Installation guide
HCU option board

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Introduction

This installation guide is intended for technicians involved in the installation of the HCU option board in Enraf series 854 ATG / XTG servo gauges, 873 SmartRadar and 877 Field Display & Interface. The technician must have basic technical skills and knowledge of safety regulations and explosion proof equipment in hazardous areas.

Note:
Read carefully the chapter safety in the installation guide of the specific instrument before continuing installation of the HCU optional board.

Information regarding HCU compatibility

The HCU option board can be used to replace one of the following previous option boards:

- TPU(-2) board (restricted to Pt100 RTD’s only)
- MPU board (for average temperature measurement via VITO Interface)
- HPU board (for average temperature measurement via VITO Interface)
- HSU board (for temperature measurement, restricted to Pt100 RTD’s only)

When the HCU option board is used to replace one of the above mentioned option boards, please note that an XPU-2 board is required in the servo gauges 854 ATG and 854 XTG.

Notes:

1. When the HCU board is used to replace an option board with average temperature measurement, please note the following.
   The 863 MRT with 862 MIR or the 864 MTT with 864 MIT temperature connection cannot be maintained:
   - The 864 MTT can be connected to the 762 VITO MTT Interface which interfaces to the HCU option board;
   - The 863 MRT can be connected to the 762 VITO MRT Interface which interface to the HCU option board.

2. The optional data transmission channel on the XPU-2 board (i.e. channel for 977 TSI or RS-232C/RS-485 channel) can only function when Backplane-2 is installed in the gauge. Backplane-2 is standard installed in instruments:
   - 854 ATG with series number: 854-20-400 and higher;
   - 854 XTG with series number: 894-02-001 and higher;
   - 873 SmartRadar; all gauges including XPU-2 board;
   - 877 FDI with series number: 877-17-001 and higher.

The HCU option board can be used to replace an existing option board in the 877 FDI. Please take care about the notes 1 and 2 above and be informed that when the water bottom measurement function is added, an XPU-2 board is required.
Installation - common

**Warning**
*Make sure that all power to the instrument is switched off before opening the cover(s). Failure to do so may cause danger to persons or damage the equipment. The cover(s) must be closed before switching on the power.*

**Caution**
*Do not damage the thread of the cover(s) and instrument and keep the threads free of dirt. After opening, grease them lightly with anti seize grease. When closing, turn the cover(s) counter-clockwise until the thread clicks in place, then turn clockwise until the cover(s) is (are) fully closed.*

**Caution**
*Make sure that no dangerous quantities of combustible products are present in the working area.*

Installation HCU option board in 8xx

Switch off power from instrument;
Remove the blocking / sealing devices from electronic- and terminal compartment cover;
Open electronic- and terminal compartment cover;
If wiring is connected to XPU-2 board, temporary disconnect the wiring;
Remove the PCB retaining screw and slide locking latch on XPU(-2) board to the right (refer to Appendix A);
Remove the XPU(-2) board;
If wiring is connected to main board, temporary disconnect the wiring;
Remove the main board;
If an existing option board is installed, disconnect the wiring (including ground wire connected to frame of backplane) and remove the option board;
Check for the part number on the HCU option board
Install the HCU option board in the third slot;
Connect the ground wire to the right-hand side of the backplane frame;
Connect the wiring as per figure(s) in one of the Appendixes according to the table below:

<table>
<thead>
<tr>
<th>HCU option board p/n</th>
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<th>854 XTG Appendix C</th>
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<td>Fig. 2</td>
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<td>S0854934</td>
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<td>Fig. 14, Fig. 19</td>
<td>Fig. 20, Fig. 25</td>
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<td>Fig. 1</td>
<td>Fig. 8</td>
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<td>S0854936</td>
<td>Fig. 1, Fig. 3</td>
<td>Fig. 8, Fig. 10</td>
<td>Fig. 14, Fig. 16</td>
<td>Fig. 20, Fig. 22</td>
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<tr>
<td>S0854937</td>
<td>Fig. 1, Fig. 3</td>
<td>Fig. 8, Fig. 10</td>
<td>Fig. 14, Fig. 16</td>
<td>Fig. 20, Fig. 22</td>
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</tbody>
</table>

Note:
When replacing a previous model option board in the 854 ATG by one of the HCU boards with part no’s: S0854933 or S0854934, it is also required to change the i.s. wire plug for part no. S2695241 with 8 blue wires.
For part number S0854933 with functions spot temperature Pt100 and HART device(s), the 4 blue wires in the 854 ATG and 854 XTG can be connected as per Fig. 7 and Fig. 13. Please note the difference of the Ex-i parameters for the HART 1 channel.

Re-install the main board and connect wiring if applicable;
Re-install the XPU(-2) board and connect wiring if applicable;
Place the PCB retaining screw and slide locking latch on XPU(-2) board to the left;
If required, modify / re-arrange the blue intrinsically safe terminals;

Caution
Use only intrinsically safe Ex-approved blue terminals.

Close electronic- and terminal compartment cover;
Place the blocking / sealing devices from electronic- and terminal compartment cover;
Switch on power;
Proceed with checking / programming the required parameters (items) for the new functions.
Appendix A Instrument lay-out

- Intrinsically safe wiring (blue)
- Non-intrinsically safe wiring
- Locking latch
- PCB retaining screw
- GPS board (slot 4)
- HCU option board (slot 3)
- Main board (slot 2)
- SPU-II board in 854 ATG/XTG
- APU board in 873 SmartRadar
- RPU board optional in 877 FDI
- XPU(-2) board (slot 1)
Appendix B Wiring connections in 854 ATG

Figure 1

Figure 2

Figure 3
Appendix C Wiring connections in 854 XTG

Figure 8

Figure 9

Figure 10
Appendix D Wiring connections in 873 SmartRadar

![Diagram of wiring connections]

Figure 14

Figure 15

Figure 16
Appendix E Wiring connections in 877 Field Display & Interface

Figure 20

Figure 21

Figure 22
### Appendix F HCU migration table

<table>
<thead>
<tr>
<th>HCU option board p/n</th>
<th>Function</th>
<th>Sales code for option *)</th>
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<tr>
<td>S0854930</td>
<td>VITO temperature and/or water probe</td>
<td>C</td>
</tr>
<tr>
<td>S0854931</td>
<td>VITO temperature and/or water probe + HART device(s)</td>
<td>J</td>
</tr>
<tr>
<td>S0854932</td>
<td>Spot temperature Pt100</td>
<td>B</td>
</tr>
<tr>
<td>S0854933</td>
<td>Spot temperature Pt100 + HART device(s)</td>
<td>U</td>
</tr>
<tr>
<td>S0854934</td>
<td>Analog level output + Spot temperature Pt100 + VITO temperature and/or water probe + HART device(s)</td>
<td>Y</td>
</tr>
<tr>
<td>S0854935</td>
<td>Analog level output</td>
<td>V</td>
</tr>
<tr>
<td>S0854936</td>
<td>Analog level output + VITO temperature and/or water probe</td>
<td>W</td>
</tr>
<tr>
<td>S0854937</td>
<td>Analog level output + VITO temperature probe</td>
<td>X</td>
</tr>
</tbody>
</table>

*) Sales code for option at position 4 with 854 ATG / XTG servo gauges and 873 SmartRadar and at position 3 with 877 Field Display & Interface.