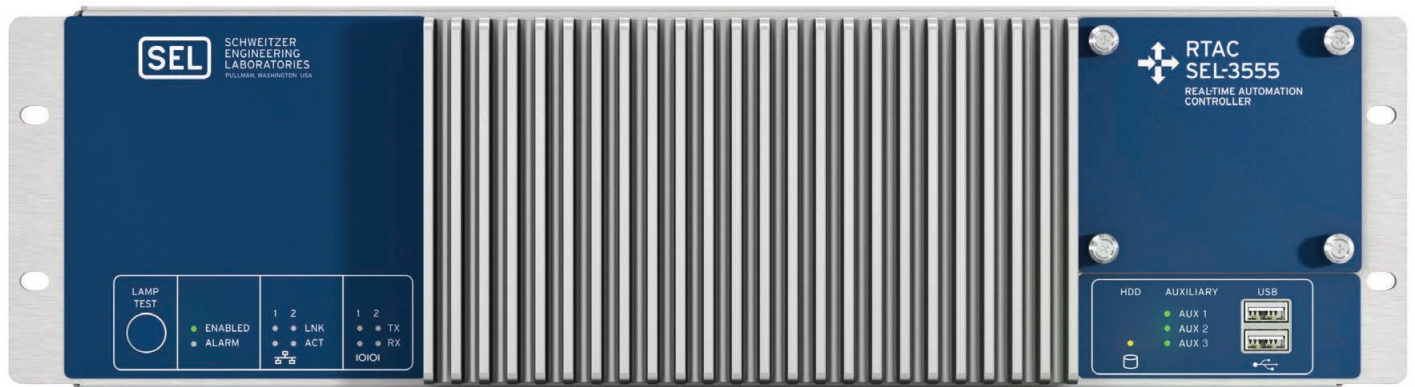


SEL-3555

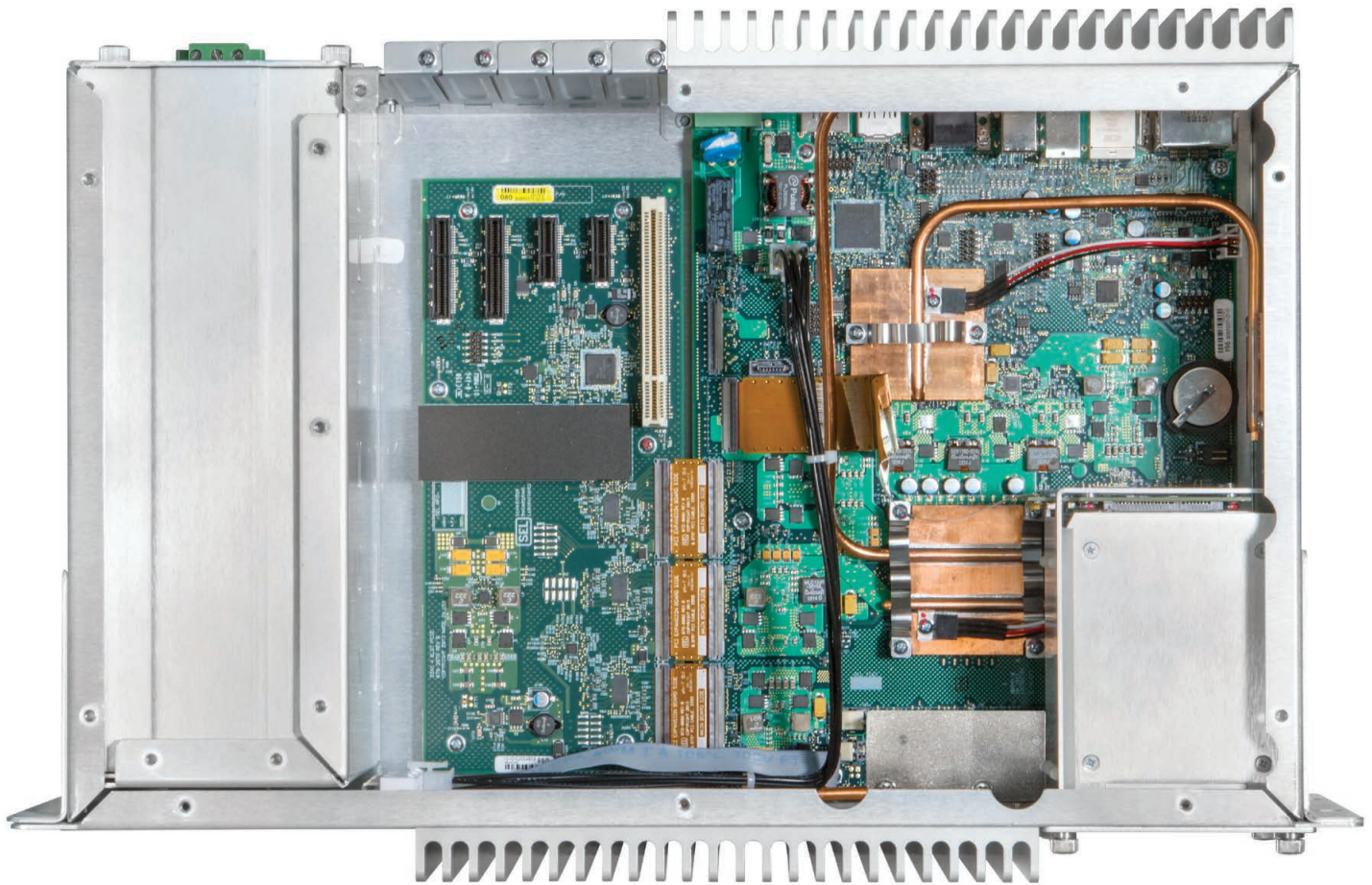
Real-Time Automation Controller (RTAC)



The fastest and most powerful RTAC for advanced data concentration and control

- 55 times faster than other RTACs, providing powerful computing for large-scale automation projects.
- Increases cybersecurity by using exe-GUARD™ whitelist antivirus technology to allow only authorized applications to run.
- 1 ms deterministic processing intervals for time-sensitive protection and automation control.
- Eliminates the need for a PC in the substation due to an integrated video port and easy-to-use human-machine interface (HMI).





Powerful

Designed for the most advanced automation applications

- 2.5 GHz dual-core or 2.1 GHz quad-core processor
- Multicore processor complements the multithread IEC 61131 logic engine
- 8 GB of error-correcting code (ECC) RAM
- Multiple high-resolution display interfaces for local HMI support

Reliable

Manufactured to operate in the harshest of environments

- No fans, spinning drives, or moving parts to wear out
- Designed to withstand operating temperatures of -40° to $+75^{\circ}\text{C}$ (dual-core) and -40° to $+60^{\circ}\text{C}$ (quad-core)
- Reliable operation in the presence of vibration, seismic, and shock (15 g) events as well as large electromagnetic fields or radio frequency interference (RFI)
- Ten-year no-questions-asked warranty



Secure

Designed for secure operation and access

- SEL's whitelist antivirus exe-GUARD technology to protect against malware and other cybersecurity threats
- Individual and role-based accounts for configuration software and HMI operation
- Centralized authentication through the Lightweight Directory Access Protocol (LDAP)
- Alerts via syslog, text/email, and Sequence of Events (SOE) logging
- Encryption of all Ethernet communications via Secure Shell (SSH) and Secure Sockets Layer (SSL)/Transport Layer Security (TLS) tunneling

Deterministic

Built for time-sensitive control applications

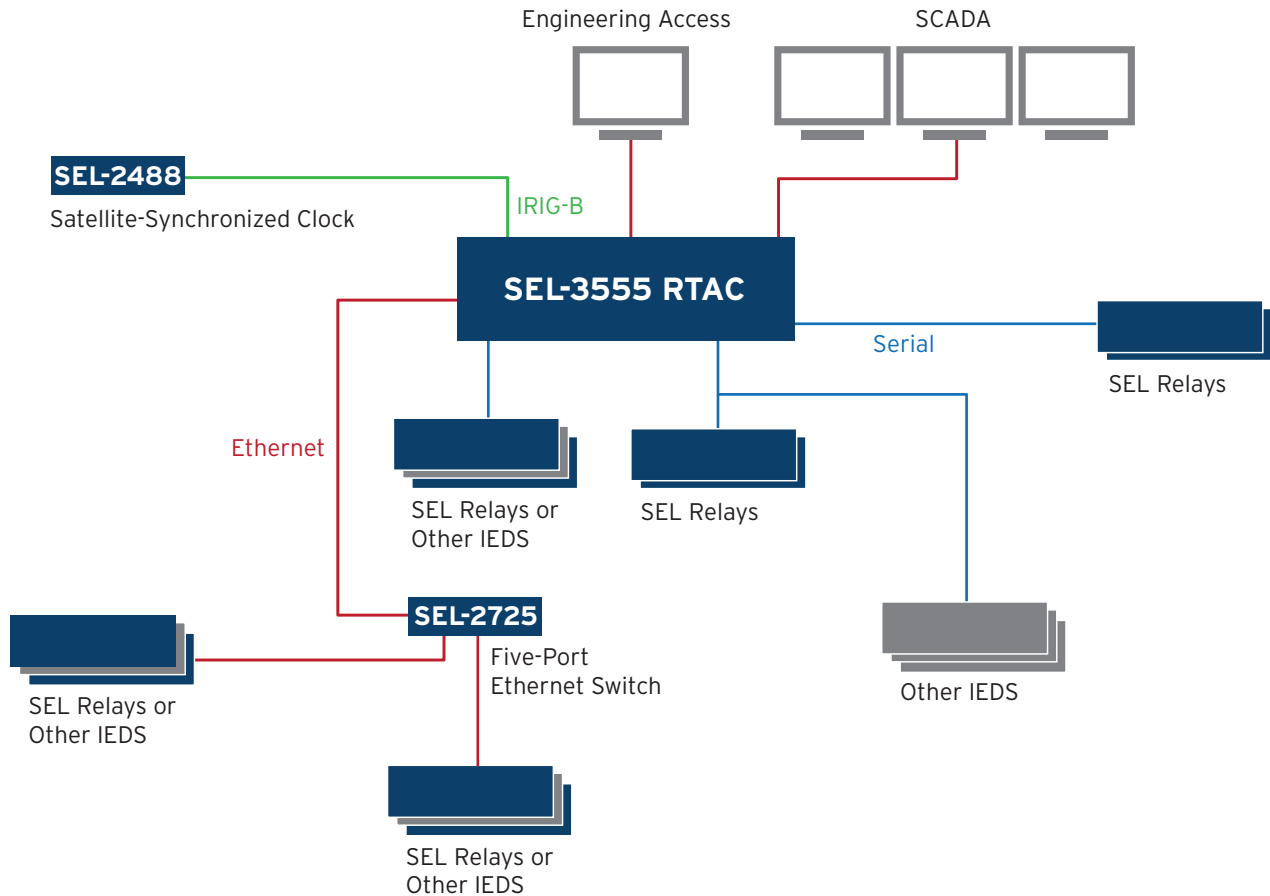
- Configurable task cycle times as fast as 1 millisecond
- Multiple processing threads with ability to prioritize every task
- Diagnostics to help you manage and optimize all resources efficiently

Applications

Data Concentration and Protocol Conversion

Deploy the RTAC as a data concentrator using modern and legacy protocols, such as IEC 61850 MMS, Modbus®, DNP3, IEC 61850 GOOSE, LG 8979, IEC 60870-5-101/104, the Parallel Redundancy Protocol (PRP), the IEEE 1588 Precision Time Protocol (PTP) Version 2, or MIRRORED BITS®

communications, and integrate both serial and Ethernet intelligent electronic devices (IEDs). Enable logging on any system or IED data tag to view and archive station-wide event records. Enable transparent engineering access connections via serial or Ethernet communications.



Distribution Automation or Microgrid Controller

Deploy the RTAC as the intelligence or a front-end processor (FEP) for a microgrid system using its fast, deterministic, automated control for real-time balancing of generation and load. Use the task scheduler to prioritize control, supervisory control and data acquisition (SCADA), and other tasks. Coupled with the secure, redundant, and self-healing network capabilities of the SEL ICON® as well as accurate time distribution to all IEDs, the RTAC provides the capabilities to control and monitor all aspects of a microgrid as well as the ability to serve and display data to operators with the built-in HMI.

Visualize Data and System Control With the Integrated HMI

The RTAC HMI, with advanced HTML5 technology, provides an easy way to visualize data and create custom diagrams to monitor and control your system. The HMI allows authenticated access for multiple users and locations and

is also viewable from a remote web browser. The video output port on the SEL-3555 RTAC directly connects to a monitor, allowing you to quickly and locally view the HMI and SOE data without the need for an additional computer.



All-in-One Performance

Combine your need for automation processing and HMI visualization into one device with the highest-performing RTAC, the SEL-3555. This eliminates the need to have an additional substation computer dedicated to running the HMI, which reduces points of failure in your substation.

Visualize Live System Trend Values

Quickly visualize data values over a defined period of time. Create custom trends when configuring your HMI, or design trends on the fly in the HMI run time.

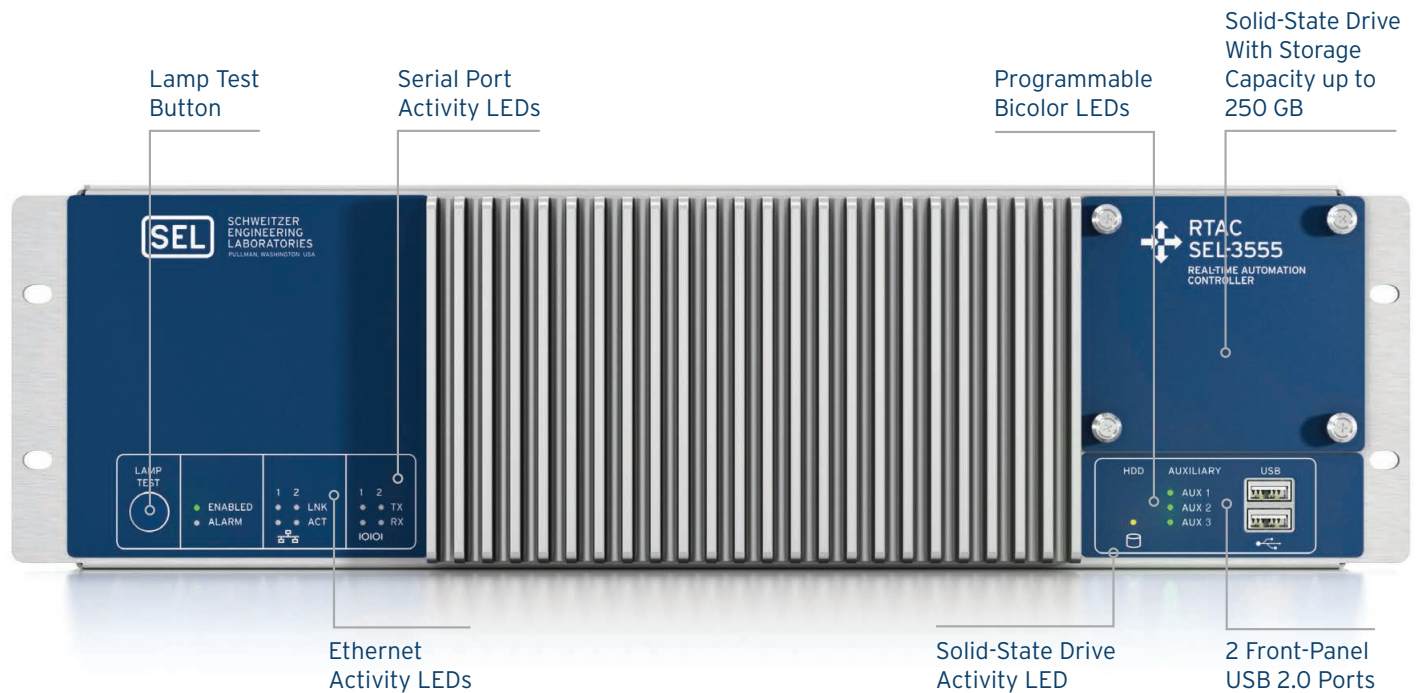
Simplified Tag Integration

Use RTAC tags in your HMI configuration. By sharing tags from the advanced logic processing engine, you can streamline HMI creation and design.

Ease-of-Use Diagram Configuration Tools

AcSELERATOR Diagram Builder™ SEL-5035 Software provides tools to simplify diagram creation. Drag and drop controls onto your design palette, easily align and group diagram controls, and accelerate tag assignment with search-and-replace functionality.

SEL-3555 RTAC

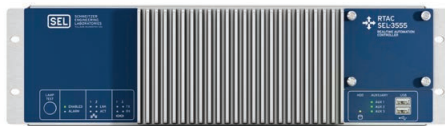


RTAC Family

The RTAC family of products addresses the application requirements based on location, size, and operational demands. By using a common user interface and

programming software, each RTAC is easy to configure and has the capability to convert projects among the different models.

SEL-3555



The Most Powerful—Up to 55 Times Faster Plus 100,000 tags

- 2.5 GHz dual-core or 2.1 GHz quad-core processor, 8 GB RAM.
- Integrated display port with optional web-based HMI.
- EtherCAT® fieldbus client support is compatible with SEL-2240 Axion® I/O modules.

SEL-3530



The Standard in Substation Automation

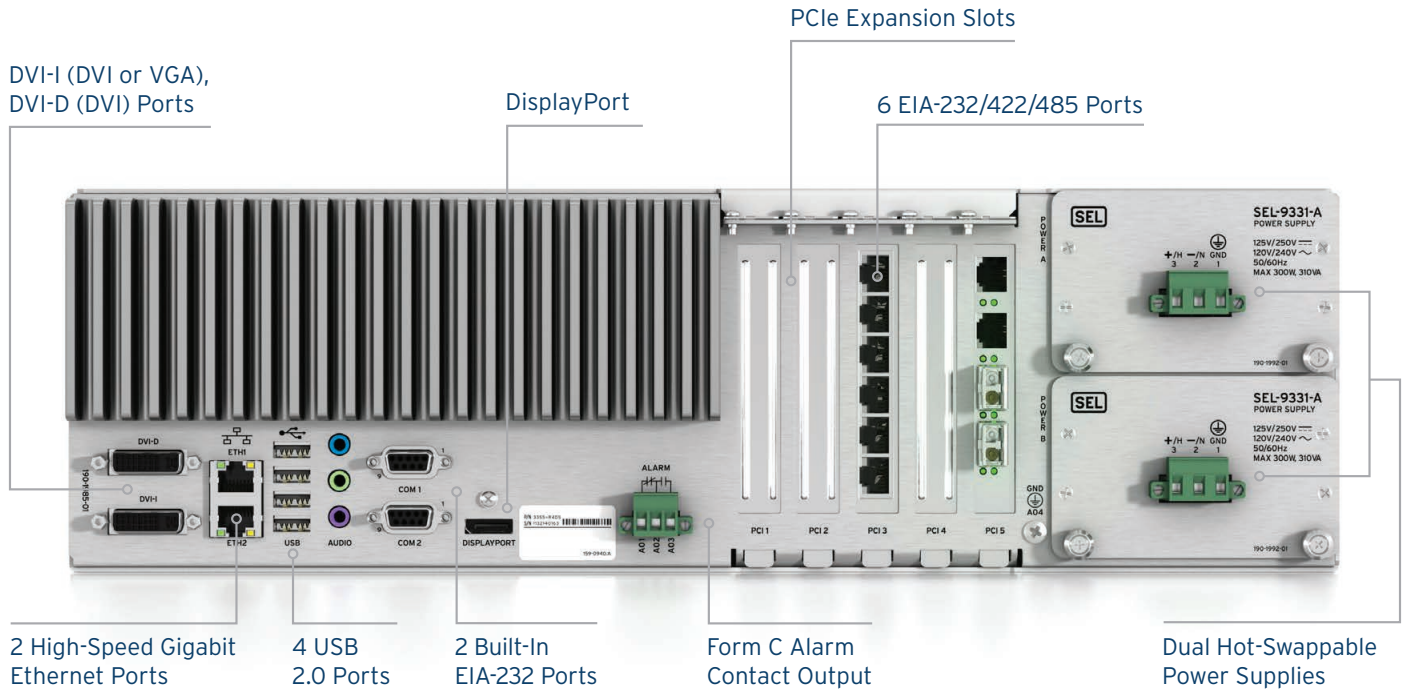
- 533 MHz processor, 1 GB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.

SEL-3530-4



Half-Rack Size, All the Power

- 533 MHz processor, 1 GB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.



SEL-3505/3505-3



Compact and Economical

- 333 MHz processor, 512 MB RAM.
- SEL-3505-3 provides 3 digital contact inputs and 8 digital contact outputs.

SEL-2240 Axion



Modular RTAC

- 533 MHz processor, 512 MB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.

ACSELERATOR RTAC® SEL-5033



Configuration Software

- Configure and deploy projects to the RTAC.
- Download the software free of charge from selinc.com/SEL-5033.

SEL-3555 Specifications

General

CPU	<p>Intel® Core™ i7-3555LE Dual Core Speed: 2.5 GHz base, 3.2 GHz turbo Cache: 2 x 256 KB L2, 4 MB L3</p> <p>Intel Core i7-3612QE Quad Core* Speed: 2.1 GHz base, 3.1 GHz turbo Cache: 4 x 256 KB L2, 6 MB L3</p>
RAM	8 GB DDR3 ECC PC3-10600 (1,333 MHz)
Video	<p>DVI-I (digital + VGA) Maximum resolution: 1920 x 1200 @ 32 bpp</p> <p>DVI-D (digital only) Maximum resolution: 1920 x 1200 @ 32 bpp</p> <p>DisplayPort Maximum resolution: 1920 x 1200 @ 32 bpp</p>
USB	4 rear-panel ports, 2 front-panel ports USB 2.0-compliant, 800 mA current limit each
Ethernet	<p>ETH 1: Intel 82579LM, 10/100/1000 Mbps, RJ45 copper</p> <p>ETH 2: Intel 82574L, 10/100/1000 Mbps, RJ45 copper</p> <p>SEL-3390E4 PCIe x4 Expansion Cards: As many as 8 additional 10/100/1000 Mbps ports, copper or LC fiber small form-factor pluggable (SFP)*</p>
Serial	<p>2 EIA-232 ports, DB-9 connectors, 300 to 115200 bps</p> <p>6 EIA-232/422/485 ports, RJ45 connectors, 300 to 921600 bps</p> <p>SEL-3390S8 PCIe x1 Expansion Cards: As many as 18 additional EIA-232/422/485 ports, RJ45 connectors, 300 to 921600 bps*</p>
HMI	Viewable remotely or via the local display*
Time Code Input/Output	Input with supplied SEL-3390S8 Expansion Card, RJ45 connector, demodulated IRIG-B TTL-compatible
Power Supply	125/250 Vdc or 120/240 Vac; 50/60 Hz Dual power supplies*
Operating Temperature Range	<p>i7-3555LE Dual Core: -40°C to +75°C (-40 to +167°F)</p> <p>i7-3612QE Quad Core: -40°C to +60°C (-40 to +140°F)</p>
Weight	9.072 kg (20 lb)

*Optional feature

Protocols

Client

SEL Fast Meter

SEL Fast Message, Interleaved With ASCII

DNP3 Serial and LAN/WAN

Modbus RTU and TCP

IEC 60870-5-101/104

LG 8979

CP 2179

SES-92

IEEE C37.118 Synchrophasors

eDNA

Simple Network Management Protocol (SNMP)

IEC 61850 MMS and MMS Client File Services*

Server

SEL Fast Message

DNP3 Serial and LAN/WAN

Modbus RTU and TCP

IEC 60870-5-101/104

LG 8979

SES-92

IEEE C37.118 Synchrophasors

CDC Type II

IEC 61850 MMS and MMS Server File Services*

Peer-to-Peer

SEL MIRRORING BITS Communications on Ports 3-26

Network Global Variable List (NGVL)

IEC 61850 GOOSE*

Field Bus Protocol

EtherCAT

SCHWEITZER ENGINEERING LABORATORIES

Making Electric Power Safer, More Reliable, and More Economical
Tel: +1.509.332.1890 | Email: info@selinc.com | Web: www.selinc.com

© 2015-2017 by Schweitzer Engineering Laboratories, Inc.
PF00343 • 20170424

