Safety Manager Product Roadmap

Q1 2018

- SM R161.1 FSC R801.1 (Released)
  - SM and FSC maintenance release
  - Simulator with late binding
  - FSC – SM communication

Q3/Q4 2018

- SM R162.1
  - SIL2 Fire Alarm Panel Interface
  - Safety Builder Enhancement consolidation
  - Maintenance

SM R200.1 (Released)

Safety Manager SC
- Series C SDIO-32channel

Q4 2018

- SM R200.2
  - Second major release of Safety Manager SC.
  - Release functionality will be determined in late 2018.

- SM R201
  - Series C SDIO-32channel
  - SM-SM SC PtP Safenet support
  - IO Module capacity expansion
  - Modbus Master
  - Low latency SOE for SDIO

2019

- SM R210
  - Second major release of Safety Manager SC.
Safety Manager Release R161 and R162

Safety Manager R161.1 / FSC R801.1 => released

• General release for FSC migration
  ✓ Enabling phased migrations via FSC – Safety Manager SafeNet (requires the FSC R801.1 release)

• Providing LEAP, Late binding and Bulk Edit:
  ✓ Virtualized Safety Manager (SIM-SM)
  ✓ Engineering Database Builder (EDB)

• Additional feature
  ✓ System initialization via Ethernet (easier, faster and more reliable system startup)

Safety Manager R162.1 => Q3/Q4 2018

• Safety communication (SIL 2 certified) between Safety Manager and Fire Alarm Panel (FAP)
  ✓ Allowing for FAP connected safety fire/gas loops using safety data-exchange between SM and FAP

• Safety builder enhancements
  ✓ Functionality enhancements for Function blocks
Safety Manager Status

- Continues as a “current product”
- A major contributor to Honeywell’s safety sales
- Several large multi-year projects
- No current plans to change SM’s status
- Will address any obsolescence issues as they are identified
- Will continue to maintain and improve the solution related to Safety Builder, Experion integration, etc.
Safety Manager SC R200.2

- “SC” stands for Series-C design
- Starts shipping July 2018
- TUV SIL3 certification
- New S300 processor module
- New Universal Safety Digital IO (SDIO) module
- New power supply options (Phoenix Contact 20A and new Honeywell 25A power supplies being released independent of R200.2)
- ISA CyberSecure Level 2 certification
- Standard 1.2M and 2M cabinet designs
- Safety Builder improvements
- Application Simulation and Testing
Safety Manager SC Architecture

- S300 Safety Processor
- IO Network Switches HON Approved (MOXA)
- Universal Safety IO Module
- Universal Safety IO Redundant IOTA
- Field Termination Assembly (FTA)

- Safety IO Link Network
  - Copper = up to 100M
  - Fiber = up to 100KM

- USIO FTA
- SDIO FTA
- Safety Digital IO Module
- Safety Digital IO Redundant IOTA
- Field Termination Assembly (FTA)
Safety Manager SC Example S300 Communications

- The S300 Safety Controller contains 2 air-gapped PCB’s

1. Dedicated Safety processor board (Safety algorithms, application execution, Safety communication)

2. Dedicated Communication processor board (with embedded control firewall) for ‘external’ communication (Honeywell communication integration, FDM, PSA 3rd party communication integration)
Safety Manager SC Benefits

- Size and Scalability
  - Scalable architecture
  - 32 IO to 1,000+ IO
  - Redundant, Mixed, non-Redundant configurations
- One safety platform can meet a wide range of needs
  - SIL1-3 and non-SIL critical control applications
  - Small standalone, Distributed, Large Centralized
- Universal Safety IO
  - LEAP
  - Only two IO modules required (USIO and SDIO) to configure and maintain the system
  - Reduces spare IO modules needed and spare IO slots dedicated in the system
- Reduced system complexity
  - More cabinet options, improved cabling
- Improved power supply options and distribution
- Increased level of cybersecurity
Safety Manager SC Major certifications

Functional Safety TÜV IEC61508 SIL 1,2 and 3

Cyber security ISASecure Level 2
Scalable Architecture … You Can Start Small

- Small Redundant SIL3 approved solution
  - S300 Safety controller
  - 32 points of Universal IO (AI, AO, DI, DO)
  - SIL3 Power supply w/ Over-voltage protection
- Small BMS, Wellhead, Skid, etc.
- ……Or Remote IO
Scalable Architecture … and into a Large Distributed System

Solution Description

- Can be applied to SIL 1, 2, 3 safety and non-SIL critical control applications
- It can be scaled from small wellhead/skid applications (32 IO) to large distributed applications (32,000+ IO)
- Small cabinets can be installed outdoors in hazardous locations
- Small cabinets can contain S300 controllers + IO OR Remote IO
- Customers can standardize on one safety platform for all their safety applications
Safety Manager SC Configurations

All below configurations are as a standard TÜV SIL3 approved,
• no additional engineering or configuration required
• No time restrictions

“Redundant” is defined as a Redundant S300 with any IO configuration.
Supported Redundant configurations are defined as:
- Redundant S300 + Redundant IO
- Redundant S300 + Mixed (Redundant + Non-Redundant IO)
- Redundant S300 + Non-Redundant IO

“Non-Redundant” is defined as Non-Redundant S300 + Non-Redundant IO
Safety Manager SC SDIO

- **New** Safety Digital IO (SDIO)
- TÜV SIL3 out of the box
- Redundant processor allowing for SIL 3 safety requirements in single channel operation.
- 32 channels
- 12” tall redundant IOTA
- Field connections are made via 16-channel Field Termination Assemblies (FTAs)
- Each one of 32 channels can be configured for DI or DO
- Line monitoring and short circuit detection per channel for both DI and DO
- -40..70°C
- Short circuit protected
- Redundant Safety IO Link
- Internal temperature monitoring per module
- LED indicators at the front of the module for power and health status indication
- Configurable ESD (Emergency ShutDown) function per IOTA
Safety Manager SC USIO

- Universal Safety IO (USIO)
- TÜV SIL3 out of the box
- Redundant processor allowing for SIL 3 safety requirements in single channel operation
- 32 channels
- 18” tall redundant IOTA
- Field connections are made via 16-channel Field Termination Assemblies (FTAs)
- Each one of 32 channels can be configured for AI, AO, DI or DO
- Line monitoring and short circuit detection per channel for both DI and DO
- HART pass-thru
- -40..70°C
- Short circuit protected
- Redundant Safety IO Link
- Internal temperature monitoring per module
- LED indicators at the front of the module for power and health status indication
- Configurable ESD (Emergency ShutDown) function per IOTA
SM SC 2M Standard Cabinet

Single Sided

Double Sided
Safety Manager SC 1.2M (USC) Cabinet

• Showing at HUG in Knowledge Center
• Showing redundant configuration
  - S300 processors
  - 96 IO (32 USIO and 64 SDIO)
  - PC Quint 4 power supplies w/ OVP
• Cabinet is Hazloc certified
• Operating temperature -40 to +70 degrees C

Available Configurations:
S300 w/ 32, 64, or 96 IO configurations:
  32 SDIO or USIO
  32 SDIO or USIO + 32 SDIO or USIO
  32 USIO + 64 SDIO
  96 SDIO

IO only configurations:
  32 SDIO or USIO
  32 SDIO or USIO + 32 SDIO or USIO
  32 USIO + 64 SDIO
  96 SDIO
Power Supply Options

Option 1
Honeywell FC-PSU-UNI2450U System PSU
115/230VAC 24Vdc 50A CC, UL508

Option 2
New Phoenix Contact Quint4-PS/1AC/24DC/20
Quint4-S-ORING/12-24DC/1X40/+ Requires one ORING module per power supply unit

Option 3
Honeywell 600W/25A SIL3 certified

Available Now
Available August 2018
For USC Cabinet
For 2M Cabinet
There are many elements of the Safety Manager SC architecture and design that have been migrated from Safety Manager and are “Proven in Use”. This is making TÜV certification much faster and major customers are approving the use of Safety Manager SC without additional testing or field trials.

- **Universal IO Technology**
  - Large installed base of Safety Universal IO, ~20,000 modules worldwide
  - ~40% of Safety Manager annual IO sales
- **Quad Processor/Communication architecture**
  - Communication cards
  - New S300 processor but it has been used by Honeywell in TÜV certified SIL3 Safety solutions for several years and is field proven.
- **Safety Builder Engineering Tool**
  - Logic instructions
  - Supports both platforms (Safety Manager and Safety Manager SC)
- **Detailed Diagnostics**
- **Certified Communication Switches (MOXA)**
- **SIL3 Power Supply Technology**
- **MCAR/IOTA Technology**
- **FTAs**
Safety Builder Enhancements

One example (shown) - System Information screens now provide more detailed information with respect to the performance, usage of system variables, usage of application variables (e.g. timers/counters), it also allows you to create log files with more detailed information and forward to GTAC for diagnosis.

Various Safety Builder improvements will be made in R200, R201, and R210
Safety Manager SC R201

• Just starting this program with a planned completion in late Q4 2018
• Expected scope of release (subject to change):
  - MODBUS Master TCP support on S300
  - Qualify serial to TCP MODBUS converter (MGate™ MB3170/3270)
  - Qualify switches - Hirschmann, Moxa Switches, HP Switches
  - Support low latency (1ms) SOE in SDIO module
  - 62 IO module support (or at least 48 modules) per S300 controller
  - Full support of SM to SM-SC SafeNet communication with up to 63 SafeNet connections between any combination of SM-SC and SM controllers
  - Multi site support capability (in Safety Builder)
  - SafeNet Status display (provides details about Safenet protocol)
Safety Manager SC R210

- Major release planned for sometime in (late) 2019
- Program won’t kick-off until early 2019. Scope of release TBD
Safety solutions demo location
Questions / Discussion