIOLST (HPM Box)

Type: E:$IOMSTS
Lock: View
Default: PtRes: HPM
Range: Notconfig (IOP not configured)
       Configmis (Configuration mismatch detected)
       OK (Module is running with no soft fail errors)
       Idle (Module is idle with no soft fail errors)
       Softfail (Module is running with soft fail error(s) present)
       Idlesf (Module is idle with soft failure error(s) present)
       Nonexist (Module does not exist at this address)
       Noresp (No response from module)
       Poweron (Module state is Power On)
       Commerr (Communication error to IOP)
       Unavail (Module is unavailable for communication)

PMMOPER (HPM Box)

Type: E:$OPERATE
Lock: View
Default: N/A
PtRes: HPM
Range: 0-NonRedun (This HPMM has no redundant HPMM to back it up)
       1-Primary (This HPMM is the primary point processor)
       2-Secondary (This HPMM is the secondary HPMM that backs up the primary HPMM)

PMMRECCH (HPM Box)

Type: E:$RECCHN
Lock: View
Default: N/A
PtRes: HPM
Range: 0-ChannelA (Channel A is channel currently receiving)
       1-ChannelB (Channel B is channel currently receiving)

PMMRECHN

Type: E:$RECCHN
Lock: View
Default: N/A
PtRes: HPM
Range: ChannelA
       ChannelB
**PMMSFST(1)–(96)**

*Type:* Logical  
*Lock:* View  
*Default:*  
*PtRes:* HPM  
*Range:* Off  

**PMMSTS (HPM Box)**

*Type:* E:$NODESTA  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:*  
- Off  
- On  
  
1. OffNet (NIM cannot communicate with the HPMM)  
2. ConfigMs (Configuration mismatch detected)  
3. Idle (Event reports but no point processing)  
4. IdleSF (Soft failure occurred in Idle state)  
5. SoftFail (Soft failure while HPMM is running)  
6. Fail (HPMM can be accessed but CPU is halted; box hard failure has been detected)  
7. Alive (No event reports or point processing)  
8. AliveSF (Soft failure during Idle state)  
9. Test (HPMM is in the test mode)  
10. TestSF (Soft failure has been detected while the HPMM is in the test mode)  
11. Loading (Personality or data base is loading)  
12. S_Idle (Idle in Simulation Mode)  
13. S_IdleSF (IdleSF in Simulation Mode)  
14. S_OK (OK in Simulation Mode)  
15. S_SFFail (SoftFail in Simulation Mode)  
16. S_Pause (HPM is in the Simulation Pause state)  
   - Standby  
   - StandbySF  
   - Upgrade  
   - UpgradeSF  

**Helpful Hint:** Loading the HPMM's operating personality software requires PMMSTS = Alive. Loading the HPMM's database requires PMMSTS = Idle. Use parameter PMMCMD's "Shutdown" and "Idle" command requests, respectively.

**PNAMIOPA**

*Type:* String_16  
*Lock:* View  
*Default:* Parameter_Invalid  
*PtRes:* IOP  
*Range:*  

*Physical Node Name Assigned to IOP A*—Returns the Fieldbus physical node name assigned to IOPA.
PNAMIOPB

**Type:** String_16

**Lock:** View

**Default:** Parameter_Invalid

**PtRes:** IOP

**Range:**

**Physical Node Name Assigned to IOP B**—Returns the Fieldbus physical node name assigned to IOPB.

PNTFORM

**Type:** E:$PNTFORM

**Lock:** View/PB

**Default:** Full

**PtRes:** HPM

**Range:** 0-Full (Point is fully displayed and alarmed)

1-Component (Point is partially displayed but not alarmed)

**Helpful Hint:** This parameter is not applicable to DigOut points.

PNTMODTY

**Type:** E:$PMMDTY

**Lock:** View

**Default:** N/A

**PtRes:** NIM

**Range:**

- AO (Analog Output)
- AO_16 (Analog Output/high density)
- DI (Digital Input)
- DO (Digital Output)
- DO_32 (Digital Output/high density)
- HLAI (High-Level Analog Input)
- LLAI (Low-Level Analog Input)
- STI8M (Smart Transmitter Interface)
- NotConfig (Not Configured)
- PI (Pulse Input)
- HPMM (High-Performance Process Manager Module)
- LLMUX (Low-Level Analog Input Multiplexer) All references to LLMUX also apply to RHMUX, except that RHMUX does not support SENSRTYP of RTD.
- DISOE (Sequence of Events)
- SI (Serial Interface)
- AO_16 (Analog Output 16)
- DO_32 (Digital Output 32)
PNTNODTY
Type: E:UCNNODTY  Point's Node Type—Defines the type of node on the UCN
Lock: View
Default: N/A
PtRes: NIM
Range: NIM (Network Interface Module)
       HPM (High-Performance Process Manager)
       NotConfig (Node not configured)

PNTSTATE
Type: E:PNTSTATE  Point's Overall State—Defines the state of the data point, which is based on
       the state of the HPMM and the IOP Card in which it resides.
Lock: View
Default: N/A
PtRes: NIM
Range: Failed (NIM cannot communicate with point's HPMM/IOP)
       Idle (Point's HPMM or IOP is in the Idle State)
       OK (Point's HPMM or IOP is the Run State and is OK)
       UNCERTN (Point's HPMM or IOP state is uncertain)

PNTTYPE
Type: E:PNTTYPE  Point Type—Defines the type of point in the HPM.
Lock: PtBld
Default: Null
PtRes: HPM
Range: 0-Null (Not configured)
       1-AnalogIn (Analog Input)
       2-AnalogOut (Analog Output)
       4-DigitalIn (Digital Input)
       5-DigitalOut (Digital Output)
       6-DigitalComposite (Digital Composite)
       8-RegPV (Regulatory PV)
       9-RegCtl (Regulatory Control)
       10-Logic (Logic)
       11-Array (Array)
       12-Flag (Flag)
       13-Numeric (Numeric)
       14-ProcModl (Process Module)
       22-Timer (Timer)
       28-DevCtl (Device Control)

**Helpful Hint:** PNTTYPE of DigOut has a restriction that PNTFORM cannot be = Full.
POSITION (HPM Box)

Type: E:$POSTITN  HPMM File Position
Lock: View
Default: N/A
PtRes: HPM
Range: 0-Right (HPMM cards are in card file slots 6–10)
1-Left (HPMM cards are in card file slots 1–5)
2-File_1 (HPMM cards are in card file 1)
3-File_2 (HPMM cards are in card file 2)
4-Pref
5-Non_Pref
6-None
7-Unknown (Not able to determine file position from hardware)

PR2PREFF (HPM Box)

Type: Real  Peer-to-Peer Communication Efficiency (in percent)—Indicates the rate of successful and on time UCN transactions from this node.
Lock: View
Default: 100
PtRes: HPM
Range: 0 - 100

Helpful Hint: This statistic is displayed on the Control Configuration page of the HPM Diagnostic Display.

PRGATRFL (DigComp, DevCtl, RegCtl)

Type: Logical  Program Mode Attribute Flag —indicates if the point is in Program Mode attribute.
Lock: View
Default: N/A
PtRes: HPM
Range: On - (point is in Program mode attribute)
        Off - (point is not in Program mode attribute)
PRIMMOD

Type: Ent_Id  Primary Module Point Identifier—Typically used in Batch Processing, this parameter contains the tag name of an HPM point to which this data point is assigned. Other points that belong to the Batch equipment unit should have their PRIMMOD set to this same point. Primmod is used to collect alarms and events from this point along with others related to the specified Primary Module point. Information is collected into a common file, accessible from the Event History Menu.

Lock: Engr
Default: Null
PtRes: NIM

Range: Tag name of the process module point can be up to 16 characters, and the permissible character set is as follows:
Alphabets A-Z (uppercase only)
Numerics 0-9 (an all numeric tag name is not allowed)
Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
Embedded space characters are not allowed.

Helpful Hint: For Box Flag points, this parameter applies to only slots 1 through 128. LCN entities that can be stored to PRIMMOD in NIM points are restricted to local NIM points.

PRMDESC(1)–(12) (Logic)

Type: E:$PMMLGPM  Parameter Descriptor Assignment—Defines up to 12 logic-slot parameters to which custom generic descriptors entered through parameters GENDESC(1-12) are to be assigned.

Lock: Eng/PB
Default: N/A
PtRes: NIM

Range: L1...L12 (Logic-slot inputs)
FL1...FL12 (Logic-slot flags)
NN1...NN8 (Logic-slot numerics)
SO1...SO24 (Logic-slot outputs)

PROCMOD (ProcMod)

Type: E:PROCMOD  Process Module Operating State—Represents the operational condition of a process module. Refer to the HPM Control Functions and Algorithms manual for a state diagram.

Lock: Determined by CNTLLOCK parameter
Default: Off
PtRes: HPM

Range: 0-Off (Off)
2-Norm (Normal)
4-Hold (Hold)
5-Shdn (Shutdown)
6-Emsd (Emergency Shutdown)
7-Strt (Start)
8-Stop (Stop)
PRPMMSTS

Type:    E:$NODESTA  Previous HPMM Status
Lock:    View
Default: HPM
PtRes:

Range:  Offset (HPMM is offnet with no communications possible)
        Configmis (HPMM is in configuration mismatch)
        Idle (HPMM is idle)
        Idlesf (HPMM is idle with soft failure(s))
        OK (HPMM is running with no errors)
        Softfail (HPMM is running with soft failure(s))
        Fail (HPMM has failed)
        Poweron (HPMM is in Power On state-startup condition from power loss)
        Alive (HPMM has passed self diagnostics and is ready to accept personality)
        Alivesf (HPMM diagnostics have soft failure)
        Loading (HPMM is loading personality)
        Notconfig (HPMM is not configured on network)
        Unavail (HPMM is unavailable on network for communications)
        Test (HPMM is in Test mode)
        Testsf (HPMM is in Test mode with a soft failure(s))
        Standby
        StandbySF
        Upgrade
        UpgradeSF
PRVCOMFL

Type: E:$PMMHFST  Previous HPMM Communications Board Failure
Lock: View
Default: HPM
PtRes: NULL (Unknown Error)
Range:
  PWRDWN (Power is Off)
  LR_PAR (Local Ram Parity Error)
  LR_LRAM (Local Ram Error)
  LR_CK (Local Ram Check)
  LR_EXC (Local Ram Exception)
  LR_HREV (Local Ram Hardware Revision)
  MM_HREV (Memory Board Hardware Revision)
  LR_TMR (Local Ram Timer Error)
  LR_PTRN (Local Ram Pattern Check Error)
  LR_BYTE (Local Ram Byte Error)
  LR_ADDL (Local Ram Additional Checks)
  LR_CLRR (Local Ram Scrub Incomplete)
  SR_PAR (Shared Ram Parity)
  SR_PTRN (Shared Ram Pattern)
  SR_ADDL (Shared Ram Additional Checks)
  GR_PAR (Global Ram Parity)
  GR_PTRN (Global Ram Pattern Check Error)
  GR_BYTE (Global Ram Byte Error)
  GR_ADDL (Global Ram Additional Checks)
  GR_CLRR (Global Ram Scrub Incomplete)
  31_NR (IOL Processor, No Response or Failure)
  31_ALIV (IOL Processor, Transmitter Not Alive)
  31_ILTN (IOL Processor, Illegal Transition)
  NMI_UNK (Unknown NMI Request)
  BADUCNN (UCN Address Parity or Duplicate Address)
  NR (No Response From Other Processor)
  MRFT (Memory Reference Table - Pattern Build Fail)
  NOMTOS (No MTOS Readout)
  LLC_COMM (LLC Communication Fatal Error)
  UCNDRV (UCN Driver, Fatal Error)
  RD_HREV (Redundancy Card Version/Revision Mismatch)
  SW_ERROR (Software Error)
  MD_HREV (Modern Card Version/Revision Mismatch)
  DA_PTRN (Daughter Card Pattern Test)
  DA_BYTE (Daughter Card Byte Write Test)
  DA_ADDL (Daughter Card Address Decode)
  DA_ADDDL (Daughter Card Additional Tests)
  DA_CLRR (Daughter Card Scrub Incomplete)
  RD_SNPS (Redundancy Card 96 Kw Snapshot Error)
  RD_BSLK (Redundancy Card Bus Lock Fail)
## PRVCTLFL

**Type:** E:\$PMMHFS

**Previous HPMM Control Failure**

**Lock:** View

**Default:** HPM

**PtRes:**

- **Range:**
  - NULL (Unknown Error)
  - PWRDWN (Power is Off)
  - LR_PAR (Local Ram Parity Error)
  - LR_LRAM (Local Ram Error)
  - LR_CK (Local Ram Check)
  - LR_EXC (Local Ram Exception)
  - LR_HREV (Local Ram Hardware Revision)
  - MM_HREV (Memory Board Hardware Revision)
  - LR_TMR (Local Ram Timer Error)
  - LR_PTRN (Local Ram Pattern Check Error)
  - LR_BYTE (Local Ram Byte Error)
  - LR_ADCD (Local Ram Address Decode Test)
  - LR_ADDL (Local Ram Additional Checks)
  - LR_CLRR (Local Ram Scrub Incomplete)
  - SR_PAR (Shared Ram Parity)
  - SR_PTRN (Shared Ram Pattern)
  - SR_ADCD (Shared Ram Address Decode Test)
  - SR_ADDL (Shared Ram Additional Checks)
  - GR_PAR (Global Ram Parity)
  - GR_PTRN (Global Ram Pattern Check Error)
  - GR_BYTE (Global Ram Byte Error)
  - GR_ADCD (Global Ram Address Decode Test)
  - GR_ADDL (Global Ram Additional Checks)
  - GR_CLRR (Global Ram Scrub Incomplete)
  - 31_NR (IOL Processor, No Response or Failure)
  - 31_ALIV (IOL Processor, Transmitter Not Alive)
  - 31_ILTN (IOL Processor, Illegal Transition)
  - NMI_UNK (Unknown NMI Request)
  - BADUCNN (UCN Address Parity or Duplicate Address)
  - NR (No Response From Other Processor)
  - MRFT (Memory Reference Table - Pattern Build Fail)
  - NOMTOS (No MTOS Readout)
  - LLC_COMM (LLC Communication Fatal Error)
  - UCNDRV (UCN Driver, Fatal Error)
  - RD_HREV (Redundancy Card Version/Revision Mismatch)
  - SW_ERROR (Software Error)
  - MD_HREV (Modem Card Version/Revision Mismatch)
  - DA_PTRN (Daughter Card Pattern Test)
  - DA_BYTE (Daughter Card Byte Write Test)
  - DA_ADCD (Daughter Card Address Decode)
  - DA_ADDL (Daughter Card Additional Tests)
  - DA_CLRR (Daughter Card Scrub Incomplete)
  - RD_SNPS (Redundancy Card 96 Kw Snapshot Error)
  - RD_BSLK (Redundancy Card Bus Lock Fail)
PRVIOLFL

Type: E:$IOMHF  Previous IOL Failure
Lock: View
Default: HPM
Range:
- UNKNOWN (Unknown Error)
- POWERDWN (Power is Off)
- INVPRGEX (Invalid Program Execution)
- EPROMERR (EPROM Error)
- RAMCNTER (Ram Contents Error)
- RAMADRER (Ram Address Error)
- DPAERROR (Physical Address Error)
- DSAERROR (Soft Address Error)
- RXBUFQFL (Receive Buffer Overflow)
- IOLJABER (IOL Jabber Circuit - saw too much traffic)
- BADPGJMP (Bad Program Jump)
- ADCINCMP (A/D Incomplete)
- ADOUTOVF (A/D Output Overflow)
- ADOUTUDF (A/D Output Underflow)
- ADCCALER (A/D Calibration Error)
- BADDCLTC (Bad DC LTC)
- DMT_TMOT (Dead Man Time Out)
- MLTOUTFL (Multiple Output Failure)
- DATBUSFL (Data Bus Failure)
- BADDARNG (Bad D/A Range)
- MSTRMTMOT (Master Time Out 68 K)
- CTRCKTFL (Counter Circuit Failure)

PSDLYFL

Type: Logical  Poststore Delayed Flag—Set when poststore data is older than 1 second.
Lock: View
Default: Off
PtRes: HPM
Range:
- Off (poststore data is older than 1 second.)

PSTS (FlowComp)

Type: E:PVVALST  Pressure Input Value Status—Status of the P input value.
Lock: View
Default: Normal
PtRes: HPM
Range:
- 0-Bad (Value is bad and replaced with NaN)
- 1-Uncertn (Status of the value is uncertain)
- 2-Normal (Value is good)
PTDESC

Type: String_24  
Point Descriptor—A 24-character descriptor which is used to describe the point and appears on the Group and Detail Displays for the point. Refer to Figure N-1.

Lock: PtBld
Default: Blank
PtRes: NIM
Range: Permissible character set consists of all characters on the Engineer’s Keyboard. Basically this set consists of alphabets A-Z, numerics 0-9, and the following special characters: space ! % & ’ ( ) * + - / : ; > < = ? _ , . $

PTEEXECST

Type: E:PTEEXECST  
Point Execution State—Defines the current execution state of the point.

Lock: Supr
Default: Inactive
PtRes: HPM
Range: 0-Inactive (Point is not scanned or processed)
        1-Active (Point is scanned and processed)

PTINAL (RegCtl, RegPV)

Type: Logical  
Point in Alarm Indicator—Indicates when an alarm condition has been detected at this point.

Lock: View
Default: Off
PtRes: HPM
Range: Off (Point is not in alarm)
        On (Point is in alarm)

PTORST (RegCtl)

Type: E:ORSTATUS  
Point Override Status—Indicates the override status of the point.

Lock: Prog
Default: NotCon
PtRes: HPM
Range: 0-NotCon (Not connected to ORSel algorithm. Also indicates that point has been returned from inactive to active status, or it is undergoing a cold restart, or it is being initialized.)
        1-Sel (Selected as a part of ORSel strategy)
        2-NotSel (Not selected as a part of ORSel strategy)
PTSTSIOI

Type: E:\$NODESTA Redundant Partner Status as Seen From the IOL
Lock: View
Default: HPM
PtRes: OffNet (NIM cannot communicate with the HPMM)
      ConfigMis (Configuration mismatch detected)
      Idle (Event reports but no point processing)
      Idlesf (Soft failure occurred in Idle state)
      Ok (HPMM is operating normally)
      SoftFail (Soft failure while HPMM is running)
      Fail (HPMM can be accessed but CPU is halted; box hard failure has been detected)
      Powron (Power is on)
      Alive (No event reports or point processing)
      Alivesf (Soft failure during Idle state)
      Test (HPMM is in the Test mode)
      TestSF (Soft failure has been detected while the HPMM is in the Test mode)
      Loading (Personality or database is loading)
      Notconfig
      Nosynch
      Unavail
      Standby
      StandbySF
      Upgrade
      UpgradeSF

PTSTSUCN

Type: E:\$NODESTA Redundant Partner Status as Seen From the UCN
Lock: View
Default: HPM
PtRes: OffNet (NIM cannot communicate with the HPMM)
      Configms (Configuration mismatch detected)
      Idle (Event reports but no point processing)
      Idlesf (Soft failure occurred in Idle state)
      Ok (HPMM is operating normally)
      Softfail (Soft failure while HPMM is running)
      Fail (HPMM can be accessed but CPU is halted; box hard failure has been detected)
      Powron (Power is on)
      Alive (No event reports or point processing)
      Alivesf (Soft failure during Idle state)
      Test (HPMM is in the Test mode)
      Testsf (Soft failure has been detected while the HPMM is in the Test mode)
      Loading (Personality or database is loading)
      Notconfig
      Nosynch
      Unavail
      Standby
      StandbySF
      Upgrade
      UpgradeSF
### PULSEWTH (DevCtl, DigComp)

**Type:** Real  
**Lock:** Supr  
**Default:** 1.0 second  
**PtRes:** HPM  
**Range:** 0.0 to 60.0 seconds

**Helpful Hint:** PULSEWTH change requires DODSTN= "Tagname.ONPULSE" or OFFPULSE. When On is to be written to the DigOut module, a pulse of the specified width is generated. When Off is to be written, no pulse is generated.

### PV (AnalogIn, PI)

**Type:** Real  
**Lock:** Oper  
**Default:** NaN  
**PtRes:** HPM  
**Range:** PVEXEUHI to PVEXEULO, NaN

**Helpful Hint:** PV change by a program requires PVSRCOPT = All and PVSOURCE = Sub. PV change by an operator requires PVSRCOPT = All and PVSOURCE = Man.

### PV (DevCtl, DigComp)

**Type:** E:SD_ENM:PVSTATES  
**Lock:** Oper  
**Default:** BADPVTXT  
**PtRes:** HPM  
**Range:** 0-PVSTATES (0) (Defined by STATETXT (0))  
1-PVSTATES (1) (Defined by STATETXT (1))  
2-PVSTATES (2) (Defined by BADPVTXT)  
3-PVSTATES (3) (Defined by MOVPVTXT)  
4-PVSTATES (4) (Defined by STATETXT(2))

**Helpful Hint:** PV change by a program requires PVSRCOPT = All and PVSOURCE = Sub. PV change by an operator requires PVSRCOPT = All and PVSOURCE = Man.

### PV (DigIn)

**Type:** E:SD_ENM:STATETXT  
**Lock:** Oper  
**Default:** Off  
**PtRes:** HPM  
**Range:** STATETXT(0) or STATETXT(1)

**Helpful Hint:** PV is derived from the open or closed state of field contacts and from the configured direct or reverse input direction (INPTDIR). PV change by a program requires DITYPE = Latched or status, PVSRCOPT = All, and PVSOURCE = Sub. PV change by an operator requires DITYPE = Latched or status, PVSRCOPT = All, and PVSOURCE = Man.
PV (Flag)
Type: E:SD_ENM:STATETXT  
Current State—Indicates the current state of the flag data point, and it is derived from PVFL. STATETXT(1) is the alarmed state.
Lock: Oper  
Default: Blank  
PtRes: HPM  
Range: STATETXT(0) or STATETXT(1)

PV (Numeric)
Type: Real  
Process Variable—Indicates the value of the numeric. This value maps into parameter NN(n) in the HPM box where n = SLOTNUM.
Lock: Oper  
Default: NaN  
PtRes: HPM  
Range: N/A

PV (RegCtl, RegPV)
Type: Real  
Process Variable—Indicates the current value of the PV after the PV is selected from one of the following possible sources: a field device, an operator, or a program. See PVSRCOPT and PVSOURCE.
Lock: View for RegCtl, Oper for RegPV  
Default: NaN  
PtRes: HPM  
Range: N/A

Helpful Hint: PV change by a program requires PVSRCOPT = All and PVSOURCE = Sub. PV change by an operator requires PVSRCOPT = All and PVSOURCE = Man.

PV (Timer)
Type: Integer  
Current Value—Indicates the current time in seconds or minutes. The timer starts at 0 and is incremented towards the preset time established by the SP parameter.
Lock: View  
Default: 0  
PtRes: HPM  
Range: 0 to 32000

PVALDB (RegCtl, RegPV)
Type: E:PVALDB  
PV Alarm Deadband—Alarm deadband is used to prevent excessive recurrence of alarms by adjusting the percent of Engineering Unit range at which the alarm "returns to normal."
Lock: Eng/PB  
Default: One  
PtRes: HPM  
Range: 0-Half (1/2 of 1% of Engineering Unit range)  
1-One (1% of Engineering Unit range)  
2-Two (2% of Engineering Unit range)  
3-Three (3% of Engineering Unit range)  
4-Four (4% of Engineering Unit range)  
5-Five (5% of Engineering Unit range)  
6-EU (Specify deadband in Engineering Units)
**PVALDBEU (RegCtl, RegPV)**

- **Type:** Real
- **Lock:** Eng/PB
- **Default:** NaN
- **PtRes:** HPM
- **Range:** \( \geq 0.0 \)

**PVALGID**

- **Type:** E:SPMMPVAG
- **Lock:** PtBid
- **Default:** Null
- **PtRes:** HPM
- **Range:**
  - 0-Null (No algorithm configured)
  - 1-DataAcq (Data Acquisition)
  - 2-FlowComp (Flow Compensation)
  - 3-MidOf3 (Middle-Of-3 Selector)
  - 4-HiLoAvg (High Low Average Selector)
  - 5-Summer (Summer)
  - 6-VdtLdLag (Variable Dead Time with Lead Lag)
  - 7-TotaLizr (Totalizer)
  - 8-GenLin (General Linearization)
  - 9-Calcultr (Calculator)

**PVAUTO (Analgln, PI)**

- **Type:** Real
- **Lock:** View
- **Default:** NaN
- **PtRes:** HPM
- **Range:** N/A

**PVAUTO (DevCtl, DigComp)**

- **Type:** E:PVSTATES
- **Lock:** View
- **Default:** BADPVTXT
- **PtRes:** HPM
- **Range:**
  - 0-STATETXT(0)
  - 1-STATETXT(1)
  - 2-BADPVTXT
  - 3-MOVPTXT
  - 4-STATETXT(2) (only if NOSTATES is 3)

**PVAUTO (DigIn)**

- **Type:** E:STATETXT
- **Lock:** View
- **Default:** N/A
- **PtRes:** HPM
- **Range:** STATETXT(0) or STATETXT(1)
PVAUTO (RegCtl)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

PV Auto Value Fetched Using Control Input Connection—Indicates the current value of the PV when the RegCtl point is in the Auto mode.

PVAUTO (RegCtl, RegPV)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

PV Auto Value—Indicates the current value of the PV after the algorithm calculation is performed, the range is checked, and the PV is filtered and clamped.

PVAUTOST (RegCtl, RegPV)

Type: E:PVVALST
Lock: View
Default: Bad
PtRes: HPM
Range: 0-Bad (All inputs, or result in PVCALC is bad)
1-Uncertn (Final result in PVCALC is an uncertain value)
2-Normal (Final result in PVCALC is a normal value)

PVCALC (AnalgIn, PI)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: PVEXEUHI to PVEXEULO,
NaN

Calculated PV—PVCALC is the PV value in Engineering Units after the raw PV (PVRAW) input to this data point has been characterized. The value of PVRAW is the PV value provided by the Field Termination Assembly (FTA).

PVCALC (RegPV)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A,
NaN

Calculated PV—Indicates the value of the PV after the PV has been calculated by the PV algorithm.
**PVCHAR**

**Type:** E:VALCHAR  
**PV Characterization Option**—Defines the display characterization to be used for characterizing the input PV value. Characterization is based on the field sensor type.

**Lock:** PtBld  
**Default:** Linear  
**PtRes:** HPM

### HLAI, LLMUX, RHUMX, & LLAI — PV Characterization

<table>
<thead>
<tr>
<th>Range</th>
<th>PNT-MODTY (NOTE 1)</th>
<th>X = Allowable Sensor Type (SENSRTYP)</th>
<th>Valid normal range (PVEULO–PVEXEUHI) in Degrees C when TCRNGOPT = Normal for SENSRTYP = Thermcpl</th>
<th>Valid extended range (PVEXEUHI–PVEXEUHI) in Degrees C when TCRNGOPT = Extended for SENSRTYP = Thermcpl</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-Jtherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>-200 to 1200</td>
<td>N/A</td>
</tr>
<tr>
<td>1-Ktherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>-100 to 750</td>
<td>-100 to 1200</td>
</tr>
<tr>
<td>2-Etherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>0 to 1100</td>
<td>-200 to 1000</td>
</tr>
<tr>
<td>3-Ttherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>-150 to 500</td>
<td>-150 to 500</td>
</tr>
<tr>
<td>4-Btherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>0 to 1700</td>
<td>0 to 1700</td>
</tr>
<tr>
<td>5-Stherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>550 to 1500</td>
<td>550 to 1500</td>
</tr>
<tr>
<td>6-Rtherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>0 to 1700</td>
<td>0 to 1700</td>
</tr>
<tr>
<td>7-RPtherm</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>550 to 1500</td>
<td>550 to 1500</td>
</tr>
<tr>
<td>8-DinRtd</td>
<td>HLAI LLMUX</td>
<td>X X X</td>
<td>-180 to 800</td>
<td>-180 to 800</td>
</tr>
<tr>
<td>9-JisRtd</td>
<td>HLAI LLMUX</td>
<td>X X X</td>
<td>-200 to 850</td>
<td>-200 to 850</td>
</tr>
<tr>
<td>10-NicklRtd</td>
<td>HLAI LLMUX</td>
<td>X X X</td>
<td>-45 to 315</td>
<td>-45 to 315</td>
</tr>
<tr>
<td>11-CopprRtd</td>
<td>HLAI LLMUX</td>
<td>X X X</td>
<td>-20 to 250</td>
<td>-20 to 250</td>
</tr>
<tr>
<td>12-Linear</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>13-Sqrroot</td>
<td>HLAI LLA LLMUX</td>
<td>X X X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A = Not Applicable

**NOTE 1:** PNTMODTY LLMUX includes RHUMX for all thermocouple types except RTD; RTD type is not supported by RHUMX IOP.
### STI — PV Characterization
(Pressure and Magnetic Flow Transmitters)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sqrt</td>
<td>X</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

X = Allowable Sensor Type

### STI — PV Characterization (Temperature Transmitters)

<table>
<thead>
<tr>
<th>Range</th>
<th>Normal Range (PVEULO to PVEUHI)</th>
<th>Maximum Range (PVEXEUULO to PVEXEUHI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>-50 to 220 mV</td>
<td>-1000 to 1000 mV</td>
</tr>
</tbody>
</table>

#### Thermocouples

<table>
<thead>
<tr>
<th>Thermocouples</th>
<th>Normal Range (PVEULO to PVEUHI)</th>
<th>Maximum Range (PVEXEUULO to PVEXEUHI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Btherm</td>
<td>400 to 1820</td>
<td>200 to 1820</td>
</tr>
<tr>
<td>Etherm</td>
<td>-100 to 1000</td>
<td>-200 to 1000</td>
</tr>
<tr>
<td>Jtherm</td>
<td>-180 to 1200</td>
<td>-200 to 1200</td>
</tr>
<tr>
<td>Ktherm</td>
<td>-170 to 1250</td>
<td>-200 to 1370</td>
</tr>
<tr>
<td>NiNiMoTC</td>
<td>600 to 1300</td>
<td>600 to 1300</td>
</tr>
<tr>
<td>Ntherm</td>
<td>-100 to 1300</td>
<td>-200 to 1300</td>
</tr>
<tr>
<td>Rtherm</td>
<td>0 to 1760</td>
<td>-50 to 1760</td>
</tr>
<tr>
<td>Stherm</td>
<td>0 to 1760</td>
<td>-50 to 1760</td>
</tr>
<tr>
<td>Ttherm</td>
<td>-120 to 400</td>
<td>-250 to 400</td>
</tr>
<tr>
<td>W3W25TC</td>
<td>0 to 2300</td>
<td>0 to 2300</td>
</tr>
<tr>
<td>W5W26TC</td>
<td>0 to 2300</td>
<td>0 to 2300</td>
</tr>
</tbody>
</table>

#### RTDs

<table>
<thead>
<tr>
<th>RTDs</th>
<th>Normal Range (PVEULO to PVEUHI)</th>
<th>Maximum Range (PVEXEUULO to PVEXEUHI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu10RTD</td>
<td>-20 to 250</td>
<td>-20 to 250</td>
</tr>
<tr>
<td>Cu25RTD</td>
<td>-20 to 250</td>
<td>-20 to 250</td>
</tr>
<tr>
<td>Pt100 DinRtd</td>
<td>-200 to 450</td>
<td>-200 to 850</td>
</tr>
<tr>
<td>Pt100 JisRtd</td>
<td>-200 to 450</td>
<td>-200 to 640</td>
</tr>
<tr>
<td>Pt200 RTD</td>
<td>-200 to 450</td>
<td>-200 to 850</td>
</tr>
<tr>
<td>Pt500 RTD</td>
<td>-200 to 450</td>
<td>-200 to 850</td>
</tr>
<tr>
<td>RH Rad</td>
<td>420 to 1800</td>
<td>700 to 1800</td>
</tr>
</tbody>
</table>

| RTD Ohms       | 0 to 4KΩ                       | 0 to 4KΩ                              |
**PVCHAR (FlowComp)**

**Type:** E:VALCHAR  
**Lock:** PtBld  
**Default:** SqRoot  
**PtRes:** HPM  
**Range:** 12-Lineal (The COMPTERM compensation is not square rooted)  
13 SqRoot (The COMPTERM compensation is square rooted)

**PV Characterization Option**—Defines the display characterization to be used for characterizing the input PV value of Regulatory PV point configuring with Flow Compensation.

**PVCHGDLY**

**Type:** Integer  
**Lock:** Supr  
**Default:** 0 seconds  
**PtRes:** HPM  
**Range:** 0 to 60 seconds

**PV Change Delay time in Seconds**—Defines the time (in seconds) that a point with a previously detected PV change event is guaranteed to remain at the new value even if the PV returns to its original value. If the point remains at its new value when the delay timer expires, the point is held at the new value.

**Helpful Hint:** PVCHGDLY requires that EVTOPT = EIP, SOE, or EIPSOE.

**PVCLAMP**

**Type:** E:PVCLAMP  
**Lock:** Eng/PB  
**Default:** NoClamp  
**PtRes:** HPM  
**Range:** 0-NoClamp (No clamping of the PV value)  
1-Clamp (Clamp PV value at range extension limit)

**PV Clamping Option**—Defines whether PV clamping is to be used for this data point. If PVCLAMP = Clamp and the PV extended range is exceeded, PV value status PVSTS is marked Uncertain and the PV is set equal to the extended limit that was violated.

**PVEQN (FlowComp)**

**Type:** E:ALGEOEQN  
**Lock:** PtBld  
**Default:** EqA  
**PtRes:** HPM  
**Range:**

<table>
<thead>
<tr>
<th>Comp. Inputs</th>
<th>Type of Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-EqA G</td>
<td>Mass/Volumetric flow of liquid</td>
</tr>
<tr>
<td>1-EqB P and T</td>
<td>Mass flow of gases and vapors</td>
</tr>
<tr>
<td>2-EqC G, P, and T</td>
<td>Mass flow of gases and vapors w/specific gravity</td>
</tr>
<tr>
<td>3-EqD G, P, and T</td>
<td>Volumetric flow of gases and vapors</td>
</tr>
<tr>
<td>4-EqE P, T, X, and Q</td>
<td>Mass flow of steam</td>
</tr>
</tbody>
</table>

G = measured or calculated specific gravity or molecular weight, P = measured actual gage pressure, T = measured actual temperature, X = measured actual steam compressibility, and Q = measured actual steam quality.

**PVEQN (HiLoAvg)**

**Type:** E:ALGEOEQN  
**Lock:** Eng/PB  
**Default:** EqA  
**PtRes:** HPM  
**Range:**

| EqA (Select and identify highest of up to six inputs) |
| EqB (Select and identify lowest of up to six inputs) |
| EqC (Calculate the average of up to six inputs) |

**PV Equation Type**—Defines the equation type (EqA-EqE) to be used for this PV algorithm. Refer to the HPM Control Functions and Algorithms manual for more information.
PVEQN (MidOf3)

Type: E:ALGOEQN
Lock: Eng/PB
Default: EqA
PtRes: HPM
Range: 0-EqA (Highest good input when one or two are bad)
       1-EqB (Lowest good input when one or two are bad)
       2-EqC (Average of all good inputs)

**PV Equation Type**—Defines the equation type (EqA-EqC) to be used for this PV algorithm. Refer to the *HPM Control Functions and Algorithms* manual for more information.

Range:
- 0-EqA
- 1-EqB
- 2-EqC

PVEQN (Summer)

Type: E:ALGOEQN
Lock: PtBld
Default: EqA
PtRes: HPM
Range: 0-EqA (P1 input is scaled and biased)
       1-EqB (Up to six inputs are scaled and summed with an overall bias applied)

**PV Equation Type**—Defines the equation type (EqA or EqB) to be used for this PV algorithm. Refer to the *HPM Control Functions and Algorithms* manual for more information.

Range:
- 0-EqA
- 1-EqB

PVEQN (Totalizr)

Type: E:ALGOEQN
Lock: Eng/PB
Default: EqA
PtRes: HPM
Range:
- 0-EqA: Continue
- 1-EqB: Continue
- 2-EqC: Continue
- 3-EqD: Set Bad and stop
- 4-EqE: Set Bad and stop
- 5-EqF: Set Bad and stop

**PV Equation Type**—Defines the equation type (EqA-EqF) to be used for this PV algorithm. Refer to the *HPM Control Functions and Algorithms* manual for more information.

Range:
- 0-EqA
- 1-EqB
- 2-EqC
- 3-EqD

Helpful Hint: For Equations C and D, the dead time is changed in steps of NLOC*NRATE*TS where NLOC is configurable from 2 to 30, for better resolution of dead time.

PVEQN (VdtLdLag)

Type: E:ALGOEQN
Lock: PtBld
Default: EqA
PtRes: HPM
Range:
- 0-EqA (Lead-Lag)
- 1-EqB (Fixed dead time)
- 2-EqC (Variable dead time)
- 3-EqD (Variable dead time with two lags)

**PV Equation Type**—Defines the equation type (EqA-EqD) to be used for this PV algorithm. Refer to the *HPM Control Functions and Algorithms* manual for more information.

Range:
- 0-EqA
- 1-EqB
- 2-EqC
- 3-EqD

Helpful Hint: For Equations C and D, the dead time is changed in steps of NLOC*NRATE*TS where NLOC is configurable from 2 to 30, for better resolution of dead time.
PVEUHI

Type: Real  PV High Range in Engineering Units—Note that PVEUHI cannot be written with NaN. NaN is the default value only.
Lock: Eng/PB
Default: NaN
PtRes: HPM
Range: PVEULO to PVEEUHI, NaN

Helpful Hint: For Smartline transmitters, refer to Table A-3 in the *PM/APM Smartline Transmitter Integration Manual*, PM12-410.

PVEULO

Type: Real  PV Low Range in Engineering Units—Note that PVEULO cannot be written with NaN. NaN is the default value only.
Lock: Eng/PB
Default: NaN
PtRes: HPM
Range: PVEEUHI to NaN

Helpful Hint: For Smartline transmitters, refer to Table A-3 in the *PM/APM Smartline Transmitter Integration Manual*, PM12-410.

PVEEUHI

Type: Real  PV Extended Engineering Unit Range High—Both PVEEUHI and PVEEXEUHI are used to clamp or detect a bad PV value. Refer to parameter PVEEUHI. Note that PVEEUHI cannot be written with NaN. NaN is the default value only.
Lock: Engr
Default: NaN
PtRes: HPM
Range: ≥ PVEUHI, NaN

PVEEXEUHI

Type: Real  PV Extended Engineering Unit Low Range—For the LLAI IOP with Thermocouple and RTD sensor types, extended PV range parameters are VIEW ONLY. Their values are defaulted based on the sensor types, the thermocouple range option, and temperature scale. The tables below show the default values in degrees C. For other engineering units, these values are appropriately converted. Note that PVEEUHI cannot be written with NaN. NaN is the default value only.
Lock: Engr
Default: NaN
PtRes: HPM
Range: ≤ PVEULO, NaN

Defaults for Extended Range PV Parameters When SENSRTYP = THERMCP, PVTEMP = Degrees C

<table>
<thead>
<tr>
<th>PVCHAR</th>
<th>TCRNGOPT = NORMAL</th>
<th>TCRNGOPT = EXTENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PVEEUHI</td>
<td>PVEEUHI</td>
</tr>
<tr>
<td>Btherm</td>
<td>600</td>
<td>1650</td>
</tr>
<tr>
<td>Etherm</td>
<td>-150</td>
<td>500</td>
</tr>
<tr>
<td>Jtherm</td>
<td>-100</td>
<td>750</td>
</tr>
<tr>
<td>Ktherm</td>
<td>0</td>
<td>1100</td>
</tr>
<tr>
<td>Rtherm</td>
<td>550</td>
<td>1500</td>
</tr>
<tr>
<td>RPTherm</td>
<td>550</td>
<td>1500</td>
</tr>
<tr>
<td>Stherm</td>
<td>550</td>
<td>1500</td>
</tr>
<tr>
<td>Ttherm</td>
<td>-200</td>
<td>300</td>
</tr>
</tbody>
</table>
### PVEXEULO (continued)

**Defaults for Extended Range PV Parameters When SENSRTYP = RTD, PVTEMP = Degrees C**

<table>
<thead>
<tr>
<th>PVCHAR</th>
<th>PVEXEULO</th>
<th>PVEXEUHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>PtDinRTD</td>
<td>-180</td>
<td>800</td>
</tr>
<tr>
<td>PtJisRTD</td>
<td>-180</td>
<td>650</td>
</tr>
<tr>
<td>NicklRTD</td>
<td>-45</td>
<td>315</td>
</tr>
<tr>
<td>CopprRTD</td>
<td>-20</td>
<td>250</td>
</tr>
</tbody>
</table>

### PVEXHIFL

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (Extended high range not exceeded)  
On (Extended high range exceeded)

**PV Extended High Range Violation**—Indicates that the PV has exceeded the extended-high range alarm trip point.

### PVEXLOFL

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (Extended low range not exceeded)  
On (Extended low range exceeded)

**PV Extended Low Range Violation**—Indicates that the PV has exceeded the extended-low range alarm trip point.

### PVFL(0)–(2) (DevCtl, DigComp)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (PV is not in the respective state)  
On (PV is in the respective state)

**PV Flag**—Indicates the current PV state as three separate Boolean parameters. PVFL(n) is On when the PV is in state “n” where n is 0, 1, or 2.

### PVFL (DigIn, Flag)

**Type:** Logical  
**Lock:** Oper  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off [PV = STATETXT(0)]  
On [PV = STATETXT(1)]

**PV Flag**—Represents the current PV state as a Boolean value.
**PVFORMAT (RegCtl, RegPV)**

*Type:* E:VALFORMT  
*PV Decimal Point Format*—Defines the decimal format that is to be used to display the PV and SP values. It contains up to eight characters including the minus sign and decimal point.

*Lock:* Engr (/PB )

*Default:* D1

*PtRes:* HPM

*Range:* 0-D0 (-XXXXXXXX)

1-D1 (-XXXXXX.X)

2-D2 (-XXXX.XX)

3-D3 (-XXX.XXX)

---

**PVHFL (RegCtl, RegPV)**

*Type:* Logical  
*PV High High Alarm Flag*—Indicates whether the PV has exceeded the alarm trip point established by the PVHHTP parameter.

*Lock:* View

*Default:* Off

*PtRes:* HPM

*Range:* Off (High High limit not exceeded)

On (High High limit exceeded)

---

**PVHHPR (RegCtl, RegPV)**

*Type:* E:ALPRIOR  
*PV High High Alarm Priority*—Defines the priority of the PV high high alarm.

*Lock:* Engr

*Default:* Low

*PtRes:* NIM

*Range:* JnlPrint (Alarm is historized and reported to the printer but not annunciated)

Printer (Alarm is reported to the printer but not historized and not annunciated)

Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)

High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)

Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)

Journal (Alarm is historized but not reported to Universal Stations and not annunciated)

NoAction (Alarm is not reported to the system and not annunciated)

*Helpful Hint:* PVHHPR configuration requires PVHHTP ≠ NaN.

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**PVHHTP (AnalgIn, RegPV)**

*Type:* Real  
*PV High High Alarm Trip Point*—Defines the PV high high alarm trip point for this point.

*Lock:* Supr

*Default:* NaN

*PtRes:* HPM

*Range:* PVHHTP to PVEXEUHI, NaN

*Helpful Hint:* PVHHTP configuration requires PVHHTP ≠ NaN.
PVHHTP (RegCtl, RegPV)

_Type:_ Real
_Lock:_ Supr
_Default:_ NaN
_PtRes:_ HPM
_Range:_ PVHHTP to PVEUHI, NaN

*Helpful Hint:* PVHHTP configuration requires PVHITP ≠ NaN.

PVHIFL (RegCtl, RegPV)

_Type:_ Logical
_Lock:_ View
_Default:_ Off
_PtRes:_ HPM
_Range:_ Off (No PV High alarm)
            On (High PV alarm)

PVHIPR (RegCtl, RegPV)

_Type:_ E:ALPRIOR
_Lock:_ Engr
_Default:_ Low
_PtRes:_ NIM
_Range:_ JnlPrint (Alarm is historized and reported to the printer but not annunciated)
            Printer (Alarm is reported to the printer but not historized and not annunciated)
            Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
            High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
            Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
            Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
            NoAction (Alarm is not reported to the system and not annunciated)

*Helpful Hint:* PVHIPR configuration requires PVHITP ≠ NaN.

PVHITP

_Type:_ Real
_Lock:_ Supr
_Default:_ NaN
_PtRes:_ HPM
_Range:_ PVLOTP to PVHHTP, NaN

PVINIT

_Type:_ Logical
_Lock:_ Prog
_Default:_ Off
_PtRes:_ HPM
_Range:_ Off (No 1-shot initialization)
            On (Initializes the PV filter and the algorithm for a 1-shot single sample time).
PVLLFL (RegCtl, RegPV)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (PV ≥ Low alarm trip point)
       On (PV ≤ Low alarm trip point)

PVLLPR (RegCtl, RegPV)

Type: E:ALPRIOR
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
       Printer (Alarm is reported to the printer but not historized and not annunciated)
       Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
       High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
       Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
       Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
       NoAction (Alarm is not reported to the system and not annunciated)

Helpful Hint: PVLLPR configuration requires PVLLTP ≠ NaN.

PVLLTP (AnalgIn, RegPV, PI)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: PVEUETO to PVLOTP, NaN

Helpful Hint: PVLLTP configuration requires PVLOTP ≠ NaN.

PVLLTP (RegCtl)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: PVEUETO to PVLOTP, NaN

Helpful Hint: PVLLTP configuration requires PVLOTP ≠ NaN.

PVLOFL (RegCtl, RegPV)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (PV ≥ Low alarm trip point)
       On (PV ≤ Low alarm trip point)

PVLLFL (RegCtl, RegPV)—Indicates that the PV has exceeded the alarm trip point established by the PVLLTP parameter.
PVLOPR (RegCtl, RegPV)

Type: E:ALPRIOR  PV Low Alarm Priority—Defines the priority of the PV low alarm for this point.
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
        Printer (Alarm is reported to the printer but not historized and not annunciated)
        Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
        High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
        Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
        Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
        NoAction (Alarm is not reported to the system and not annunciated)

Helpful Hint: PVLOPR configuration requires PVLOTP ≠ NaN.

PVLOTP (RegCtl, RegPV)

Type: Real  PV Low Alarm Trip Point—Defines the trip point for the PV low alarm for this point.
Lock: Supr
Default: NaN
PtRes: HPM
Range: PVLLTP to PVHITP,
        NaN

PVNORMAL (DevCtl, DigIn, DigComp)

Type: E:STATETXT  PV Normal State—Defines the normal state of the PV using the appropriate STATETXT descriptor.
Lock: Supr
      (Engr to change to/from NONE)
Default: N/A
PtRes: HPM
Range: STATETXT(0) descriptor (Defaulted to Off for PV State 0)
       STATETXT(1) descriptor (Defaulted to On for PV State 1)
       STATETXT(2) descriptor (Defaulted to State2 for PV State 2; internally set to $NULL for two-state devices; does not apply to DigIn point)
       NONE (No off normal checking)

Helpful Hint: PV normal state text descriptor describes the normal (desired) state, such as Run, Stop, Open, Closed.
PVNORMFL (DevCtl, DigIn, DigComp)

Type: Logical
Lock: Supr
Default: Off
PtRes: HPM
Range: Off (Point is in a state other than the normal state)
        On (Normal state is active)

PV Normal State Flag—Indicates whether the normal state of the PV is active.

Helpful Hint: PVNORMFL change requires ALMOPT = Offnorm for Digital Input points, or that PVNORMAL ≠ None for Digital Composite or Device Control points. If set to On, causes text in STATETXT (1) to be used to describe the normal state of the PV, otherwise text in STATETXT (0) is used.

PVP (RegCtl, RegPV)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

PV in Percent—Defines the PV as a percentage.

PVRAW (AnalgIn)

Type: Real
Lock: Operator
Default: NaN
PtRes: HPM
Range: N/A

PV Raw Value—Indicates the raw input value of the PV from the Field Termination Assembly (FTA) before PV characterization is performed. The units of value for the PV are determined by the field sensor type as described below.

Helpful Hint: If sensor type is 0.4–2 V, 1- 5 V, 0 - 5 V, PVRAW is in percent; if sensor type is T/C, PVRAW is in microvolts; if sensor type is in RTD, PVRAW is in milliohms; if sensor type is slidewire, PVRAW is in ratio; if sensor type is 0–100 mV, PVRAW is in millivolts.

PVRAW (DigIn)

Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (Open contacts)
        On (Closed contacts)

Raw State of Field Contacts—Indicates the current state of the field contacts.
### PVRAW (PI)

**Type:** Real  
**Lock:** View  
**Default:** NaN  
**PtRes:** HPM  
**Range:** N/A  

**PV Raw Value**—Indicates the raw input value of the PV in pulses per second.

### PVRAW (STI)

**Type:** Real  
**Lock:** View  
**Default:** NaN  
**PtRes:** HPM  
**Range:** N/A  

**PV Raw Value**—Indicates the raw input value of the PV in % of span based on the transmitter PV after PV characterization (PVCHAR) and DAMPING have been performed. The span of the PV is determined by using LRV as a 0%-point and URV as a 100%-point.

### PVRAWHI

**Type:** Real  
**Lock:** Eng/PB  
**Default:** NaN  
**PtRes:** HPM  
**Range:** PVRAWLO to 100 for a 0_100_mv input (microvolts)  

**PV Raw High Range**—Defines the high end of the normal operating range for the raw PV value (PVRAW). For a slidewire input, the units are ratio, for a 0_100_MV input, the units are in millivolts.

### PVRAWLO

**Type:** Real  
**Lock:** Eng/PB  
**Default:** NaN  
**PtRes:** HPM  
**Range:** 0–PVRAWHI (0 to 100 microvolts for a 0_100 mv input, or 0 to 1 ratio for a slidewire input)  

**PV Raw Low Range**—Defines the low end of the normal operating range for the raw PV value (PVRAW).

### PVROCNFL (RegCtl, RegPV)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (No PV negative rate-of-change alarm)  

**PV Negative Rate-of-Change Alarm Flag**—Indicates that the PV negative rate-of-change has exceeded the value established by the PVROCNTP parameter.

On (PV negative rate-of-change alarm)
PVROCNPR (RegCtl, RegPV)

**Type:** E:ALPRIOR
**Lock:** Engr
**Default:** Low
**PtRes:** NIM

**PV Negative Rate-of-Change Alarm Priority**—Defines the priority of the PV negative rate-of-change alarm for this point.

- **Range:** JnlPrint (Alarm is historized and reported to the printer but not annunciated)
- Printer (Alarm is reported to the printer but not historized and not annunciated)
- Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
- High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
- Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
- Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
- NoAction (Alarm is not reported to the system and not annunciated)

*Helpful Hint:* PVROCNPR configuration requires PVROCNTP ≠ NaN.

PVROCNTP (RegCtl, RegPV)

**Type:** Real
**Lock:** Supr
**Default:** NaN
**PtRes:** HPM

**PV Negative Rate-of-Change Trip Point**—Defines the trip point for the PV negative rate-of-change alarm for this point. Operation is the same as for PVROCPPTP except for the direction of change.

The maximum rate of change value must be less than the absolute value of:

(PVEUHI - PVEULO) * \( \frac{60}{8} \).

- **Range:** ≥ 0.0, NaN

*Helpful Hint:* For RegPV points, RegCtl points, and points in a HLAI or LLAI, the maximum rate of change is one step away from PVEEXEUHI to PVEEXEULO in eight seconds; therefore, the maximum rate of change is (PVEEXEUHI - PVEEXEULO) * 7.5 units/minute. For SENSRTYP = RTD, the maximum is [800 - (-180)] * 7.5, which is 7350.

PVROCPFL (RegCtl, RegPV)

**Type:** Logical
**Lock:** View
**Default:** Off
**PtRes:** HPM

**PV Positive Rate-of-Change Alarm Flag**—Indicates that the positive rate-of-change of the PV has exceeded the value established by the PVROCPPTP parameter.

- **Range:** Off (No PV positive rate-of-change alarm)
- On (PV positive rate-of-change alarm)
PVROCPPR (RegCtl, RegPV)

Type: E:ALPRIOR  PV Positive Rate-of-Change Alarm Priority—Defines the priority of the positive rate-of-change PV alarm for this point.
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized and reported to the printer but not annunciated)
        Printer (Alarm is reported to the printer but not historized and not annunciated)
        Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
        High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
        Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
        Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
        NoAction (Alarm is not reported to the system and not annunciated)

Helpful Hint: PVROCPPR configuration requires PVROCPTP ≠ NaN.

PVROCPTP (RegCtl, RegPV)

Type: Real  PV Positive Rate-of-Change Trip Point—Defines the positive PV rate-of-change limit in engineering units/minute for this point; for example 25 degrees per minute. The PV value is checked every four seconds. The rate of change alarm trips if the PV rate-of-change value is exceeded for two successive scans. The alarm is reset if the PV rate-of-change falls below the rate of change value for two successive scans.
Lock: Supr
Default: NaN
PtRes: HPM
Range: > 0.0, NaN

Helpful Hint: For RegPV points, RegCtl points, and points in HLAI or LLAI, the maximum rate of change is one step away from PVEXEHI to PVEXEULO in eight seconds; therefore, the maximum rate of change is:
(PVEXEHI - PVEXEULO) * 7.5 units/minute.
Example: for SENSRTYP = RTD, the maximum is: [800 - (-180)] *7.5, which = 7350.

PVSGCHTP (RegCtl, RegPV)

Type: Real  PV Significant Change Alarm Trip Point—Defines the alarm trip point for an increment of change that occurs between configured PVHITP and PVHHTP or PVLOTP and PVLLTP alarms. For example, consider a temperature point with limits of PVHITP = 800 degrees, PVHHTP = 850, and PVSGCHTP = 10.
Lock: Supr
Default: NaN
PtRes: HPM
Range: > 0.0, NaN

When the temperature rises to 800 degrees, the PVHITP alarm is annunciated, and should the temperature continue to increase, the alarm is annunciated again when the temperature reaches 810 degrees, 820 degrees, and so on. This allows the alarm to be reannunciated to remind the operator of the existence of an alarm condition.
PVSOURCE (RegCtl, RegPV)

Type: E:PVSOURCE  PV Source—Defines the source of the PV input to this data point. The PV goes to bad when PVSOURCE is switched from Man to Sub.
Lock: Oper
Default: Auto
PtRes: HPM
Range: 0-Sub (Value is provided by a sequence program)
        1-Man (PV is supplied by operator or program)
        2-Auto (Field wiring or memory fetch supplies PV)
        3-Track (PV tracks OP (DigComp points only))

Helpful Hint: PVSOURCE change by an operator requires PVSRCOPT = All and DITYPE = Latched if PNTTYPE = DigIn.

PVSRCOPT (RegCtl, RegPV)

Type: E:PVSRCOPT  PV Source Option—Defines the PV source options available in this data point.
Lock: Eng/PB
Default: OnlyAuto
PtRes: HPM
Range: 0-OnlyAuto (PV source selection is not available and field wiring or memory fetch supplies PV)
        1-All (PV is supplied by an operator, by a sequence program, or by field wiring)

Helpful Hint: PVSRCOPT change by an operator requires DITYPE = Latched if PNTTYPE= DigIn.

PVSTATES(0)–(4) (DevCtl, DigComp)

Type: String_8  PV State Descriptors—The PV state descriptors contain the text that describes the five (0-4) possible states of a DigComp or DevCtl PV. The descriptors are set equal to whatever is configured in BADPVTXT and MOVPVTXT during HPM Box configuration and in STATETXT(0), STATETXT(1), and STATETXT(2) during point configuration (if PVTXTOPT = ON).
Lock: View
Default: N/A
PtRes: NIM
Range: N/A

Helpful Hint: PVSTATES, if accessed by Control Language programs, obey the following rules:
   a. PVSTATES (0) = STATETXT (0)
   b. PVSTATES (1) = STATETXT (1)
   c. PVSTATES (2) = BADPVTXT
   d. PVSTATES (3) = MOVPVTXT
   e. PVSTATES (4) = STATETXT (2); does not apply unless NOSTATES = 3
**PVSTS (RegCtl, RegPV)**

**Type:** E:PVVALST  
**Status Of PV Input Value**—Defines the current status of the PV value.

**Lock:** View

**Default:** Bad

**PtRes:** HPM

**Range:** 0-Bad (Value is bad and replaced with NaN. For an STI point, value can be set to Bad based on transmitter gross status.)
1-Uncertn (Status of the value is uncertain)
2-Normal (Value is good)

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**PVTEMP**

**Type:** E:TEMPTURE  
**PV Temperature Scale**—Defines the temperature scale to be used in characterizing the PV input.

**Lock:** PtBld

**Default:** Degrees C

**PtRes:** HPM

**Range:**
0-Degrees C (Celsius)
1-Degrees F (Fahrenheit)
2-Degrees R (Rankin)
3-Degrees K (Kelvin)

*Helpful Hint:* PVTEMP is to be configured when PVCHAR = TC or RTD.

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**PVTRACK (Pid)**

**Type:** E:TRACKING  
**PV Tracking Option**—Defines whether SP is to be set equal to PV.

**Lock:** Eng/PB

**Default:** NoTrack

**PtRes:** HPM

**Range:**
0-NoTrack (SP is never set equal to PV)
1-Track (Man mode or initialization causes SP to track PV)

*Helpful Hint:* SP is set equal to PV if PVTRACK = Track and the point is:
  a. in manual mode
  b. being initialized from a secondary
  c. undergoing 1-shot initialization during the first sample time after becoming active.
**PVTVP**

*Type:* Real  
*PV Target Value in Percent*—Indicates the target value of the PV in percent.

*Lock:* View

*Default:* NaN

*PtRes:* HPM

*Range:* ≥ 0.0%, NaN

**PVTXTTOPT (DevCtl, DigComp)**

*Type:* Logical  
*PV Text Option*—Indicates whether the BADPVTXT and MOVPVTXT parameters are configured for this point, or if the default from the box data point should be used.

*Lock:* PtBld

*Default:* Off

*PtRes:* NIM

*Range:*  
- **Off** (The parameters are not configured for this point)  
- **On** (The parameters are configured for this point)
**Q**

*Type:* Real  
*Lock:* View  
*Default:* 1.0  
*PtRes:* HPM  
*Range:* $> 0.0,$  
\[ NaN \]

**Steam Quality Factor Input**—Indicates the measured actual steam quality factor.

**QSTS (FlowComp)**

*Type:* E:PVVALST  
*Lock:* View  
*Default:* Normal  
*PtRes:* HPM  
*Range:* 0-Bad (Value is bad and replaced by NaN)  
1-Uncertn (Status of the value is uncertain)  
2-Normal (Value is good)
R1(1)–(24), R2(1)–(24) (Logic)

Type: E:SPMLGPM
Lock: PtBld
Default: L1
PtRes: HPM
Range: 32..47-L1...L12 (Values from Input Connections)
        48..51-NN1...NN8 (Local Numerics)

Helpful Hint: R1 configuration requires LOCALGID = EQ, NE, GT, GE, LT, LE, or CHECKBAD.

RAISDSTN

Type: Universal
Lock: PtBld
Default: Null
PtRes: HPM
Range: ONPULSE
        OFFPULSE

Raise Output Pulse Destination—Defines the destination of the Raise output pulse. RAISDSTN must point to parameters ONPULSE or OFFPULSE of a DigOut data point.

RAISETIM

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: N/A,
        NaN

Raise Output Pulse Time—Indicates the Raise output pulse time in seconds. It is clamped to MAXPULSE or CYCLETIM, whichever is lower. If the value of RAISETIM is smaller than MINPULSE, no pulse is issued.

RAISRATE

Type: Real
Lock: Supr
Default: 100.0% per sec.
PtRes: HPM
Range: > 0.0% per second

Raise OP Stroke Rate in Percent/Second

RAMPTIME

Type: Real
Lock: Oper
Default: 0.0
PtRes: HPM
Range: ≥ 0.0

Ramp Time in Minutes

Helpful Hint: RAMPTIME change by an operator requires SPOPT = Tv. The minimum value is clamped to TS, the point sample time in minutes, while the maximum value is clamped to 32767*TS. To change the RAMPTIME from a logic point requires Node=Auto and Mode Attribute=Program.
RARWSTS (RegCtl)

Type: E:WINDUP  Remote Anti-Reset Windup Status
Lock: View
Default: Normal
PtRes: HPM
Range: 0-Normal (Free to move in either direction)
        1-Hi (Free to move lower)
        2-Lo (Free to move higher)
        3-HiLo (Not free to move in any direction)

Helpful Hint: RARWSTS applies only if RCASOPT = Spc, Ddc, or DdcRsp.

RATE1 (AutoMan, MulDiv, RegCtl Summer)

Type: Real  Rate at Which Bias Ramps Down—Rate at which the bias (B) ramps down from
       the initialization value to the last value entered by the operator. If a positive
       value is entered, Rate1 determines the ramp down rate of the internal bias value
       (BI). If 0 is entered, the ramp down of B is disabled. If NaN is entered, the
       internal bias does not decay, but instantaneously changes to 0 and will cause a
       bump in the output.

Range:  > 0.0 EU's per minute, NaN

RATE1 (RatioCtl)

Type: Real  Internal Bias Ramps Down Rate—Rate in EUs per minute at which the internal
       bias (BI) ramps down from the initialization value to the last value entered by
       the operator. If BIAS = NaN, initialization for the primary is determined
       through back calculation. If 0 is entered, the ramp down of B is disabled.

Range:  ≥ 0.0, NaN

RATE1–12 (RampSoak)

Type: Real  Ramp Rate for Ramp Soak Segments 1–12
Lock: Supr
Default: NaN
PtRes: HPM
Range:  Negative values are accepted to allow ramping down.

RATIO (Pid)

Type: Real  Ratio—Defines the ratio value by which the SP is multiplied.
Lock: Oper
Default: 1.0
PtRes: HPM
Range:  RTLOLM to RTHILM
RBOPT (Pid)

**Type:** E:RBOPT

**Lock:** Eng/PB

**Default:** NoRatBi

**PtRes:** HPM

**Range:**
- 0- NoRatBi (No ratio/bias is used to calculate the SP)
- 1- FixRatBi (Fixed ratio (R) and fixed bias (B) are used)
- 2- AutoRat (R is back-calculated during initialization)
- 3- AutoBi (B is back-calculated during initialization)

**Helpful Hint:** RBOPT applies to only PID-type RegCtl algorithms.

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RCASOPT (AnalogOut)

**Type:** E:$RCASOPT

**Lock:** Eng/PB

**Default:** None

**PtRes:** HPM

**Range:**
- 0- None (No cascade mode of any type is allowed)
- 2- Ddc (Direct Digital Control; in cascade mode, AM point controls this point's OP)

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RCASOPT (AutoMan, IncrSum, ORSel, Switch)

**Type:** E:$RCASOPT

**Lock:** Eng/PB

**Default:** None

**PtRes:** HPM

**Range:**
- 0- None (Only local cascade mode is allowed)
- 2- Ddc (In cascade mode, AM point provides the output OP for this data point)

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RCASOPT (Pid)

**Type:** E:$RCASOPT

**Lock:** Eng/PB

**Default:** None

**PtRes:** HPM

**Range:**
- 0- None (Local cascade is the only valid cascade)
- 1- Spc (AM writes to SP within SP limits)
- 2- Ddc (AM writes to OP. No OP limits)
- 3- Rsp (AM writes to SP when this point is in Auto and is being initialized by its secondary. SP limits are applied)
- 4- DdcRsp (AM does Ddc and Rsp functions)

**Helpful Hint:** MODE for a point cannot be changed to Cascade by the operator or program if
- parameter RCASOPT is configured to Ddc, Spc, or DdcRsp
- the AM strategy has not yet stored to MODE, SP, or OP.
Even if PVTRACK = Track, PV tracking is not performed in auto mode with INITMAN = On if RCASOPT = Rsp.
RCASOPT (RegCtl)

Type: E:$RCASOPT  
Lock: Eng/PB  
Default: None  
PtRes: HPM  
Range: 0-None (Only local cascade mode is allowed)  
1-Spc (In cascade mode, AM point provides the SP for this point)  
2-DDC (In cascade mode, AM point provides the OP for this point)  
3-Rsp (In Auto mode with INITMAN = ON, the AM point provides the SP for this point)  
4-DDCRsp (In cascade mode, AM point provides the OP for this point)

RCASSHED (RegCtl)

Type: Logical  
Lock: View  
Default: Off  
PtRes: HPM  
Range: Off (No mode shed)  
On (Mode has shed to the preconfigured backup mode)

Helpful Hint: RCASSHED applies only if RCASOPT = Spc, Ddc, or DdcRsp.

RDNHWREV

Type: String_2  
Lock: View  
Default: 00 (Hex.)  
PtRes: HPM  
Range: Hexadecimal Characters 00 to FF

REDTAG (RegCtl)

Type: E:REDTAG  
Lock: Sup/Eng  
Default: Off  
PtRes: HPM  
Range: 0-Off (Data point is in service. Point's OP is not frozen)  
1-On (Data point is out of service = point's OP is frozen)

Helpful Hint: REDTAG change requires MODE = Man and MODATTR = Oper. Once a point is red tagged, parameters MODE, MODATTR, and OP (output) cannot be changed. In addition, for a RegCtl point, ESWENBST cannot be changed.

RELREV (HPM)

Type: String_1  
Lock: View  
Default: 00 (Hex.)  
PtRes: HPM

Range: N/A
**RELVERS (HPM)**

**Type:** String_1  
**Lock:** View  
**Default:** 00 (Hex.)  
**PtRes:** HPM  

**Range:** N/A

**REMSOAKT (RampSoak)**

**Type:** Real  
**Lock:** Oper  
**Default:** 0.0  
**PtRes:** HPM  

**Range:** 0.0 to 120.0 minutes

**RESETFL (DevCtl, DigComp)**

**Type:** Logical  
**Lock:** Oper  
**Default:** Off  
**PtRes:** HPM  

**Range:** Off (Storing to this parameter resets maintenance statistics)

**Helpful Hint:** This parameter can be reset by the operator only while it is red tagged. A program may reset at anytime.

**RESETFL (DigIn)**

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  

**Range:** Off (No Reset command)  
On (Reset command is issued to the accumulator)

**Helpful Hint:** RESETFL change requires DITYPE = Accum

**RESETFL (Timer)**

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  

**Range:** Off  
On

**Helpful Hint:** This parameter can be reset by the operator only while it is red tagged. A program may reset at anytime.
**RESETFL** (Totalizr)

- **Type:** Logical
- **Lock:** Prog
- **Default:** Off
- **PtRes:** HPM
- **Range:** Off

  Reset Totalizer Command Flag—Resets the total RESETVAL when this flag changes from Off to On.

**RESETVAL** (DigIn)

- **Type:** Integer
- **Lock:** Oper
- **Default:** 0
- **PtRes:** HPM
- **Range:** 0–32767

  Accumulator Reset Value—Value that is preset in the accumulator. Value can then be incremented or decremented depending on the COUNTDWN parameter.

**RESETVAL** (Totalizr)

- **Type:** Real
- **Lock:** Oper
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** N/A

  Reset Value—Value used for presetting the value to be totaled.

**RESTART** (ProcMod)

- **Type:** E:RESTART
- **Lock:** View
- **Default:** None
- **PtRes:** HPM

  Process Module Restart State—Indicates the type of restart last performed by the process module. This value will be set to a value other than “None” until the first preemption point.

  **Helpful Hint:**
  
  RESTART can be used to determine if the startup was caused by failover. Following failover, RESTART takes on the value “Failover.” This value remains until the first preemption point after which it returns to “None.”

  - **Range:**
    - 0: None (Has not been restarted)
    - 1: Failover (Running for the first time after a failover)
    - 3: Warm (Running for the first cycle after a warm start)
    - 4: Cold (Running for the first cycle after a cold start, or a power up to Run)
    - 5: PTACTVN (Running for the first cycle following the transition from Off state to Run state)

**RFB** (PidErfb)

- **Type:** Real
- **Lock:** View
- **Default:** N/A
- **PtRes:** HPM
- **Range:** ≥ 0.0

  Reset Feedback Input in Percent—Indicates the PV value of another data point that is receiving its setpoint from this data point.
**RG (FlowComp)**

- **Type:** Real
- **Lock:** Supr
- **Default:** 1.0 (molecular weight)
- **PtRes:** HPM
- **Range:** N/A

**Reference Specific Gravity**—Defines the reference specific gravity or reference molecular weight, in the same engineering units as G (measured or calculated specific gravity or molecular weight).

**RINITREQ (RegCtl)**

- **Type:** Logical
- **Lock:** View
- **Default:** On for AnalgOut, Off for RegCtl
- **PtRes:** HPM
- **Range:** Off (No request)
  - On (Request has been made)

*Helpful Hint:* RINITREQ does not apply if RCASOPT = None.

**RINITVAL (RegCtl)**

- **Type:** Real
- **Lock:** View
- **Default:** NaN
- **PtRes:** HPM
- **Range:** N/A, NaN

*Helpful Hint:* RINITVAL does not apply if RCASOPT = None.

**RJRAW(1)—(168)**

- **Type:** Real
- **Lock:** View
- **Default:** NaN
- **PtRes:** HPM
- **Range:** N/A

**RJTEMP (LLAI)**

- **Type:** Real
- **Lock:** View
- **Default:** NaN
- **PtRes:** HPM
- **Range:** N/A

*Reference Junction Temperature*—Displays the current temperatures (°C) of the reference junction sensor. This value is updated only if the thermocouple input is configured.
RNGCODE3 (ProcMod)

Type: Blind Record
Lock: Oper
Default: N/A
PtRes: HPM
Range:

RNGCODE3—

RP (FlowComp)

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: N/A

Reference Pressure—RP is the reference pressure input and it is in the same Engineering Unit as the P (measured or actual gage pressure) input.

RP

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: 0.01 to 100.0

Minimum Pulse Time Ratio

RQ (FlowComp)

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: N/A

Reference Steam Quality Factor—Defines the reference steam quality factor which is in the same units as the Q (measured actual steam quality) input.

RQ

Type: Real
Lock: Supr
Default: 1.0
PtRes: HPM
Range: N/A

Ramp/Soak Percent Bar Graph Parameter—If in a ramp sequence, the value of the next soak percent is displayed. If in a soak sequence, the value of parameter REMSOAKT as a percent of total soak time is displayed.

RSPBGP$$ (RampSoak)

Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: ≥ 0.0

Ramp/Soak Percent Bar Graph Parameter

RSTROPT (ProcMod)

Type: E:$RSTROPT
Lock: Eng
Default: Off
PtRes: HPM
Range: 0-Off (Sequence is waiting for the operator command to start)
1-Restart (Sequence is to be restarted from the beginning)
2-Stop (Sequence positions to beginning of the last preemption following a Warm, Cold, or Power Up Restart and waits for the operator to start

Restart Option—Defines how the sequence program is to be started following an Idle to Run, or power up to Run transition or a warm restart.
**RT (FlowComp)**

*Type:* Real  
*Reference Temperature*—RT is the reference temperature input and is in the same Engineering Unit as the T (measured actual temperature) input.

*Lock:* Supr  
*Default:* 1.0  
*PtRes:* HPM  
*Range:* N/A

---

**RT**

*Type:* Real  
*Deadtime Ratio*

*Lock:* Supr  
*Default:* 1.0  
*PtRes:* HPM  
*Range:* 0.01 to 100.0

---

**RTHILM (Pid)**

*Type:* Real  
*Ratio High Limit*

*Lock:* Supr  
*Default:* 100.0  
*PtRes:* HPM  
*Range:* RTLOLM to 100.0, NaN

*Helpful Hint:* Entering NaN forces RTHILM to its extreme value (100.0%).

---

**RTLOLM (Pid)**

*Type:* Real  
*Ratio Low Limit*

*Lock:* Supr  
*Default:* 0.01  
*PtRes:* HPM  
*Range:* 0.01 to RTHILM, NaN

*Helpful Hint:* Entering NaN forces RTLOLM to its extreme value (0.01).

---

**RUNSTATE (ProcMod)**

*Type:* Logical  
*Run State*—Indicates that the point is in the RUN sequence execution state.

*Lock:* View  
*Default:* Off  
*PtRes:* HPM  
*Range:* Off (Process Module point is not in the RUN state)  
On (Process Module point is in the RUN state)
**RV (Timer)**

**Type:** Integer  
**Lock:** View  
**Default:** 0  
**PtRes:** HPM  
**Range:** >0

**Remaining Time**—Indicates the amount of time remaining (in seconds or minutes) that the timer is to run.

*Helpful Hint:* RV represents remaining time computed as SP - PV. If SP = 0, RV is always 0.

---

**RX (FlowComp)**

**Type:** Real  
**Lock:** Supr  
**Default:** 1.0  
**PtRes:** HPM  
**Range:** Anything except NaN

**Reference Steam Compressibility**—Defines the reference steam compressibility, and is in the same engineering units as the X (measured actual steam compressibility).
S0BOXCLR, S1BOXCLR, S2BOXCLR

Type: E:BOXCOLOR  
State Box Color—Used only for US displays; corresponds to the box colors configured using S0BOXCLR - BOXCLR(0), S1BOXCLR - BOXCLR(1), S2BOXCLR - BOXCLR(2).

Lock: View

Default: N/A

PtRes: NIM

Range: Red, Green, White, Black, Cyan, Yellow, Blue, Magenta

S1 (PidErfb)

Type: Logical  
Tracking Switch—Determines whether the CV value of this data point is replaced by the tracking value.

Lock: Prog

Default: Off

PtRes: HPM

Range: Off (CV value is not replaced)
On (CV value is replaced by the tracking value)

S1 (STI)

Type: String_127  
Transmitter Status—Indicates the current status of the smart transmitter associated with this STI point. Transmitter status consists of
- Transmitter scratch pads 1, 2, 3 & 4
- Detailed transmitter status
- List of parameters whose values are not the same in both the STI IOP database and the transmitter's database. (Parameters are mismatched.)

PtRes: HPM
Range: N/A, Blank

S1, S2 (RampSoak)

Type: Logical  
Mark 1 and Mark 2 Flags—These flags are used to indicate to other data points that a specified time has elapsed from the beginning of a specified ramp or soak segment. Refer to the HPM Control Functions and Algorithms manual for detailed information.

Lock: View

Default: Off

PtRes: HPM

Range: Off, On
S1(1)–(24) through S4(1)–(24) (Logic)

**Type:** E:SPMMLGPM  
**Status Inputs 1-4**—Defines the input source for each of the S1-S4 inputs to the logic block.

**Lock:** PtBld  
**Default:** L1

**PtRes:** HPM

**Range:** FL1...FL12 (Input source is a local flag; they can be either On or Off)  
SO1...SO24 (Input source is the status output (SOn) from another logic block.)  
L1...L12 (Input source is the configured input connection; they can be either On or Off)

S1–S4 (Switch)

**Type:** Logical  
**Select X1-X4 Request Flag**—Indicate whether the respective input (X1-X4) has been selected as the input to this algorithm.

**Lock:** Oper  
**Default:** On

**PtRes:** HPM

**Range:** Off

On (Respective input has been selected)

S1BGNTIM, S2BGNTIM (RampSoak)

**Type:** Real  
**Mark 1 and Mark 2 Begin Times**—Times at which Mark Function Flag S1 or S2 is turned on. Refer to the *HPM Control Functions and Algorithms* manual for detailed information.

**Lock:** Supr  
**Default:** 0.0

**PtRes:** HPM

**Range:** ≥ 0.0 to 120 minutes

S1ENDTIM, S2ENDTIM (RampSoak)

**Type:** Real  
**Mark 1 and Mark 2 End Time**—Times at which Mark Function Flags S1 and S2 are turned off. Refer to the *HPM Control Functions and Algorithms* manual for detailed information.

**Lock:** Supr  
**Default:** 0.0

**PtRes:** HPM

**Range:** ≥ 0.0 to 120 minutes

S1REV(1)–(24) through S3REV(1)–(24) (Logic)

**Type:** Logical  
**S1, S2, S3 Inputs Reversed**—Allows the user to selectively reverse (invert) any of the inputs to a logic block.

**Lock:** PtBld  
**Default:** Off

**PtRes:** HPM

**Range:** Off (Input is direct)  
On (Input is reversed)

*Helpful Hint:* Reversed (inverted) inputs apply only to LOGALGID = And, Or, Nand, and Nor.
### S1SEGID, S2SEGID (RampSoak)

**Type:** E:CURSEGID

**Lock:** Supr

**Default:** Ramp1

**PtRes:** HPM

**Range:**
- 0-Ramp1
- 1-Soak1
- 2-Ramp2
- 3-Soak2

Mark 1 and Mark 2 Segment Identifiers—Refer to the HPM Control Functions and Algorithms manual for detailed information.

### SAFEOP

**Type:** Real

**Lock:** Engr

**Default:** N/A

**PtRes:** HPM

**Range:** -6.9 to 106.9%, NaN

Safe Operation For Safety Shutdown—Defines the safe output value (OP) for a point when the SHUTDOWN parameter is set to On.

### SAFOPCMD (PosProp, PIDPosPr)

**Type:** E:$SFOPCMD

**Lock:** Engr

**Default:** Idle

**PtRes:** HPM

**Range:**
- 0-IDLE (Output does not change)
- 1-RAISE (Output is raised)
- 2-LOWER (Output is lowered)

Safe OP Command—Defines the Safe OP state for position proportional and PID position proportional.

### SCANPER (HPM Box)

**Type:** Real

**Lock:** PtBld

**Default:** 1.0

**PtRes:** HPM

**Range:**
- .25 seconds
- .5 seconds
- 1.0 seconds

SI Data Scan Period—Defines the period that the HPMM Control Processor scans serial interface data that is mapped to the Array point.

### SCANPRI (Array)

**Type:** E:SCANPRI

**Lock:** PtBld

**Default:** Low

**PtRes:** HPM

**Range:**
- Low (Scan at low priority)
- High (Scan at high priority)

SI Data FTA Scan Priority—Indicates which scan priority the serial interface FTA is using when reading data from the serial link.
SCANRATE (HPM Box)

**Type:** E:$PMMSNRT  **Scan Rate**—Defines the number of times that all slots of a particular type are scanned and processed. Refer to the *HPM Control Functions and Algorithms* manual for information on how to determine the processing capacity of the HPM. During the load of the HPM Box Data point, the point mix (number of points and box variables) and the scan rate are written to the HPMM by the store of the SCANRATE parameter.

**Lock:** PtBld

**Default:** Reg1Log1

**PtRes:** HPM

**Range:**

<table>
<thead>
<tr>
<th>RegCtl &amp; RegPV</th>
<th>Logic, DigComp &amp; DevCtl</th>
<th>ProcMod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan Freq</td>
<td>Scan Freq</td>
<td>Scan Freq</td>
</tr>
<tr>
<td>0-Null</td>
<td>- - - -</td>
<td>- - - -</td>
</tr>
<tr>
<td>1-Reg1Log1</td>
<td>1 second</td>
<td>1 second</td>
</tr>
<tr>
<td>2-Reg1Log2</td>
<td>1 second</td>
<td>1/2 second</td>
</tr>
<tr>
<td>3-Reg1Log4</td>
<td>1 second</td>
<td>1/4 second</td>
</tr>
<tr>
<td>5-Reg2Log2</td>
<td>1/2 second</td>
<td>1/2 second</td>
</tr>
<tr>
<td>6-Reg2Log4</td>
<td>1/2 second</td>
<td>1/4 second</td>
</tr>
<tr>
<td>8-Reg4Log4</td>
<td>1/4 second</td>
<td>1/4 second</td>
</tr>
</tbody>
</table>

**CAUTION**

If a new point mix or a new SCANRATE is loaded from the DEB, the following items should be noted:

a. Before making changes to the point mix or SCANRATE, any configured points being removed due to a reduction in the point mix should first be deleted from the system.

b. Any other currently configured points are preserved in the new point mix (the point database is not defaulted).

c. If the SCANRATE or any part of the point mix is rejected by the HPMM then the HPMM database remains unchanged; the SCANRATE and the point mix also remain unchanged.

d. If the SCANRATE and the point mix are equivalent to the previous values, then the HPMM database remains unchanged.

SCHSTS

**Type:** Logical  **Schedule Status**—Indicates the status of the schedule configuration option processing (for example, before/after relationship).

**Lock:** View

**Default:** OK

**PtRes:** HPM

**Range:** OK (the point is correctly assigned to the desired scan cycle or before/after another point with the same status)

- **Incomplete** (the point did not complete loading to the point where the proper scan cycle or before/after point could be determined)
- **error** (the point could not be placed on the desired scan cycle or before/after the desired point)
- **Alarm** (the schedule configuration of the point was violated after the configuration of the point was complete and its status was Ok.)

**Helpful Hint:** The point cannot be made active if SCHSTS = Incomplete or Error.
SEALOPT (DevCtl, DigComp)
Type: E:$SEALOPT  Seal-in Circuit Option—Configures the seal-in circuit option.
Lock: Eng/PB
Default: None
PtRes: HPM
Range: 0-None (Sealin is not configured)
        1-Sealin (Sealin is configured)

SECOND (HPM Box)
Type: Integer  Current Second
Lock: View
Default: N/A
PtRes: HPM
Range: 0 to 59

SECSYNC
Type: E:$SECSYNC  Secondary Synchronization Status
Lock: View
Default: HPM
PtRes: HPM
Range: Synched (Modules are synchronized)
        NoSynch (Modules are out of synchronization)

SECVAR (DevCtl)
Type: Real  Secondary Variable—The analog feedback, normally the motor current or flow.
Lock: View
Default: 0.0
PtRes: HPM
Range: Real Numbers including NaN

SECVAR (STI)
Type: Real  Secondary Variable—Displays the value of the secondary variable of the smart
        transmitter as follows:
        Pressure transmitter—temperature of the transmitter
        Temperature transmitter—cold junction temperature
        Flow transmitter—totalized value.
Lock: View
Default: NaN
PtRes: HPM
Range: N/A, NaN

SEGTOT (GenLin)
Type: Integer  Total Number of Segments—Defines the total number of segments in the curve.
Lock: Supr
Default: 1
PtRes: HPM
Range: 1 to 12
SEGTYPE (RampSoak)

Type: E:SEGTYPE  Segment Type—Indicates the current segment being executed by the RegCtl point.
Lock: View
Default: N/A
PtRes: HPM
Range: 0-Ramp (Ramp segment)
1-Soak (Soak segment)

SELINP (HiLoAvg, MidOf3)

Type: E:PINP  Selected Input—Indicates the selected input for the algorithm.
Lock: View
Default: SelectP1
PtRes: HPM
Range: 1-SelectP1 (HiLoAvg and MidOf3 algorithms)
2-SelectP2 (HiLoAvg and MidOf3 algorithms)
3-SelectP3 (HiLoAvg and MidOf3 algorithms)
4-SelectP4 (Only HiLoAvg algorithm)
5-SelectP5 (Only HiLoAvg algorithm)
6-SelectP6 (Only HiLoAvg algorithm)

SELXINP (ORSel, Switch)

Type: E:XINP  Selected X Input—For the ORSel algorithm, this parameter indicates the inputs to the algorithm that have not been bypassed by the BYPASS1-BYPASS4 parameters. For the Switch algorithm, this parameter allows the operator to specify the input (X1-X4) to the algorithm. Refer to the HPM Control Functions and Algorithms manual for a detailed description.
Lock: View
(for ORSel)
Oper (for Switch)
Default: SelectX1
PtRes: HPM
Range: 1-SelectX1
2-SelectX2
3-SelectX3
4-SelectX4

SENSRTYP (HLAI & LLAI)

Type: E:SSENSRTY  Sensor Type—Defines the type of field sensor connected to the Field Termination Assembly (FTA). 0_100_mV, Thermocouple, and RTD sensor types do not apply for HLAI. P4_2_V and slidewire sensor types do not apply for LLAI. Refer to PVCHAR for more information.
Lock: PtBld
Default: 1_5_V
PtRes: HPM
Range: 0-1_5_V (1 to 5 volts)
1-0_5_V (0 to 5 volts)
2-0_100_mV (0 to 100 millivolts)
3-Thermcop (Thermocouple)
4-RTD (Resistance Temperature Device)
5-P4_2_V (0.4 to 2 volts)
6-Slidwire (Slidewire Resistance Device)
SENSRTYP (LLMUX, RHMUX)

Type: E:$SENSRTY  Sensor Type—Defines the type of field sensor connected to the Field Termination Assembly (FTA). Refer to PVCHAR for more information.
Lock: PtBld
Default: 0 - 100 mV
PtRes: HPM
Range: 2-0_100_mV (0 to 100 millivolts)
3-Thermcpl (Thermocouple)
4-RTD (Resistance Temperature Device) NOTE: RTD is not supported by RHMUX.

HELPFUL HINT: For multivariable transmitters, refer to the transmitter manual for the default value of the specific device.

SENSRTYP (STI)

Type: E:$SENSRTY  Sensor Type—Defines the Smart Transmitter type. Refer to PVCHAR for more information. Note that SENSRTYP must match the FTA. The point status is set to SOFTFAIL if a mismatch occurs.
Lock: PtBld
Default: Spt_Dp
PtRes: HPM
Range: 8-SPT_DP (ST3000—differential pressure)
9-SPT_GP (ST3000—gauge pressure)
10-SPT_AP (ST3000—absolute pressure)
11-STT (STT3000—temperature)
12-SFM (MagneW 3000—magnetic flow and most Multivariable transmitters)
SEQERR (ProcMod)

Type: Integer  
Lock: View  
Default: 0  
PtRes: HPM  
Range: 0 (No error)  
1-100 (Not used)  

Sequence Error—Indicates that a sequence error or failure was detected. A code is displayed to indicate the nature of the error or failure. When an error is detected, the sequence execution state is changed to ERROR; when a failure is detected, the execution state is changed to FAIL.

Error Codes

101 (Not used)  
102 (Array index error)  
103 (Illegal IMD code)  
104 (Illegal variable/operator code)  
105 (Interpreter stack overflow)  
106 (GOTO destination error)  
107 (Key level error)  
108 (Configuration mismatch error)  
109 (I/O Link prefetch overflow)  
110 (Subroutine nesting level error)  
111 (Illegal value error)  
112 (Fail statement)  
113 (IOL-Prefetch buffer full)  
114 (IOL-Poststore buffer full)  
115 (UCN-Prefetch buffer full)  
116-117 (Not used)  

Failure Codes

165 (Sequence has been halted by the operator)  
166 (Sequence jumped to an abnormal condition handler which was not enabled)  
167 (Not used)  
168 (Timeout condition occurred on WAIT statement)  
169 (An attempt was made to start a sequence that has not been loaded)  
170 (Communication error in READ/WRITE statement)  
171 (Communication error detected during I/O Link access. This error is also generated for all post-store problems)  
172 (Range Error)  
173 (An attempt was made to write to a point that was not in the proper mode)  
174 (Interlock error)  
175-255 (Not used)

SEQEXEC (ProcMod)

Type: E:SEQEXEC  
Lock: View  
Default: NL  
PtRes: HPM  
Range: 0-NL (Not Loaded)  
1-DLL (Down-line loading is in progress)  
2-Loaded (Sequence has been loaded into the process module)  
3-End (Sequence has stopped because it has run to completion)  
4-Pause (Sequence has stopped because of a PAUSE statement, or after each step is executed while in the SnglStep sequence execution mode.)  
5-Fail (Sequence has stopped because a sequence failure was detected)  
6-Error (Sequence has stopped because a sequence error was detected)  
7-Run (Sequence is running in the process module)
SEQMODE (ProcMod)

Type: E:SEQMODE
Lock: Determined by CNTLLOCK parameter
Default: Auto
PtRes: HPM
Range: 0-Auto (Normal mode of sequence operation. Sequence runs from beginning to end without operator intervention.)
        1-SemiAuto (Sequence stops at all PAUSE statements in the sequence. Operator action is required to restart the sequence.)
        2-SnglStep (Sequence is executed one step at a time, and operator action is required to resume execution. This mode is normally used for debugging.)

SEQNAME (ProcMod)

Type: String_8
Lock: View
Default: Blank
PtRes: HPM
Range: N/A

SEQOBJSZ (ProcMod)

Type: Integer
Lock: View
Default: 0
PtRes: HPM
Range: >0

SEQPR (ProcMod)

Type: E:ALPRIOR
Lock: Eng
Default: Low
PtRes: NIM
Range: Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
        High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
        Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
        JnlPrint (Alarm is historized and reported to the printer but not annunciated)
        Printer (Alarm is reported to the printer but not historized and not annunciated)
        Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
        NoAction (Alarm is not reported to the system and not annunciated)

SEQPRGSZ (HPM Box)

Type: Integer
Lock: View
Default: N/A
PtRes: HPM
Range: N/A
SEQPROC (HPM Box)

Type: \texttt{E:SEQPROC}  
\textbf{Sequence Processing Rate}—Specifies the number of processing units per Process Module data points that can be processed each quarter second cycle.

Lock: PtBld

Default: 1\_PU

Range:  
1\_PU One PU per Process Module point is allocated per scan (200 points can be processed per scan)  
2\_PU Two PUs per Process Module point are allocated per scan (100 points can be processed per scan)

SEQSLTSZ (ProcMod)

Type: Integer  
\textbf{Sequence Slot Size}—Defines the size of the program memory allocated for this process module in terms of blocks. Each block is 32 words long. The actual size is limited by the available memory.

Lock: PtBld

Default: 0

Range: \geq 0

SERIALNO (STI)

Type: String\_8  
\textbf{Serial Number/PROM Number of the Smart Transmitter}

Lock: View

Default: Blank

PtRes: HPM

Range: N/A

SGALGID(1)–(2) (DevCtl)

Type: \texttt{E:GTALGID}  
\textbf{Secondary Gate ID}—Defines the algorithm IDs for secondary gates.

in an Array (1..2)

Lock: PtBld

Default: None

PtRes: HPM

Range: NULL (No algorithm)  
AND (And Gate algorithm)  
OR (Or Gate algorithm)  
NAND (Nand Gate algorithm)  
NOR (Nor Gate algorithm)  
XOR (Exclusive Or Gate algorithm)  
PAND (Pulse Nand Gate algorithm)  
POR (Pulse or Gate algorithm)  
PNAND (Pulse Nand Gate algorithm)  
PNOR (Pulse Nor Gate algorithm)  
PXOR (Pulse Exclusive or Gate algorithm)
SGDSTN(1)–(2) (DevCtl)

Type: E:\$GATDSTN  Secondary Gate Destination—Defines the output destination for the secondary gates.

Lock: PtBld

Default: None

PtRes: HPM

Range: None (No destination)

SI0 (Output goes to Safety Interlock)

I0, I1, I2 (Output goes to Interlocks)

P0, P1, P2 (Output goes to Permissives)

SOCMD0, SOCMD1, SOCMD2 (Output is commanded to go to SOCMD0, 1 or 2)

OPCMD (Output is commanded to go to OPCMD parameter)

SGPLSWTH(1)–(2) (DevCtl)

Type: Integer  Pulse Width for Secondary Gate—Indicates the pulse width for gates whose algorithms begin with “P”.

Lock: Supr

Default: 0

PtRes: HPM

Range: 0 to 8000

SGSO(1)–(2) (DevCtl)

Type: Logical  Status Output for Secondary Gates

Lock: View

Default: Off

PtRes: HPM

Range: Off

On
SHEDMODE (RegCtl)

**Type:** E:MODE  
**Lock:** Engr  
**Default:** Man  
**PtRes:** HPM  
**Range:** 1-Man (Manual)  
2-Auto (Automatic; applies to only Pid, PosProp, and RatioCtl algorithms)  
4-Bcas (Backup Cascade)

**Helpful Hint:**

1. SHEDMODE configuration requires RCASOPT = Spc or Ddc for Pid algorithm.
2. SHEDMODE configuration requires RCASOPT = Ddc for the following algorithms:
   - AutoMan
   - IncrSum
   - ORSel
   - Switch
3. SHEDMODE configuration requires RCASOPT = Spc for the following algorithms:
   - PosProp
   - RatioCtl

SHEDTIME (RegCtl)

**Type:** Integer  
**Lock:** Eng/PB  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 1000 seconds

**Helpful Hint:**

SHEDTIME configuration requires RCASOPT = Spc, Ddc, or DdcRsp, which indicates that the SP or OP value is provided by the AM. To disable mode shed, use the default value of 0 for this parameter.

SHUTDOWN (RegCtl)

**Type:** Logical  
**Lock:** Prog  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off  
On

**Helpful Hint:**

Before a program sets this flag to the On state, it should write into parameter SAFEOP a safe shutdown value of 0%, 100%, or NaN (which causes the last good OP value to be used).

A Logic Point or CL program must be used to reset the Shutdown Flag.
**SI0** (DevCtl, DigComp)

- **Type:** Logical
- **Lock:** Engr
- **Default:** Off
- **PtRes:** HPM
- **Range:**
  - Off (Override is not active)
  - On (Override is active)

**Helpful Hint:** This parameter can be changed by the engineer only when the point is inactive or when the HPM is idle.

---

**SI0ALOPT** (DevCtl, DigComp)

- **Type:** $OVRALOP
- **Lock:** Eng/PB
- **Default:** None
- **PtRes:** HPM
- **Range:**
  - None (No override alarming)
  - Auto_Rtn (Return to normal when override is cleared)
  - Cnfm_Rqd (Confirm to clear, after interlock is cleared)

---

**SI0ALPR** (DevCtl, DigComp)

- **Type:** ALPIROR
- **Lock:** Engr
- **Default:** NoAction
- **PtRes:** NIM
- **Range:**
  - JnlPrint (Alarm is historized and reported to the printer but not annunciated)
  - Printer (Alarm is reported to the printer but not historized and not annunciated)
  - Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)
  - High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)
  - Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)
  - Journal (Alarm is historized but not reported to Universal Stations and not annunciated)
  - NoAction (Alarm is not reported to the system and not annunciated)

---

**SIALGiD(1)–(12)** (DevCtl)

- **Type:** $I2ALGID
- **Lock:** PtBld
- **Default:** Null
- **PtRes:** HPM
- **Range:**
  - NULL (No algorithm)
  - DLY (Input is Delayed algorithm)
  - ONDLY (On Delay algorithm, transition to ON is delayed)
  - OFFDLY (Off Delay algorithm, transition to OFF is delayed)
  - PULSE (Input is Pulsed algorithm)
  - MAXPULSE (Maximum Pulse Width algorithm)
  - MINPULSE (Minimum Pulse Width algorithm)

---
SIDLYTIM(1)–(12) (DevCtl)

Type: Integer
Secondary Input Gate Delay/Pulse Width—Indicates the delay or pulse width for secondary input gates.

Lock: Supr
Default: 0
PtRes: HPM
Range: 0 to 8000 seconds

SIDSTN(1)–(12) (DevCtl)

Type: E:\$GATDSTN
Destination for Secondary Input Gates—Defines the output destination of the secondary gate.

Lock: PtBld
Default: None
PtRes: HPM
Range: None (No destination)
SI0 (Output goes to Safety Interlock)
I0, I1, I2 (Output goes to Interlocks)
P0, P1, P2 (Output goes to Permissives)
SOCMD0, SOCMD1, SOCMD2 (Output is commanded to go to SOCMD0, 1 or 2)
OPCMD (Output is commanded to go to OPCMD)
SG1, SG2 (Output goes to Secondary gates 1 or 2)
PG1, PG2, PG3, PG4 (Output goes to Primary gates 1, 2, 3 or 4)

SIM_TXT (NIM)

Type: String_8
Simulation Indicator—see also DISP_SIM

Lock: View
Default: N/A
PtRes: HPM
Range: N/A

SI0CONF (DigComp,DevCtl)

Type: Logical
Safety Override Interlock Alarm Confirmation Flag—Indicates that the safety override interlock alarm needs to be confirmed.

Lock: Oper
Default: Off
PtRes: HPM
Range: N/A
### SISO(1)–(12) (DevCtl)

**Type:** Logical  
*Status Output for Secondary Input Gates*—Indicates the output value of the secondary input gate.

**Lock:** View  

**Default:** Off  

**PtRes:** HPM  

**Range:** Off, On

### SLOTNUM

**Type:** Integer  

**Lock:** PtBld  

**Default:** N/A  

**PtRes:** NIM  

**Range:** 
- **AnalgIn:** (1-16 for HLAI and STI; 1–32 for LLMUX and RHMUX)  
- **AnalgIn:** (1-8 for LLAI)  
- **Array:** (1-500, but ≤ the value of NARRSLOT)  
- **DevCtl:** (1-400, but ≤ the value of NDEVSLOT)  
- **DigComp:** (1-999, but ≤ the value of NDCSLOT)  
- **DigIn:** (1-32)  
- **DigOut:** (1-16 or 1-32)  
- **Flag:** (HPM Box Flag 1-2047)  
- **LLMUX:** (1-32)  
- **Logic:** (1-400, but ≤ the value of NLOGSLOT)  
- **Numeric:** (HPM Box Numeric 1-2047)  
- **ProcMod:** (1-250, but ≤ the value of NPMSLOT)  
- **PI:** (1-8)  
- **RegCtl:** (1-250, but ≤ the value of NCTL SLOT)  
- **RegPV:** (1-125, ≤ the value of NPV SLOT)  
- **Timer:** (HPM box Timer 1-64)  
- **AnalgOut:** (1-8 or 1-16)

**Helpful Hint:** SLOTNUM configuration for Digcomp, DevCtl, Array, Flag, Numeric, Timer, ProcMod, Logic, RegCtl, and RegPV points require CTLOPT = On.
**SLOT0SF(1)–(168)**

Type: String 96  
**Slot 0 Soft Failures**—Returns blind record of box soft failures present at a module address.

Lock: View

Default: HPM

Range: Hexadecimal Characters 00 to FF

---

**SLWSRCID (AnalogIn)**

Type: Integer  
**Slidewire Voltage Source Identifier**—Defines the slot number of the voltage source for the slidewire.

Lock: Eng/PB

Default: 1

PtRes: HPM

Range: 1–16

*Helpful Hint:* SLWSRCID configuration requires SENSRTYP = Slidewire.

---

**SNAME(1)–(2) (ProcMod)**

Type: String 8  
**Subroutine Name**—Indicates the name of the subroutine currently used by the process module. A value of " " means that no subroutine is executing.

Lock: View

Default: Spaces

PtRes: HPM

Range: N/A

---

**SO (DigOut)**

Type: Logical  
**Status Output**—The output from a DigOut point.

Lock: Oper

Default: Off

PtRes: HPM

Range: Off (Field contact is to be de-energized.)

On (Field contact is to be energized.)

*Helpful Hint:* Only the HPMM Cont_Ctl access level can write to this parameter.

---

**SO (Timer)**

Type: Logical  
**Status Output of Timer**—Indicates whether the PV (elapsed time) has reached the SP (preset time).

Lock: View

Default: Off

PtRes: HPM

Range: On (PV has reached the SP)

Off (PV has not reached the SP)

---

**SO(1)–(24) (Logic)**

Type: Logical  
**Logic Block Status Output**—Indicates the output state of the logic block.

Lock: View

Default: Off

PtRes: HPM

Range: Off (Output is false)

On (Output is true)
SO(0)–(2) (DevCtl, DigComp)
- **Type:** Logical
- **Lock:** View
- **Default:** Off
- **PtRes:** HPM
- **Range:** Off, On

**Status output array**—Indicates the current output state of the Digital Composite slot.

- \( s = (0) \) for state 0
- \( s = (1) \) for state 1
- \( s = (2) \) for state 2

SOAKT1–12
- **Type:** Real
- **Lock:** Supr
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** 0.0 to 120.0 minutes

**Soak Time for Soak Segments 1–12**—Define the soak time in minutes for each soak segment.

SOAKV1–12
- **Type:** Real
- **Lock:** Supr
- **Default:** NaN
- **PtRes:** HPM
- **Range:** N/A

**Soak Value for R/S Segments 1–12**—Defines the soak values in engineering units for each soak segment.

SOCMD(0)–(2) (DevCtl, DigComp)
- **Type:** Logical
- **Lock:** Prog
- **Default:** OFF
- **PtRes:** HPM
- **Range:** On, Off

**Output Status Command**—When commanding an OFF to ON write, the OP is commanded to the state corresponding to the array element written on an off-to-on transition.

- On (The OP is commanded to the state corresponding to ‘i’. 0=State 0, 1=State 1, 2=State 2 if SOCMD (i) was previously OFF)
- Off (No action)

SP (RegCtl)
- **Type:** Real
- **Lock:** Oper
- **Default:** 0.0
- **PtRes:** HPM
- **Range:** SPLOLM to SPHILM

**Setpoint of the PV in Engineering Units**

**Helpful Hint:** SP usually does not require a control input connection. If a cascade connection to SP is required, it is typically configured by specifying a control output connection on the primary point.
**SP (Timer)**

*Type:* Integer  
*Preset Time*—Defines the amount of time in seconds or minutes that the timer is to run.

*Lock:* Oper  
*Default:* 0  
*PtRes:* HPM  
*Range:* 0 to 32000

**SPEUHI (RegCtl)**

*Type:* Real  
*Setpoint Engineering Unit High Range*

*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:* ≥ SPEULO

**SPEULO (RegCtl)**

*Type:* Real  
*Setpoint Engineering Unit Low Range*

*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:* ≤ SPEUHI

**SPFORMAT (RegCtl)**

*Type:* E:VALFORMT  
*Setpoint Decimal Point Format*—Indicates the format of the SP value.  
SPFORMAT tracks with the selected PVFORMAT.

*Lock:* View  
*Default:* N/A  
*PtRes:* HPM  
*Range:*  
0-D0 (XXXX.)  
1-D1 (XXX.X)  
2-D2 (XX.XX)  
3-D3 (X.XXX)

**SPHIFL (RegCtl)**

*Type:* Logical  
*Setpoint High Limit Violation Flag*—Indicates the SP has exceeded the upper limit established by SPHLM.

*Lock:* View  
*Default:* Off  
*PtRes:* HPM  
*Range:*  
Off (High limit not exceeded)  
On (High limit exceeded)
**SPHILM (RegCtl)**

*Type:* Real
*Lock:* Supr
*Default:* NaN
*PtRes:* HPM
*Range:* SPOLOM to SPEUHI, NaN

*Helpful Hint:* 1. Entering NaN disables limit checking by forcing SPHILM to its extreme value (SPEUHI).
2. SPHILM does not apply for the RampSoak algorithm.

**SPLOCK (ProcMod)**

*Type:* E:ACCLVL
*Lock:* Engr
*Default:* Operator
*PtRes:* HPM
*Range:* 0-Operator (Operator and higher keylock positions allow store access.)
1-Supervis (Supervisor and higher keylock positions allow store access.)
2-Engineer (Engineer and higher keylock positions allow store access.)
3-Program (Only the program has store access.)

**SPLOCK (Array)**

*Type:* E:ACCLVL
*Lock:* Engr
*Default:* Operator
*PtRes:* HPM
*Range:* 0-Operator (Operator and higher keylock positions allow store access.)
1-Supervis (Supervisor and higher keylock positions allow store access.)
2-Engineer (Engineer and higher keylock positions allow store access.)
3-Program (Only the program has store access.)

**SPLOCK (Totalizer)**

*Type:* E:ACCLVL
*Lock:* Engr
*Default:* Operator
*PtRes:* HPM
*Range:* 0-Operator (Operator and higher keylock positions allow store access.)
1-Supervis (Supervisor and higher keylock positions allow store access.)
2-Engineer (Engineer and higher keylock positions allow store access.)
3-Program (Only the program has store access.)
**SPLOFL (RegCtl)**

*Type*: Logical  
*Setpoint Low Limit Violation Flag*—Indicates that the SP has exceeded the lower limit established by SPLOLM.

*Lock*: View

*Default*: Off

*PtRes*: HPM

*Range*: Off (Low limit is not exceeded)  
On (Low limit is exceeded)

---

**SPLOLM (RegCtl)**

*Type*: Real  
*Setpoint Low Limit*—Defines the lower limit for the SP.

*Lock*: Supr

*Default*: NaN

*PtRes*: HPM

*Range*: SPEULO to SPHILM, NaN

*Helpful Hint*:
1. Entering NaN disables limit checking by forcing SPLOLM to its extreme value (SPEULO).
2. SPLOLM does not apply for the RampSoak algorithm.

---

**SPOPT (RegCtl)**

*Type*: E:SPOPT  
*Setpoint Option*

*Lock*: Eng/PB

*Default*: None

*PtRes*: HPM

*Range*: 0-None (No specialized options are available)  
1-TV (Target Value processing; provides a smooth transition from an existing setpoint to a desired setpoint)  
2-Asp (Advisory setpoint processing for Advisory Deviation Alarming)

*Helpful Hint*:
1. If component has been entered for the PNTFORM parameter, the Asp option cannot be configured.
2. SPOPT does not apply for the RampSoak algorithm.

---

**SPP (RegCtl)**

*Type*: Real  
*Setpoint in Percent*

*Lock*: View

*Default*: N/A

*PtRes*: HPM

*Range*: N/A

---

**SPTV (RegCtl)**

*Type*: Real  
*Setpoint Target Value in Engineering Units*

*Lock*: Oper

*Default*: N/A

*PtRes*: HPM

*Range*: SPLOLM to SPHILM, NaN

*Helpful Hint*: SPTV change requires SPOPT = TV.
SPTVP (RegCtl)
Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: ≥ 0.0

Helpful Hint: SPTVP change requires SPOPT = TV.

SRQUTAVG (NIM, HPM Box)
Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Average UCN Store Request Trip Time—The average time in milliseconds that it takes to receive a response to this node’s UCN store request.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

SRQUTMAX (NIM, HPM Box)
Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Maximum UCN Store Request Trip Time—The maximum time in milliseconds that it takes to receive a response to this node’s UCN store request.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

SRSPTAVG (NIM, HPM Box)
Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Average UCN Store Response Trip Time—The average time in milliseconds that it takes this node to respond to UCN store requests from other nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

SRSPTMAX (NIM, HPM Box)
Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Maximum UCN Store Response Trip Time—The maximum time in milliseconds that it takes this node to respond to UCN store requests from other nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.
SSTEP(1)–(2) (ProcMod)

Type: String_8
Lock: View
Default: Spaces
PtRes: HPM
Range: N/A

**Subroutine Step Name**—Indicates the current step of the subroutine executing in this Process Module. A value of “ ” means that no subroutine is executing.

SSTEP(1) and SSTEP(2) display the step name of the first and second level subroutines called from the main sequence.

SSTMT(1)–(2) (ProcMod)

Type: Integer
Lock: View
Default: 0
PtRes: HPM
Range: 0 to 255

**Subroutine Statement Number**—This parameter points to the statement number (in the NIM sequence library) of the current subroutine. A value of 0 indicates that no subroutine is executing. The array index indicates nesting level.

ST0_OP1–3 (DevCtl, Digcomp)

Type: Logical
Lock: Eng/PB
Default: Off
PtRes: HPM
Range: Off, On

**State 0, Outputs 1 through 3**—Defines the value (On or Off) that is to be written to output number 1, 2, and 3 when the OP is in State 0.

ST1_OP1–3 (DevCtl, Digcomp)

Type: Logical
Lock: Eng/PB
Default: Off
PtRes: HPM
Range: Off, On

**State 1, Outputs 1, 2, and 3**—Defines the value (On or Off) that is to be written to output number 1, 2, and 3 when the OP is in State 1.

ST2_OP1–3 (DevCtl, Digcomp)

Type: Logical
Lock: Eng/PB
Default: Off
PtRes: HPM
Range: Off, On

**State 2–Outputs 1, 2, and 3**—Defines the value (On or Off) that is to be written to output number 1, 2, and 3 when the OP is in State 2.
STARTFL

Type: Logical  Start Command Flag—Starts DigIn accumulator, RegPV totalizer, or Box
Lock: Prog  Timer when flag transitions from Off to On.
Default: Off
PtRes: HPM
Range: Off (No effect on accumulator/totalizer)
        On (Allows the accumulator/totalizer to begin counting up/down)

STATE (STI)

Type: E:STATE  Current State—Indicates the current state of the STI point.
Lock: View
Default: N/A
PtRes: HPM
Range: 2-Loading (Indicates that database loading between the STI point and the transmitter is occurring.)
        3-Loadcomp (Indicates that the database transfer between the STI point and the transmitter has been successfully completed)
        4-Loadfail (Indicates that the parameter transfer between the STI point and the transmitter has not been successfully completed)
        5-Calib (Indicates that certain parameters are being calibrated at the transmitter by the STI point)
        6-Calcomp (Indicates that the calibration has been successfully completed)
        7-Calfail (Indicates that the calibration has not been successfully completed)
        8-OK (Normal state; indicates that the STI point and the transmitter are OK. Transmitter is updating the PV value at the STI point. STATE remains OK when the point is made inactive.)
        9-DBChange (Indicates that a database mismatch between the STI point and the transmitter has been detected. Transmitter is not updating the PV value at the STI point. STATE remains DBChange when the point is made inactive.)

STATE (Timer, DigIn)

Type: E:STATE  Timer State—Indicates the current state of the timer data point.
Lock: View
Default: Stopped
PtRes: HPM
Range: 0-Stopped
        1-Running
STATE (Totalizr)

Type: E:STATE  Accumulator State—Indicates the current state of the totalizer.
Lock: View
Default: Stopped
PtRes: HPM
Range: 0-Stopped (Stopped)
1-Running ( Accumulating)

STATE0–2

Type: String_8  Current State—These parameters represent the state text (STATETXT)
Lock: View
defaults as follows:
Default: 1 = On
0 = Off
2 = State 2
PtRes: NIM
Refer to the HPM Control Functions and Algorithms manual for a detailed
description of the Digital Composite point states.
Range: N/A

STATETXT(0)–(3) (DevCtl, DigIn, DigComp, Flag)

Type: String_8  State Descriptor Text—Define the states of the point using descriptors which
can have up to eight characters.
Lock: PtBld
Default: 1 = On
0 = Off
2 = State 2
3 = None (State 3)
PtRes: NIM
STATETXT (0) corresponds to the INACTIVE state, or the state
 corresponding to PVFL = Off (direct acting) or On (reverse acting).  On the
 Group or Detail Display, it is the middle box for a Digital Composite or
 DevCtl point.  For a Digital Input point, it is the lower box.

STATETXT (2) corresponds to the second ACTIVE state.  On the Group or
Detail Display for a Digital Composite or DevCtl point, it is in the lower
box. STATETXT(2) does not apply to Digital Input and Flag points.

STATETXT (3) “NONE” (not configurable).
STATETXT(3) does not apply to Digital Input and Flag points.

Range: N/A

Helpful Hint: STATETXT has an access lock of View if PNTFORM = Component.
STATETXT (2) for State 2 applies only if NOSTATES = 3 for digital
composite or device control points.
STATMENT (ProcMod)

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
<th>Statement—Indicates the current statement of the sequence executing in this process module. A statement number of 0 indicates that no statement is being executed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>1 to 255</td>
<td></td>
</tr>
</tbody>
</table>

STATTIM0–2 (DevCtl, DigComp)

<table>
<thead>
<tr>
<th>Type</th>
<th>Time (Duration)</th>
<th>State Time—The amount of time based on the PV that has accumulated for States 0, 1, and 2 since the most recent reset of maintenance statistics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 - 4000 Days (1 second resolution)</td>
<td></td>
</tr>
</tbody>
</table>

STDBYMAN (AnalgOut, DigOut, RegCtl)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Standby Manual Flag—Indicates whether the associated hardware output is connected to a standby manual device. It is not an indication of whether or not the output is isolated from the process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (Output is not connected to standby-manual device) On (Output is connected to standby-manual device)</td>
<td></td>
</tr>
</tbody>
</table>

STDBYSTS(1)—(168)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th>Standby Status Flag—Returns blind record of STDBYMAN status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>Off (No Standby Manual present) On (Standby Manual is activated)</td>
<td></td>
</tr>
</tbody>
</table>

STCHGOPT (DevCtl, DigComp)

<table>
<thead>
<tr>
<th>Type</th>
<th>E:$STCHGOP</th>
<th>State Change Option—State0 passed through before entering a new state. If command disagree alarming is not configured, the point will wait for the number of seconds designated in the PAUSETIM parameter after State0 is commanded. If alarming is configured, the system will wait for the PV to go to State0 (or when the feedback timer expires) before starting the pause timer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Engr/PB</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>0-None</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>1-HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>None (State change option is not configured) State0 (State change option is configured)</td>
<td></td>
</tr>
</tbody>
</table>

STEP (ProcMod)

<table>
<thead>
<tr>
<th>Type</th>
<th>String_8</th>
<th>Step Name—Indicates the step name of the sequence executing in this process module.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Spaces</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
STI_EU (STI)

**Type:** E:STI_EU  
**Lock:** Eng  
**Default:** InH20  
**PtRes:** HPM

**Smart Transmitter Engineering Units**—Specifies the units of measurement for parameters LRL, LRV, URL, and URV. These units are used for display only. For multivariable Smart Transmitters with a SENSRTYP of SFM, choose BLANK. For multivariable slots with a SENSRTYP of SPT_DP, SPT_AP, SPT_GP, or STT, choose the preferred STI_EU (engineering units). When BLANK is selected the limit values URL, LRL, URV and LRV are displayed in the base engineering units specified in the transmitter user manual.

**Helpful Hint:** Loading an invalid STI_EU type causes an error. An attempt to correct it from the Detail Display is rejected as CONFIG MISMATCH. To recover, load the correct STI_EU parameter from the PED or perform an UPLOAD from the point Detail Display.

**Range:**

- 0-InH20 (Pressure transmitter—Inches of water)
- 1-MMHG (Pressure transmitter—Millimeters of mercury)
- 2-PSI (Pressure transmitter—Pounds per square inch)
- 3-KPA (Pressure flow transmitter—Kilopascals)
- 4-MPA (Pressure transmitter—Millipascals)
- 5-MBar (Pressure transmitter—Millibars)
- 6-Bar (Pressure transmitter—Bars)
- 7-G_SQCM (Pressure transmitter—Grams per square centimeter)
- 8-KG_SQCM (Pressure flow transmitter—Kilograms per square centimeter)
- 9-MMH20 (Pressure transmitter—Millimeters of water)
- 10-INHG (Pressure transmitter—Inches of mercury)
- 11-Deg_C (Temperature transmitter—Degrees Centigrade)
- 12-Deg_F (Temperature transmitter—Degrees Fahrenheit)
- 13-Deg_K (Temperature transmitter—Degrees Kelvin)
- 14-Deg_R (Temperature transmitter—Degrees Rankine)
- 15-MV (Temperature transmitter—Millivolts)
- 16-V (Temperature transmitter—Volts)
- 17-Ohms (Temperature transmitter—RTD Ohms)
- 18-CM_HR (Magnetic flow transmitter (volume)—Cubic Meters per hour)
- 19-Gal_HR (Magnetic flow transmitter (volume)—Gallons per hour)
- 20-LIT_HR (Magnetic flow transmitter (volume)—Liters per hour)
- 21-CC_HR (Magnetic flow transmitter (volume)—Cubic Centimeters per hour)
- 22-CM_Min (Magnetic flow transmitter (volume)—Cubic Meters per minute)
- 23-Gal_Min (Magnetic flow transmitter (volume)—Gallons per minute)
- 24-Lit_Min (Magnetic flow transmitter (volume)—Liters per minute)
- 25-CC_Min (Magnetic flow transmitter (volume)—Cubic centimeters per minute)
- 26-CM_Day (Magnetic flow transmitter (volume)—Cubic meters per day)
- 27-Gal_Day (Magnetic flow transmitter (volume)—Gallons per day)
- 28-KGal_Day (Magnetic flow transmitter (volume)—Thousands of gallons per day)
- 29-BRL_Day (Magnetic flow transmitter (volume)—Barrels per day)
- 30-CM_Sec (Magnetic flow transmitter (volume)—Centimeters per second)
- 31-KG_HR* (Magnetic flow transmitter (mass)—Kilograms per hour)
- 32-LBS_HR* (Magnetic flow transmitter (mass)—Pounds per hour)
- 33-Ft_Sec (Magnetic flow transmitter (velocity)—Feet per second)
- 34-M_Sec (Magnetic flow transmitter (velocity)—Meters per second)
- 35-KG_Min* (Magnetic flow transmitter (mass)—Kilograms per minute)
- 36-KG_Sec* (Magnetic flow transmitter (mass)—Kilograms per second)
- 37-LBS_Min* (Magnetic flow transmitter (mass)—Pounds per minute)
- 38-LBS_Sec* (Magnetic flow transmitter (mass)—Pounds per second)
- 39-PRCNT (Percent)

*Not implemented
STI_EU (STI) (continued)

40-BLANK (Blank) - Multivariable transmitter with SFM SENSRTYP
41-LBS (Pounds)
42-KG (Kilograms)
43-TONS (Tons)
44-GRAMS (Grams)
45-OZ (Ounces)
46-GAL (Gallons)
47-BRL (Barrels)
48-CUB_M (Cubic Meters)
49-LITERS (Liters)
50-MLITRES (Milliliters)
51-FL_OZ (Fluid ounce)
52-FEET (Feet)
53-METERS (Meters)
54-MM (Millimeters)
55-INCHES (Inches)
56-KG_CUM (Kilograms per cubic meter)
57-G_CUM (Grams per cubic Meter)
58-LBS_CUFT (Pounds per cubic foot)
59-LBS_CUIN (Pounds per cubic inch)

STISWVER (STI)

Type: String_8 Software Revision Level of the Smart Transmitter
Lock: View
Default: Blank
PtRes: HPM
Range: N/A

STITAG (STI)

Type: String_8 Transmitter Tag Name—Identifies the name of the Smart Transmitter to the
Lock: Eng/PB system and on displays, reports, and logs.
Default: All Spaces
PtRes: HPM

Helpful Hint: For multivariable transmitters, an identical STITAG must be entered for each
active slot related to that transmitter. The IOP uses the number of identical STITAG names to
calculate the number of PVs associated with with a given transmitter.

Range: Tag name can be up to 8 characters, and the permissible character set is as follows:
Alphabets A-Z (uppercase or lowercase)
Numerics 0-9
Embedded space characters are allowed.
**STOPFL**

*Type:* Logical

*Stop Command Flag*—Stops the DigIn accumulator, RegPV totalizer, or Box Timer when flag transitions from Off to On.

*Lock:* Prog

*Default:* Off

*PtRes:* HPM

*Range:* Off (No effect on the accumulator/totalizer)

On (Stops the accumulator/totalizer from counting up/down)

---

**STR8(1)–(16,384) (HPM Box)**

*Type:* String_8

*Box String Variables*—The upper bound limit of this array is determined by the NSTRING Box parameter. The LCN index limit is 4095, while no limit exists for the UCN. Array points may be used to address strings with an index greater than 4095.

*Lock:* Oper

*Default:* Spaces

*PtRes:* HPM

*Range:* N/A

---

**STR8(1)–(16) (ProcMod)**

*Type:* String_8

*Local String Variables*—Each Process Module point has 16 local STR8 variables that are different from the HPM Box STR8 variables.

*Lock:* Determined by SPLOCK parameter

*Default:* Spaces

*PtRes:* HPM

*Range:* N/A

---

**STR16(1)–(8) (ProcMod)**

*Type:* String_16

*Local String Variables*—Each Process Module point has 8 local STR16 variables that overlay the local STR8 variables [for example, STR16(1)=STR8(1) concatenated with STR8(2)].

*Lock:* Determined by SPLOCK parameter

*Default:* Spaces

*PtRes:* HPM

*Range:* N/A

---

**STR32(1)–(4) (ProcMod)**

*Type:* String_32

*Local String Variables*—Each Process Module point has four local STR32 variables that overlay the local STR8 variables.

*Lock:* Determined by SPLOCK parameter

*Default:* Spaces

*PtRes:* HPM

*Range:* N/A
### STR64(1)–(2) (ProcMod)

**Type:** String_64  
**Lock:** Determined by SPLOCK parameter  
**Default:** Spaces  
**PtRes:** HPM  
**Range:** N/A

Local String Variables—Each Process Module point has two local STR64 variables that overlay the local STR8 variables [for example, STR64(1)=STR8(1-8)].

### STR8(i) (Array)

**Type:** String_8  
**Lock:** Determined by SPLOCK parameter  
**Default:** N/A  
**PtRes:** HPM  
**Range:** $1 \leq i \leq (\text{Array parameter NSTRING})/(8/\text{STRLEN})$

Array Point String Variables—8-character string variables that are mapped to the Array point. The number of variables is dependent on the NSTRING and STRLEN variables.

### STR16(i) (Array)

**Type:** String_16  
**Lock:** Determined by SPLOCK parameter  
**Default:** N/A  
**PtRes:** HPM  
**Range:** $1 \leq i \leq (\text{Array parameter NSTRING})/(16/\text{STRLEN})$

Array Point String Array Variables—16-character string variables that are mapped to the Array point. These variables overlay the STR8 variables.

### STR32(i) (Array)

**Type:** String_32  
**Lock:** Determined by SPLOCK parameter  
**Default:** N/A  
**PtRes:** HPM  
**Range:** $1 \leq i \leq (\text{Array parameter NSTRING})/(32/\text{STRLEN})$

Array Point String Variables—32-character string variables mapped to the Array point that overlay the STR8 variables.

### STR64(i) (Array)

**Type:** String_64  
**Lock:** Determined by SPLOCK parameter  
**Default:** N/A  
**PtRes:** HPM  
**Range:** $1 \leq i \leq (\text{Array parameter NSTRING})/(64/\text{STRLEN})$

Array Point String Variables—64-character string variables mapped to the Array point that overlay the STR8 variables.
STRDESC (Array)
- **Type**: String_64
- **Lock**: PtBld
- **Default**: Spaces
- **PtRes**: HPM
- **Range**: N/A

**STRDESC (Array)**
String Array Descriptor—64-character string describing the Array point string data.

STRELEN (Array)
- **Type**: Integer
- **Lock**: PtBld
- **Default**: 8
- **PtRes**: HPM
- **Range**: 8, 16, 32, 64

**STRELEN (Array)**
Array Point String Length—Indicates the length of the configured string (with the STRSTIX and NSTRING parameters) displayed on the Array Point Detail display. Strings can be accessed by STR8, STR16, STR32 or STR64 regardless of this value.

STRELEN (ProcMod)
- **Type**: Integer
- **Lock**: PtBld
- **Default**: 8
- **PtRes**: HPM
- **Range**: 8, 16, 32, 64

**STRELEN (ProcMod)**
Process Module String Length—Indicates the displayed string length on the Process Module Detail display. Strings can still be accessed by STR8, STR16, STR32, or STR64 regardless of this value.

STRSTIX (Array)
- **Type**: Real
- **Lock**: PtBld
- **Default**: 0
- **PtRes**: HPM
- **Range**: 0 to Box parameter NSTRING (When EXTDATA≠IO_STR, 0 indicates no strings are configured)
  0 to 99,999 (When EXTDATA=IO_STR, 0 can be a valid device index)

**STRSTIX (Array)**
String Array Start Index—Defines the string array start index in Box STR8 variables, or the Serial Interface-connected device.

STRTFAIL(1)–(6)
- **Type**: String_2
- **Lock**: View
- **Default**:
- **PtRes**: HPM
- **Range**: Hexadecimal characters 00 to FF

**STRTFAIL(1)–(6)**
Startup/Failover Information

STSMSG
- **Type**: E:MSGTXT
- **Lock**: Oper
- **Default**: MSGTXT(0)
- **PtRes**: HPM
- **Range**: MSGTXT(0) to MSGTXT(15)

**STSMSG**
Status Message—A self-defining enumeration of the MSGTXT parameter that provides additional descriptive information regarding the red tag, batch state, or device state.
SUMSLTSZ (HPM Box)

Type: Integer
Lock: View
Default: 0
PtRes: HPM
Range: >0

SUMSLTSZ: Total Configured Memory for Sequence Programs—This parameter equals the sum of all Process Module SEQSLTZS parameters, and is shown on the HPMM Control Configuration display.

SUSPSTAT (ProcMod)

Type: E:$SUSPST
Lock: View
Default: None
PtRes: HPM
Range: 0-None
2-Feedback
3-Wait
4-ConfMsg
5-InputMsg

SUSPTIME (ProcMod)

Type: Integer
Lock: View
Default: 0
PtRes: HPM
Range: 0 to 32,767 minutes

SVALDB (DevCtl)

Type: E:PVALDB
Lock: Engr/PB
Default: One
PtRes: HPM
Range: 0-Half (1/2 of 1% of Engineering Unit range)
1-One (1% of Engineering Unit range)
2-Two (2% of Engineering Unit range)
3-Three (3% of Engineering Unit range)
4-Four (4% of Engineering Unit range)
5-Five (5% of Engineering Unit range)
6-EU (Value is defined by SVALDBEU parameter)

SVALDBEU (DevCtl)

Type: Real
Lock: Engr/PB
Default: 0.0
PtRes: HPM
Range: Allowable Engineering Units

SVALDB: SECVAR Alarm Deadband—The deadband for the SECVAR alarm.

SVALDBEU: SECVAR Alarm Deadband in Engineering Units—Indicates the alarm deadband in engineering units when the SVALDB parameter = EU.
SVDESC (DevCtl)
Type: String_8
Lock: PtBld
Default: Blank
PtRes: HPM
Range: 8 Character String

SVDESC (DevCtl) defines the SECVAR parameter or secondary variable descriptor.

SVEUDESC (DevCtl)
Type: String_8
Lock: PtBld
Default: Blank
PtRes: HPM
Range: 8 Character String

SVEUDESC (DevCtl) defines the engineering unit descriptor for the SECVAR parameter or secondary variable descriptor.

SVEUHI (DevCtl)
Type: Real
Lock: Engr/PB
Default: NaN
PtRes: HPM
Range: <> NaN

SVEUHI (DevCtl) defines the high engineering unit range for the SECVAR parameter.

SVEULO (DevCtl)
Type: Real
Lock: Engr/PB
Default: NaN
PtRes: HPM
Range: <> NaN

SVEULO (DevCtl) defines the low engineering unit range for the SECVAR parameter.

SVHHFL (DevCtl)
Type: Logical
Lock: View
Default: Off
PtRes: HPM
Range: Off (SECVAR parameter is below the SVHHTP parameter minus the deadband)
On (SECVAR parameter has exceeded the SVHHTP parameter)

SVHHFL (DevCtl) defines the SECVAR High-High Alarm Flag.

SVHHPR (DevCtl)
Type: E:ALPIOR
Lock: Engr
Default: Low
PtRes: NIM
Range: JnlPrint (Alarm is historized, reported to printer, but not annunciated)
Printer (Reported to printer only)
Emergency (Reported to all alarm summary displays)
High (Reported to Area Alarm Summary Display and Unit Alarm Summary Display)
Low (Reported to Unit Alarm Summary Display)
Journal (Logged but not reported to Universal Stations)
NoAction (Alarm is not reported to the system)

SVHHPR (DevCtl) defines the SECVAR High-High Alarm Priority.
SVHHTP (DevCtl)

**Type:** Real  
**lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:** ≥ SVHHTP or NaN

**SECVAR High-High Alarm Trip Point**—No alarms are generated when this parameter is set to NaN.

SVHHTPP (DevCtl)

**Type:** Real  
**Lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:** 0 to 100

**SECVAR High-High Trip Point Percent**—The SECVAR High-High Trip Point in terms of engineering units in percent.

SVHIIFL (DevCtl)

**Type:** Logical  
**Lock:** View  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (SECVAR parameter is below SVHIIFL minus the deadband)  
On (SECVAR parameter has exceeded SVHIIFL)

**SECVAR High Alarm Flag**—This flag is set when the SECVAR exceeds SVHHTP and is reset when SECVAR is below SVHIIFL minus deadband.

SVHIPR (DevCtl)

**Type:** E:ALPRIOR  
**Lock:** Engr  
**Default:** Low  
**PtRes:** NIM  
**Range:** JnlPrint (Alarm is historized and reported to the printer but not annunciated)  
Printer (Alarm is reported to the printer but not historized and not annunciated)  
Emergency (Alarm is historized, annunciated, and reported to all alarm summary displays)  
High (Alarm is historized, reported to Area Alarm Summary Display and Unit Alarm Summary Display)  
Low (Alarm is historized, reported to the Unit Alarm Summary Display, and annunciated)  
Journal (Alarm is historized but not reported to Universal Stations and not annunciated)  
NoAction (Alarm is not reported to the system and not annunciated)

SVHITP (DevCtl)

**Type:** Real  
**Lock:** Supr  
**Default:** NaN  
**PtRes:** HPM  
**Range:** ≥ SVEULO or NaN

**SECVAR High Alarm Trip Point**—When this parameter is set to NaN, no alarms are generated.
SVHITPP (DevCtl)

Type: Real
Lock: Supr
Default: NaN
PtRes: HPM
Range: 0 to 100

SECVAR High Alarm Trip Point Percent—The SECVAR High Trip Point in terms of engineering units percent.

SVP (DevCtl)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: 0 to 100

SECVAR in Percent of Engineering Range—The percentage for this parameter is calculated from the SECVAR parameter, using both the SVEVHI and SVELVO parameters.

SVPEAK (DevCtl)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: Real or NaN

Peak Value of SECVAR—Indicates the highest value of the SECVAR parameter since the device changed from state 0.

SVSRC (DevCtl)

Type: Universal
Lock: PtBld
Default: Null
PtRes: HPM
Range: Use Tagname.Parameter for tagged points where Tagname can be up to 16 characters and the permissible character set is as follows:
  - Alphabets A-Z (uppercase only)
  - Numerics 0-9 (an all numeric tag name is not allowed)
  - Underscore (_) cannot be used as the first character or the last character, and consecutive underscores are not allowed.
  - Embedded space characters are not allowed.
  - An * is used to default to this point's tag name.
  - Parameter name can be up to eight characters and must be a legitimate parameter name.

Some possible input-connection sources are
  a."Logic slot Tagname.NN(nn)" where nn = 1–8
  b."ProcMod slot Tagname.NN(nnn)" where nnn = 1–80
  c."Box Numerics slot Tagname.NN" where nnnn = 1-16,384
  d."!Box.FL(nnnn)" for a box flag that resides in the same box where nnnn = 1–16,384

Use the hardware reference address !MTmmSss.Parameter for untagged or tagged points where
  - MT is the IOP type, such as AI (Analog Input)
  - mm is the IOP Card number (1–40)
  - SS is the slot number on the IOP Card (refer to SLOTNUM parameter)
  - Parameter name can be up to eight characters and must be a legitimate parameter name.
SVTV (DevCtl)

Type: Real
Lock: Oper
Default: NaN
PtRes: HPM
Range: SVEULO to SVEUHI

Secondary Variable Target Value—Indicates the normal or operating setpoint for the SECVAR parameter.

SVTVP (DevCtl)

Type: Real
Lock: Oper
Default: NaN
PtRes: HPM
Range: 0 to 100

Secondary Variable Target Value in Percent—Indicates the normal or operating setpoint for the SECVAR parameter as a percent.

SWTCHACT (1)–(40) (HPM Box)

Type: Logical
Lock: View
Default: On
PtRes: HPM
Range: On-Active
Off-Inactive

IOP Synchronization—When this parameter is Off (inactive), the backup request line from the IOP’s partner is not asserted. When this parameter is On (active), the backup request line from the IOP’s partner is asserted.

SYNCHSTS (1)–(40) (HPM Box)

Type: E:$SYNCHST
Lock: View
Default: None
PtRes: HPM
Range: 0-OK - (the secondary is synchronized with the primary and can provide backup if necessary.)
1-WARNING - (database inconsistency detected but secondary can probably provide backup).
2-FAIL - (HPMM has tried to resynchronize but has not succeeded or, secondary has also failed).

Primary/secondary Database Synchronization Status. It is set to WARNING when a database inconsistency is first detected, but the secondary appears capable of providing backup. It changes to FAIL when the HPMM has tried to resynchronize but does not succeed or a secondary failure prevents synchronization. nn = 1–40 corresponds to the 40 logical I/O modules. Applies to primary IOP only.
### T (FlowComp)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Lock</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Real</td>
<td>View</td>
<td>1.0</td>
<td>HPM</td>
<td>≥ 0.0</td>
<td>Temperature Input—Indicates the measured actual temperature.</td>
</tr>
</tbody>
</table>

### T0 (FlowComp)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Lock</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>Real</td>
<td>Supr</td>
<td>0.0</td>
<td>HPM</td>
<td>N/A</td>
<td>Zero Reference for Temperature—T0 is the zero reference temperature input and it is in the same engineering units as the T (measured actual temperature) input. T0 is typically -459.69 degrees F or -273.15 degrees C. Enter the absolute value of the temperature.</td>
</tr>
</tbody>
</table>

### T1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Lock</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Real</td>
<td>Supr</td>
<td>0.0 minutes</td>
<td>HPM</td>
<td>0.0 to 1440.0 minutes</td>
<td>Integral Time in Minutes—Defines the integral time constant in minutes-per-repeat.</td>
</tr>
</tbody>
</table>

**Helpful Hint:** Integral action can be disabled by setting T1 equal to 0.0.

### T2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Lock</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2</td>
<td>Real</td>
<td>Supr</td>
<td>0.0 minutes</td>
<td>HPM</td>
<td>0.0 to 1440.0 minutes</td>
<td>Derivative Time in Minutes—Defines the derivative time constant.</td>
</tr>
</tbody>
</table>

**Helpful Hint:** Derivative action can be disabled by setting T2 equal to 0.0.

### TCRNGOPT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Lock</th>
<th>Default</th>
<th>PtRes</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCRNGOPT</td>
<td>E:$TCRNGOP</td>
<td>Eng/PB</td>
<td>Normal</td>
<td>HPM</td>
<td>0-Normal (Use PVEXEULO's normal range table) 1-Extended (Use PVEXEULO's extended range table)</td>
<td>Thermocouple Range Option—Defines the thermocouple range option. Applies only if a thermocouple (TC) sensor type is used for this data point.</td>
</tr>
</tbody>
</table>
TD (VdtLdLag)

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** ≥ 0.0 minutes

**Total Dead Time in Minutes**—Defines the fixed delay time in minutes for equation B, and the actual variable delay time in minutes for equations C and D.

TF

**Type:** Real  
**Lock:** Supr  
**Default:** 0.0 minutes  
**PtRes:** HPM  
**Range:** 0.0 to 60.0 minutes

**PV Filter Lag Time in Minutes**—Defines the filtering time lag to be used after the PV range has been checked. A value of 0.0 specifies that the PV is not delayed.

TIERTYPE (HPM Box)

**Type:** E:$TIERTYP  
**Lock:** View  
**Default:**  
**PtRes:** HPM  
**Range:**

**HPMM Tier Type**

TIME(1)—(4095) (HPM Box)

**Type:** Time  
**Lock:** Oper  
**Default:** 0 seconds  
**PtRes:** HPM  
**Range:** N/A

**Box Time Variables**—The upper limit of this array is determined by the NTIME parameter. The LCN index limit is 4,095, while the limit on the UCN is 4096. Array points may be used to address Times with an index greater than 4095.

TIME(i) (Array)

**Type:** Time  
**Lock:** Determined by SPLOCK parameter  
**Default:** N/A  
**PtRes:** HPM  
**Range:** 1 ≤ i ≤ Array parameter NTIME

**Array Point Time Variables**—Times are mapped from the HPM Box defined by the TIMESTIX and NTIME parameters.

TIME(1)—(4) (ProcMod)

**Type:** Time  
**Lock:** Determined by SPLOCK parameter  
**Default:** 0 seconds  
**PtRes:** HPM  
**Range:** N/A

**Local Time Variables**—Four local Time variables are available in each Process Module point. These variables are different than the HPM Box Time variables.
TIMEBASE (Timer)
Type: E:TIMEBASE  Time Base—Defines the time base to be used for the Timer data point.
Lock: Engr
Default: Seconds
PtRes: HPM
Range: 0-Seconds
1-Minutes

TIMEBASE (Totalizr, PI)
Type: E:TIMEBASE  Totalizer Time Base—Defines whether time base is in seconds, minutes, or
Lock: Eng/PB  hours.
Default: Minutes
PtRes: HPM
Range: 0-Seconds (PV and Setpoint engineering units (gallons, etc.) per second)
1-Minutes (PV and Setpoint engineering units (gallons, etc.) per minute)
2-Hours (PV and Setpoint engineering units (gallons, etc.) per hour)

TIMEDESC (Array)
Type: String_64  Time Array Descriptor—Sixty four-character string describing Time data.
Lock: PtBld
Default: Spaces
PtRes: HPM
Range: N/A

TIMESECS(1)–(240) (Array)
Type: Time  Array Point Time Variables—Times mapped from the HPM box defined by
Lock: Determined by SPLOCK parameter
Default: N/A
PtRes: HPM
Range: $1 \leq 1 \leq NTIME$ Array parameter

TIMESTIX (Array)
Type: Real  Time Array Start Index—Defines the Time data start index in the Box Time
Lock: PtBld
Default: 0
PtRes: HPM
Range: 0 to Box parameter NTIME (0 indicates there are no Times configured for this point)

TIMESYNC (UCN)
Type: E:ENBLSTAT  Timesynch Control—Defines whether SOE timesynch can be performed by
Lock: PtBld
Default: Disable
PtRes: NIM
Range: Enable (This NIM or NIM pair is able to perform SOE time synchronization)
Disable (This NIM or NIM pair does not perform SOE time synchronization, but can receive and report SOE events)
TLD (VdtLdLag)
Type: Real  Lead Time Constant in Minutes—Defines the lead-compensation time constant in minutes. A 0 (zero) entry specifies no lead compensation.
Lock: Supr
Default: 0.0 minutes
PtRes: HPM
Range: -1440.0 to 1440.0 minutes

TLG1, TLG2 (VdtLdLag)
Type: Real  Lag Time Constant
Lock: Supr
Default: 0.0 minutes
PtRes: HPM
Range: 0.0 to 1440.0 minutes (0 specifies no lag compensation)

TMCMD(1)–(64) (HPM Box)
Type: E:COMMAND  Timer Command—An array of commands issued to the 64 Timer data points.
Lock: Oper
Default: N/A
PtRes: HPM
Range: 0-None (A command has not been issued to the timer)
1-Start (Starts the timer)
2-Stop (Stops the timer)
3-Reset (Resets the timer to 0)
4-RestStrt (Resets the timer to 0, and starts the timer)

TMPV(1)–(64) (Timer)
Type: Integer  Timer PV—Indicates the current (elapsed) time of the Timer data point in seconds or minutes.
Lock: View
Default: 0
PtRes: HPM
Range: >0

TMRV(1)–(64) (Timer)
Type: Integer  Timer RV—Indicates the remaining time (TMSP minus TMPV) for the Timer data point.
Lock: View
Default: 0
PtRes: HPM
Range: >0

TMSO(1)–(64) (Timer)
Type: Logical  Timer Status Output—Indicates the current state of the timer output.
Lock: View
Default: Off
PtRes: HPM
Range: Off (TMPV ≠ TMSP; elapsed time has not reached the preset time)
On (TMPV = TMSP; elapsed time has reached the preset time)
**TMSP(1)–(64) (Timer)**

_Type:_ Integer  
**Timer Setpoint**—Defines the preset time of the Timer data point, in seconds or minutes.  
**Lock:** Oper  
**Default:** 0  
**PtRes:** HPM  
**Range:** 0 to 32000

**TMST(1)–(64) (Timer)**

_Type:_ E:STATE  
**Timer State**—Indicates the current state of the Timer data point.  
**Lock:** View  
**Default:** Stopped  
**PtRes:** HPM  
**Range:** 0-Stopped (Timer is currently stopped)  
1-Running (Timer is currently running)

**TMTB(1)–(64) (Timer)**

_Type:_ E:TIMEBASE  
**Timer Time Base**—Defines the time base of the timer.  
**Lock:** Eng  
**Default:** Seconds  
**PtRes:** HPM  
**Range:** 0-Seconds  
1-Minutes

**TOTLUAVG (1) - (2) (HPM Box)**

_Type:_ Real  
**Average IOL Utilization (in per cent) by the HPM, per I/O Link**—(total utilization by the Comm and Control CPUs)  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0 - 100

**TOTLUMAX (1) - (2) (HPM Box)**

_Type:_ Real  
**Maximum IOL Utilization (in per cent) by the HPM, per I/O Link**—(total utilization by the Comm and Control CPUs)  
**Lock:** View  
**Default:** 0.0  
**PtRes:** HPM  
**Range:** 0 - 100

**TRACKING**

_Type:_ Logical  
**Selected Input Tracking**—Allows the selected input to be changed without bumping the output.  
**Lock:** Eng/PB  
**Default:** Off  
**PtRes:** HPM  
**Range:** Off (Tracking disabled)  
On (Tracking is to be used)

**Helpful Hint:** If On, causes nonselected inputs to track the selected input.
TRANTIMO

TRANTIMO—2 (DevCtl, DigComp)

Type: Time
Lock: View
Default: 0
PtRes: HPM
Range: Time Stamp

Transition Time—The date and time of the most recent transition to each state based on the PV.

TRATAVG (NIM, HPM Box)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Average UCN Transaction Trip Time—The average UCN transaction trip time in milliseconds for both fetch and store responses from this node to other UCN nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

TRATMAX (NIM, HPM Box)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Maximum UCN Transaction Trip Time—The maximum UCN transaction trip time in milliseconds for both fetch and store responses from this node to other UCN nodes.

Helpful Hint: This statistic can be viewed on the Toolkit Displays.

TRFB (PidErfb)

Type: Real
Lock: View
Default: NaN
PtRes: HPM
Range: N/A

Tracking Feedback Input in Engineering Units—Indicates the value of the PV or SP of another data point that is receiving its setpoint from this data point.

TSCOMP

Type: Time
Lock: View
Default: 0
PtRes: HPM
Range: N/A

Time Stamp, CL Source Compatibility—Specifies the CL Source compatibility time stamp (CL object header)

TSSRC

Type: Time
Lock: View
Default: 0
PtRes: HPM
Range: N/A

Time Stamp, CL Source—Specifies the CL Source time stamp (CL object header)
TSTS (FlowComp)

Type: E:PVVALST  Temperature Input Value Status—Status of the T input value.
Lock: View
Default: Normal
PtRes: HPM
Range: 0-Bad (Value is bad and replaced with NaN)
        1-Uncertn (Status of the value is uncertain)
        2-Normal (Value is good)

TSUNICHG

Type: Time  Time Stamp, Unit Change—Specifies the CL Unit Change time stamp (CL object header)
Lock: View
Default: 0
PtRes: HPM
Range: N/A

TVPROC (RegCtl)

Type: E:TVPROC  Target Value Processor State
Lock: Oper
Default: Off
PtRes: HPM
Range: 0-Off (No target value processing)
       1-Preset (Set up setpoint target value and ramp time)
       2-Run (Perform ramping function)

Helpful Hint: TVPROC applies only if SPOPT = TV.
## UCNRECHN (HPM Box, NIM)

**Type:** E:$RECCHN  
**Lock:** View  
**Default:** ChannelA  
**PtRes:** HPM, NIM  
**Range:** 0-ChannelA  
1-ChannelB

**UCN Receive Channel**—Indicates the channel to which the node is listening.

**Range:** 0-ChannelA  
1-ChannelB

## UCNSCANT (HPM Box)

**Type:** Real  
**Lock:** Eng/PB  
**Default:** 0.5  
**PtRes:** HPM  
**Range:** 0.5, 1.0

**Peer-to-Peer Scan Period in seconds**

## UCNSFREV

**Type:** Integer  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM

**UCN Software Revision**

## UCNSFVER

**Type:** Integer  
**Lock:** View  
**Default:** N/A  
**PtRes:** HPM

**UCN Software Version**

## UCNWRTLK (HPM Box)

**Type:** E:UCNWRTL  
**Lock:** Eng  
**Default:** WrtLkOff  
**PtRes:** HPM  
**Range:** 0-WrtLkOff - (Write Lock Off, UCN node is read/write)  
1-WrtLkOn - (Write Lock On, UCN node is read only)

**HPM Write Lockout**—When HPM Write Lockout is set to On, all

Writes to the HPM (except writes to UCNWRTLK and some IOL parameters) are locked out including peer-to-peer writes. All parameter reads are allowed as well as cable swaps, HPMM swaps and IOP swaps.

**Helpful Hint:** Write Lockout must be set to Off before any changes are made to configuration, modes, or setpoints. The state of UCNWRTLK can only be changed when the HPM is either in RUN or RUNSOFTFAIL state.

UCNWRTL can be changed (under Engineer Key Level) from the HPM Write Lock Control display. Refer to the *HPM Implementation Guidelines* for more information.
### UNCMDFL (DevCtl, DigComp)

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical</th>
<th><strong>Uncommanded Change Alarm Flag</strong>—Indicates whether an uncommanded change has been detected in the field device. (Field device has changed its state without a command.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>View</td>
<td><strong>Default:</strong> Off (No uncommanded change alarm) On (Uncommanded change alarm has been detected by this point)</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td><strong>Range:</strong></td>
</tr>
</tbody>
</table>

### UNIT

<table>
<thead>
<tr>
<th>Type</th>
<th>String_2</th>
<th><strong>Unit Identifier</strong>—Defines the process unit to which this point is assigned. The unit identifier is originally assigned during network configuration, and it appears in displays and listings throughout the system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>PtBld</td>
<td><strong>Restriction:</strong> Two characters are required; blanks are not allowed. For example, unit 3 must be entered as 03. <strong>CL and Picture Editor</strong> — An integer is returned. This number is equivalent to the unit position in the Unit Names configuration list.</td>
</tr>
<tr>
<td>Default</td>
<td>N/A</td>
<td><strong>Range:</strong> A-Z, 0-9 (up to 100 unit IDs can be configured)</td>
</tr>
</tbody>
</table>

### UPGRADE (UCN)

<table>
<thead>
<tr>
<th>Type</th>
<th>E:UPGRADE</th>
<th><strong>NIM Upgrade Status</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Oper</td>
<td><strong>Default:</strong> OK</td>
</tr>
<tr>
<td>Default</td>
<td>OK</td>
<td><strong>PtRes</strong> NIM</td>
</tr>
<tr>
<td>Range</td>
<td>OK (NIM has not been upgraded and is OK) Upgrade (NIM is upgraded and is questionable)</td>
<td></td>
</tr>
</tbody>
</table>
**URL (STI)**

**Type:** Real  
**Lock:** Eng/View  
**Default:** NaN  
**PtRes:** HPM

**Upper Range Limit**—Indicates the upper range limit of the PV at the Smart Transmitter. This limit is a fixed limit and cannot be changed. Refer to the description of the STI_EU parameter for the URL engineering units. During configuration, the value entered for this parameter must agree with the URL value of the transmitter. Although any value can be entered during configuration, a database mismatch will occur when the point is put on-process because the transmitter’s URL value and the STI IOP’s URL value are not the same. If the values are not the same, the STATE parameter value becomes DBChange and PVSTS becomes Bad. Refer to URL in the *PM/APM Smartline Transmitter Integration Manual* for more information.

The corresponding LRL parameter is not a configurable parameter at the Universal Station.

The upper range limits for the Smart Transmitters are as follows:

For the ST3000 Smart Pressure Transmitters (Spt_Dp, Spt_Gp and Spt_Ap):

<table>
<thead>
<tr>
<th>Xmtr Range</th>
<th>URL (In H₂O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 inH₂O</td>
<td>400.0</td>
</tr>
<tr>
<td>600 inH₂O</td>
<td>600.0</td>
</tr>
<tr>
<td>780 mmHg</td>
<td>400.0</td>
</tr>
<tr>
<td>100 PSI</td>
<td>2768.0</td>
</tr>
<tr>
<td>200 PSI</td>
<td>5536.13</td>
</tr>
<tr>
<td>500 PSI/A</td>
<td>13840.34</td>
</tr>
<tr>
<td>1500 PSI</td>
<td>41521.0</td>
</tr>
<tr>
<td>2000 PSI</td>
<td>55361.35</td>
</tr>
<tr>
<td>3000 PSI</td>
<td>83042.02</td>
</tr>
<tr>
<td>6000 PSI</td>
<td>166084.0</td>
</tr>
<tr>
<td>10000 PSI</td>
<td>276806.7</td>
</tr>
</tbody>
</table>

For the STT3000 Smart Temperature Transmitter (STT):

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>URL (in Degrees C except where noted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear (mV)</td>
<td>1000 mV</td>
</tr>
</tbody>
</table>

Thermocouples:

- B: 1820
- E: 1000
- J: 1200
- K: 1370
- NiNiMoTC: 1300
- N: 1300
- R: 1760
- S: 1760
- T: 400
- W5W26TC: 2300
- W3W25TC: 2300
URL (STI) (continued)

RTDs:

- Cu10RTD 250
- Cu25RTD 250
- DINRTD 850
- JISRTD 640
- NicklRTD 150
- Pt200 850
- Pt500 850
- RHRad 1800
- RTD (ohms) 4000 Ω

For the MagneW 3000 Magnetic Flowmeter (Sfm):

\[
\text{URL (in meters}^3/\text{hour}) = \frac{\pi D^2}{4 \times 10^6} \times 3600 \times (N + 1)
\]

where:  
- \(D\) = the detector diameter in millimeters as follows: 2.5, 5, 10, 15, 25, 40, 50, 80, 100, 150, 200, 300, 350, 400, 500, 600, 700
- \(N\) = the number of dummy submerged detectors, from 0 to 9

Range: N/A, NaN

URV (STI)

<table>
<thead>
<tr>
<th>Type</th>
<th>Real</th>
<th>Upper Range Value—Defines the upper end of the operating range for the PVRAW value. Refer to the description of the STI_EU parameter for the URV engineering units.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Supr/View</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>NaN</td>
<td>Although the following maximum values can be entered, values greater than the URL are not recommended and accuracy is not guaranteed in such cases.</td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td>For a pressure transmitter (Spt): URV\text{max} = 2.0 \times URL \nFor a temperature transmitter (Stt): URV\text{max} = 2.0 \times URL \nFor a magnetic flow transmitter (Sfm): URV\text{max} = 12.0 \times URL</td>
</tr>
</tbody>
</table>
| Range      | N/A, NaN                 | This parameter is a view-only parameter when the STI point execution state PTEXECST is Active (indicating that changes cannot be made in this parameter value from the Universal Station). |}

USERID (Array, DevCtl, DigComp, ProcMod, RegCtl, RegPV)

<table>
<thead>
<tr>
<th>Type</th>
<th>String_16</th>
<th>User ID Reservation—The user ID that currently has reserved this point. The User ID can be changed by either a point, program, or operator. The operator can overwrite the USERID parameter at anytime. A program can store a nonblank string in this parameter only if it is blank. If the USERID string starts with three or more dashes (- - -), only the operator can overwrite the ID.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock</td>
<td>Oper</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>Dashes</td>
<td></td>
</tr>
<tr>
<td>PtRes</td>
<td>HPM</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>16 Character String</td>
<td></td>
</tr>
</tbody>
</table>
**UTSDRIFT (HPM Box, NIM)**

*Type:* Integer  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM, NIM  
*Range:*  

UCN Node Clock Drift—Indicates the current HPMM clock drift rate, calculated by averaging the LCN clock interval and SYNCH CLOCK interval over multiple synchs. Averaging does not occur until UCN time synchronization is in a steady state.

**UTSNODE (HPM Box, NIM)**

*Type:* Integer  
*Lock:* View  
*Default:* 0  
*PtRes:* HPM, NIM  
*Range:* 0, 1 to 64 (0 specifies No Syncher Node)  

Last UCN Syncher Node—Describes which node is the synch master or syncher. Normally, this is the primary NIM, even though the secondary NIM can also be the syncher. The syncher function performs periodic time synchronization on the UCN.

**UTSTBCRV (HPM Box, NIM)**

*Type:* String_2  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM, NIM  
*Range:* 5 to 15  

TBC Revision—The token bus controller revision number in hexadecimal format.

**UTSTIME (HPM Box, NIM)**

*Type:* Time  
*Lock:* View  
*Default:* N/A  
*PtRes:* HPM, NIM  
*Range:* N/A  

Current Time in LCN Node—Identifies the current time of day for this LCN node, and is useful if there are multiple LCNs or UCNs.

**UTSTIMST (HPM Box, NIM)**

*Type:* E:\$UCNTMST  
*Lock:* View  
*Default:* 0  
*PtRes:* HPM, NIM  
*Range:* 0-Initial (Waiting for the first complete synch operation)  
1-Failed (The maximum amount of time has elapsed and no synch operation has occurred, or the NIM does not have a functioning EPNI board)  
2-Degraded (In nonsyncher NIMs and HPMMs, an excessive amount of time has elapsed without a complete synch operation. In HPMMs, the drift limit between the LCN and HPMM clock has been exceeded)  
3-LCN_Bad (Synch operations are taking place on a regular basis, but the NIM’s clock is not synched with the LCN)  
4-LCN_OK (Synch operations are occurring regularly and the NIM’s clock is properly synched with the LCN)  
5-OK (Synch operations are working in an optimal manner)
WARMSRT(1)-(168)

**Type:** Logical  **Warm Start Flag**
**Lock:** View
**Default:** N/A
**PtRes:** IOP
**Range:** On (Warm start executed)
Off (Cold start executed)

WEEKDAY (HPPM Box)

**Type:** Integer  **Current Weekday**—The current weekday based on LCN wall clock time.
**Lock:** View
**Default:** N/A
**PtRes:** HPM
**Range:** 1 to 7 (Sunday to Saturday)

WITHBIAS(1)-(40) (HPPM Box)

**Type:** Logical  **I/O Module Physical Bias State**—ON Indicates that the preferred primary is really the acting primary; OFF indicates that it is not.
**Lock:** View
**Default:** ON  For IOPs that do not have hardware bias (e.g., HLAI, DI, etc.),
**PtRes:** HPM  the status of ON is always returned. Applies to primary IOP only.
**Range:** On (The preferred primary is the acting primary)
Off (The preferred primary is not the acting primary)
**X (FlowComp)**

Type: Real

Steam Compressibility Input—Indicates the measured actual steam compressibility.

Lock: View

Default: 1.0

PtRes HPM

Range: $\geq 0.0$

---

**X1 (AutoMan)**

Type: Real

X1 Input Value to be Biased

Lock: Prog

Default: NaN

PtRes HPM

Range: NaN

---

**X1–3 (MulDiv)**

Type: Real

Inputs 1-3—Current values of the inputs to this algorithm.

Lock: Prog

Default: NaN

PtRes HPM

Range: $\geq 0.0$,

NaN

---

**X1–4 (IncrSum, ORSel, RegCtl Summer)**

Type: Real

Inputs 1-4—Current values of the inputs to this algorithm.

Lock: Prog

Default: NaN

PtRes HPM

Range: $\geq 0.0$,

NaN

---

**X2 (AutoMan)**

Type: Real

Bias Adjustment Input

Lock: View

Default: N/A

PtRes HPM

Range: N/A

---

**X2 (RatioCtl)**

Type: Real

Input Number 2—Indicates the value of the uncontrolled process variable.

Lock: View

Default: N/A

PtRes HPM

Range: N/A

Source should be the same as for P2 of the Calcultr algorithm, if it is being used in conjunction with the Calcultr algorithm.
X2FILT (RatioCtl)
Type: Real
Lock: View
Default: N/A
PtRes: HPM
Range: N/A

Helpful Hint: Filter time is determined by X2TF. This filter is only active if the point is in the AUTO or CASC mode.

X2TF (RatioCtl)
Type: Real
Lock: Supr
Default: 0.0
PtRes: HPM
Range: 0 - 60 minutes

XEUHI (AutoMan, IncrSum, ORSel)
Type: Real
Lock: Engr
Default: 100.0 (equivalent to 100%)
PtRes: HPM
Range: > XEUULO

XEUULO (AutoMan, IncrSum, ORSel)
Type: Real
Lock: Engr
Default: 0.0 (equivalent to 0%)
PtRes: HPM
Range: < XEUHI

XSTS (FlowComp)
Type: E:PVVALST
Lock: View
Default: Normal
PtRes: HPM
Range: 0-Bad (Value is bad and replaced with NaN)
1-Uncertn (Status of the value is uncertain)
2-Normal (Value is good)
YEAR (HPM Box)

Type: Integer  
Lock: View  
Default: N/A  
PtRes: HPM  
Range: 1979 to 2115

Current Year—The value of the LCN date in the HPM.