Available in a 1U or 3U chassis, the SEL-3530 Real-Time Automation Controller (RTAC) is a powerful automation platform that combines the best features of the embedded microcomputer form factor, embedded real-time operating system, and secure communications framework with IEC 61131-3 PLC programmability.

**Major Features and Benefits**

➤ **Simple Setup With ACSELERATOR RTAC™ Software.** Build a system quickly using preconfigured device templates for SEL relays and other communications connections. The Tag Processor provides methods to map data relationships between communication protocols visually.

➤ **Multiple Device Functions in One Reliable Device.** Use a single RTAC as a protocol gateway, RTU, logic processor, PAC, engineering port server, event processor, and system-wide SER logger/viewer.

➤ **Proven Reliability.** The RTAC is designed and tested to withstand vibration, electrical surges, fast transients, and extreme temperatures which meet or exceed protective relay standards and IEEE 1613 “Standard Environmental and Testing Requirements for Communications Networking Devices in Electric Power Substations.”

➤ **Integrated HMI.** Build custom human-machine interface (HMI) displays quickly and easily without the need for mapping data tags. Because it is web-based, no special software is needed for viewing HMI displays.

➤ **User Security.** Assign individual user and role-based account authentication and strong passwords. Use Lightweight Directory Access Protocol (LDAP) for central user authentication.

➤ **Integrated Security Management.** Comply with NERC/CIP user authentication, logging, and port control requirements.

➤ **Standard IEC 61131-3 Logic Design.** Create innovative logic solutions directly in ACSELERATOR RTAC using any of the editor tools; Tag Processor, Structured Text, Ladder Logic, or Continuous Function Chart.

➤ **Flexible Protocol Conversion.** Apply any available client or server protocol on any serial or Ethernet port. Each serial port can be used in software selectable EIA-232 or EIA-485 mode. The two rear Ethernet ports can optionally be copper of fiber connectors.

➤ **Synchrophasor Technology Included.** Use the IEEE C37.118 client protocol to integrate synchrophasor messages from relays or PMUs in your system. These messages can be used for logic and control in the station or converted to DNP3 or other protocol for SCADA usage.

➤ **Standard Data Management.** Map and scale data points easily between protocols in small and large systems. You can also normalize IED data into common data types, time stamp formats, and time zones.

➤ **Single-Point Engineering Access.** Gain engineering access to station IEDs through a single serial port, external modem, or high-speed network connection.
Product Overview

Functional Diagram

IEC 61131 Logic Engine

As depicted in the functional diagram, each RTAC includes an IEC 61131 logic engine that is preconfigured to have access for all system tags, IED data, diagnostics, alarms, security events, and communications statistics for use integrating your system. The system has no functional separation between those tags mapped for communication protocols and those used in programmable logic. This architecture greatly simplifies system configuration effort because no additional selection is required in order to identify tags used by the logic engine. You simply use any needed IED data, calculated values, and system tags in deterministic logic for the control of critical applications.

Management of the task processing sequence and solve rate in the RTAC is similar to that for traditional PLCs or PACs. The fastest processing rate is 4 ms. Optimize the processor utilization by setting the processing rate no faster than necessary for your application.

Task processing in the logic engine includes protocol I/O, system management, and any custom logic programs you create using Structured Text (ST), Ladder Logic Diagram (LD), or Continuous Function Charts (CFC). CFC programs are a type of IEC 61131-3 Function Block Diagram (FBD) that provide more programming flexibility than standard FBDs. The ACSELERATOR RTAC software includes the IEC 61131-3 and Tag Processor editors you will use to manage any protocol information and custom logic needed for your system.

Manage User Accounts and Alarms in Web Server

The built-in RTAC web interface provides the ability to manage user accounts and system alarms remotely. Each user account has a unique user name, password, and assigned role that defines system permissions. You can also configure the RTAC to use LDAP central authentication for user account management. The system includes web pages for monitoring user logs and maintaining network policies.

Logged tag values and system events provide a system-wide Sequence of Events report. View the logs online or use ODBC connectivity to download them to a central database.

You can also configure Ethernet connections and monitor system status from the web interface. All of the Ethernet ports can operate on independent networks, or you can bind them for failover operation.

Flexible Engineering Access

Access Point Routers in the RTAC provide a means for creating transparent connections between any two ports. A transparent connection is a method for using the RTAC as a port server to connect remotely to an IED. Simple logic in the RTAC enables remote engineering access only through supervisory commands.
Product Overview

Seamless System Configuration

ACSELERATOR RTAC is Microsoft® Windows® compatible configuration software for offline and online use with the SEL-3530 RTAC. A project in ACSELERATOR RTAC contains the complete configuration, settings and logic, for an individual RTAC device. Preconfigured device templates are available for you to add all device and master connections to the project tree view.

Once you create the settings for a specific device connection, improve engineering efficiency by saving a custom device template for later use with similar projects. Share custom templates via e-mail or network for even greater savings.

The Tag Processor view facilitates the mapping of operational data quickly between IEDs and SCADA. ACSELERATOR RTAC is compatible with Microsoft Excel® and other programs, so you can save time and increase accuracy by copying SCADA maps from the source.

There is no need to install or learn more than one software interface. Use the Structured Text, Ladder Diagram, or Continuous Function Chart editors included with ACSELERATOR RTAC to develop custom IEC 61131 logic.

Optional Input/Output

If the optional I/O is installed in the SEL-3530 RTAC, the system associates system data tags automatically with each input and output for use in the Tag Processor or IEC 61131 logic. You can program outputs to operate according to remote control signals or local logic. This powerful capability lets you build adaptive protection schemes, automate responses to alarms, and control power system apparatus directly.

Data Concentration and Protocol Conversion

Configure each serial or Ethernet port to use any of the client, server, or peer-to-peer protocols available for the RTAC. For example, when you use IEEE C37.118 protocol to receive synchrophasor messages, you can map analog or Boolean tags and timestamps to DNP3 and send the data to SCADA very efficiently. You can also map data to IEC 61850 GOOSE messages for high speed control schemes.

Additionally, when you need to define relay connections in a primary/backup arrangement, use the Tag Processor to map relay tags so that the master stations will receive power system information only from the active relay.
Applications

Substation SCADA, Report Retrieval, Engineering Access, and Alarm Notification

The RTAC can act as a data concentrator by using protocols such as Modbus®, DNP3, or Mirrorred Bits® to integrate both serial and Ethernet IEDs. Enable logging on any system or IED tag in order to view and archive a station-wide event record.

The RTAC Ethernet connection provides a means to remotely access the system to monitor logs and diagnostics. First establish a remote connection with any IED connected to the SEL-3530 through Engineering Access communications channels. Then use the ACSELERATOR QuickSet® software suite to manage protection and control settings for these relays remotely.

Synchrophasor Integration and Control

The RTAC can integrate synchrophasor messages from the IEEE C37.118 protocol into SCADA protocols, such as DNP3 or Modbus. Easily include the source PMU time stamps and time quality attributes in the SCADA message to allow for system-wide usage of synchrophasor data.

Within the SEL-3530 logic engine, you can perform complex math and logic calculations on synchrophasor data from C37.118 compliant devices.

The SEL-3530 also synchronizes the time clocks in attached devices that accept a demodulated IRIG-B time signal. The RTAC regenerates the demodulated IRIG-B signal from an external modulated or demodulated source; this signal is precise enough for synchrophasor applications.
Real-Time Control and Logic Processing

The built-in logic processor provides high-speed control and transfer of signals from SEL MIRRORED BITS devices, or other protocols. The RTAC can serve as the system controller and SCADA gateway to eliminate costly equipment (such as breakers, interposing relays, and wiring) while also reducing engineering and labor costs.

The intuitive ACSELERATOR RTAC software provides simple setup of analog and binary tags from any device in the system. Integrated tools scale values and create logic in a flexible IEC 61131-3 configuration environment.

You can take advantage of multi-protocol support to collect SCADA information, process control commands, and use NTP time synchronization through a single communications link to each Ethernet device.

Secure Communications and User Management

The SEL-3530 and SEL accessories offer security for your automation network. Per-user security profiles provide compliance with role-based requirements. The system can employ intrusion detection, notification, and logging to help maintain perimeter integrity.

The RTAC includes security features so that your system complies with NERC/CIP requirements for auditing, logging, port control, web authentication, and password restrictions. The RTAC also supports central authentication through your existing LDAP server.

By including SEL serial and wireless encrypting devices with the SEL-3530, you can protect remote serial communications to recloser controls or other connected devices.
Control Systems

The custom logic, communications protocols, and I/O in the SEL-3530, SEL-2411 and SEL-2440 permit you to implement complete control systems, whether you perform discrete sequences, continuous control, monitoring, or asset management. SEL subjects its products to tests for harsh environments, so you can be confident that your control system will work reliably in tough applications. Minimize loop wiring and simplify commissioning by installing controls close to process equipment and integrating them with industry standard communications protocols. Additionally, the SEL-3354 Embedded Automation Computer can provide HMI and data archiving functions.

Use a powerful IEC 61131 logic engine to design custom control programs in the RTAC. You can set the logic solve rate and program execution order to meet your system requirements. Operate the RTAC as a master controller and use SELOGIC® control equations in the SEL-2411 and SEL-2440 to perform distributed sequential or continuous control algorithms.

With a variety of physical interfaces and open protocol options, such as IEC 61850 GOOSE messaging, the RTAC makes system integration simple. It will reduce engineering time and complexity, so that you can focus on improving productivity and efficiency rather than on fixing communication problems.

Ordering Options

<table>
<thead>
<tr>
<th>Ethernet Communication</th>
<th>2 rear Ethernet ports, 10/100BASE-T copper (standard) or 100BASE-FX fiber optic (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>125/250 Vdc; 120/240 Vac 48/125 Vdc; 120 Vac</td>
</tr>
<tr>
<td>I/O Board</td>
<td>8 contact outputs 24 contact inputs</td>
</tr>
<tr>
<td>Environment</td>
<td>Conformal coating for chemically harsh and high-moisture environments</td>
</tr>
<tr>
<td>Software Options</td>
<td>Human-Machine Interface (HMI) IEC 61850 GOOSE</td>
</tr>
<tr>
<td>Digital Input Rating</td>
<td>24 Vac/Vdc 48 Vac/Vdc 110 Vac/Vdc 125 Vac/Vdc 220 Vac/Vdc 250 Vac/Vdc</td>
</tr>
<tr>
<td>Mounting</td>
<td>Horizontal rack mount, 3U Horizontal panel mount, 3U Horizontal rack mount, 1U Horizontal panel mount, 1U</td>
</tr>
<tr>
<td>Serial Expansion</td>
<td>33 non-isolated DB-9 serial ports, 3U</td>
</tr>
</tbody>
</table>
Panel Features

- LEDs simplify diagnostics by indicating transmitted and received activity on each port.
- Rugged enclosure withstands EMI, RFI, shock, and vibration.
- Wide operating temperature range: +85°C to -40°C.
- Front Ethernet and USB ports for quick, convenient, system setup and checkout.
- Programmable bi-color LEDs with configurable labels provide custom annunciation.
- LEDs simplify diagnostics by indicating transmitted and received activity on each port.
- Rugged enclosure withstands EMI, RFI, shock, and vibration.
- Wide operating temperature range: +85°C to -40°C.
- Front Ethernet and USB ports for quick, convenient, system setup and checkout.
- Programmable bi-color LEDs with configurable labels provide custom annunciation.
- Lamp test pushbutton and diagnostic LEDs.
- Programmable I/O integrates local and remote control.
- All terminals are clearly numbered and lettered for wiring and testing.
- Independent Ethernet ports may be RJ-45 or LC fiber.
- Demodulated IRIG-B input and output for high-accuracy time synchronization.
- Serial ports are EIA-232/EIA-485 software selectable.
- Isolated EIA-232/485 Port.
- Programmable input and alarm contact.

Figure 3 Front-Panel View (3U Chassis Only)

Figure 4 Rear-Panel View (3U Chassis Only)
Guideform Specification

The information processor shall operate a serial and Ethernet communications network. It shall provide a combination of functions that include deterministic logic processing, automatic transmission of outgoing messages and processing of responses, data scaling, data aggregation, simultaneous collection of data from multiple server devices (both SEL and non-SEL IEDs), and simultaneous data access for multiple client (master) devices. The information processor shall provide Modbus RTU and Modbus TCP client/server, DNP3 Level 3 serial, and DNP3 Level 3 LAN/WAN client/server protocols. Specific operational and functional requirements are as follows:

➤ **Intelligent and Secure Components.** All electronic equipment shall continuously self-test and report internal errors. They shall also have a hardware contact indicating device health.

➤ **IEC 61131-3 Programming.** The system shall include an integrated IEC 61131-3 programming environment for the information processor, with the ability to monitor and control every protective relay and Ethernet distributed I/O module in the substation continuously. The IEC 61131-3 programming environment shall be integrated in one software package with the communications protocol mapping environment.

➤ **Role-Based Security.** The information processor shall incorporate independent user-based security with strong passwords, role-based accounts, and settable account expiration dates. The system shall provide a mechanism to map security related system tags into SCADA reports.

➤ **Integrated HMI.** The information processor shall support an optional integrated web based human-machine interface (HMI) that provides visualization and control of data tags.

➤ **Central Authentication.** The information processor shall use Lightweight Directory Access Protocol (LDAP) to provide central user account authentication.

➤ **Selectable Processing Interval and Solve Order.** The information processor shall include a method to configure the deterministic processing interval for protocol communications and custom logic. The information processor shall also include a method to configure the processing sequence of software tasks. The processing interval shall be settable to as fast as 4 ms.

➤ **High-Speed Peer-to-Peer Communication.** The information processor shall use the MIRRORED BITS® protocol to transmit and receive high-speed digital data to/from intelligent electronic devices (IEDs) to create custom protection and control schemes. The information processor shall also have an option to support IEC 61850 GOOSE transmit and receive messaging.

➤ **Serial Communications Ports.** The information processor shall have 17 rear-panel ports with an optional 16 additional ports available. Each port shall be software configurable for EIA-232 or EIA-485 communications modes. Each serial port connector shall have an available demodulated IRIG-B time-synchronization signal.

➤ **Ethernet Communications Ports.** The information processor shall have three Ethernet ports that can operate simultaneously on different networks through independent MAC addresses.

➤ **Alarm Output.** There shall be an alarm contact output to signal internal errors and malfunctions. The alarm contact shall be programmable so that the alarm conditions that activate the output can include additional conditions.

➤ **Environmental Testing.** The information processor shall be tested to IEEE Std 1613:2003 for communications and networking equipment in electric power substations. The information processor shall also be tested to the same standards as for protective relays including IEC 60255-21-1, IEC 60255-21-2, IEC 60255-21-3, IEC 60255-22-1, IEC 60255-22-2, EN 61000-4-2, IEC 60255-22-3, IEC 60255-22-4, EN 61000-4-4, and IEEE C37.90.1.

➤ **Synchronphasors.** The information processor shall be capable of receiving synchronized phasor measurement data via the IEEE C37.118 protocol on all serial and Ethernet ports to as many as five messages per second.

➤ **Retained Memory.** The information processor shall have non-volatile memory available for user programmable retained variables.

➤ **Input/Output.** There shall be an optional input/output module with 24 contact inputs and eight contact outputs.

➤ **Engineering Access.** The information processor shall have methods to create transparent connections between any two serial or Ethernet communications ports for engineering access.

➤ **Conformal Coating.** The information processor shall have an optional conformal coating for the circuit boards available.
Figure 5  3U Rack- and Panel-Mount Dimensions
Figure 6  1U Rack- and Panel-Mount Dimensions
Specifications

General

Operating Temperature Range
–40° to +85°C (–40° to +185°F)

Operating Environment
Pollution Degree: 2
Overvoltage Category: II
Relative Humidity: 5–95%, noncondensing
Maximum Altitude: 2000 m

Weight (Maximum)
5.44 kg (12 lbs)

Processing and Memory

Processor Speed: 533 MHz
Memory: 512 MB DDR2 ECC RAM
Storage: 4 GB (2 GB reserved)

Security Features

Account Management: User Accounts
User Roles
LDAP Central Authentication
Strong Passwords
Inactive Account Logouts

Intrusion Detection: Access/Audit Logs
Alarm LED
Alarm Contact

Encrypted: SSL/TLS, SSH

Automation Features

Protocols
Client
DNP3 Serial, DNP3 LAN/WAN, Modbus RTU, Modbus TCP, SEL ASCII, SEL Fast Messaging, IEEE C37.118
Server
DNP3 Serial, DNP3 LAN/WAN, Modbus RTU, Modbus TCP, SEL Fast Messaging

Peer-to-Peer
SEL MIRRORED BITS Communications

Engineering Access

Modes: SEL Interleaved, Direct
Port Server: Map Serial Ports to IP Ports
Secure Web Server: Diagnostic and Communications Data

Time-Code Input (Modulated IRIG-B)

On (1) State: \( \geq 3.3 \text{ V}_{pp} \)
Off (0) State: \( \leq 0.1 \text{ V}_{pp} \)
Input Impedance: 2 k\( \Omega \)
Accuracy: 500 \( \mu \text{s} \)

Time-Code Input (Demodulated IRIG-B)

On (1) State: \( V_{in} \geq 2.2 \text{ V} \)
Off (0) State: \( V_{in} \leq 0.8 \text{ V} \)
Input Impedance: 2 k\( \Omega \)
Accuracy: 250 \( \mu \text{s} \)

Time-Code Output (Demodulated IRIG-B)

On (1) State: \( V_{out} \geq 2.4 \text{ V} \)
Off (0) State: \( V_{out} \leq 0.8 \text{ V} \)
Load: 50 \( \Omega \)

Network Time Protocol (NTP) Modes

NTP Client: Up to three configurable servers
NTP Server

Communications Ports

Ethernet Ports
Ports: 2 rear, 1 front
Data Rate: 10 or 100 Mbps
Front Connector: RJ-45 Female
Rear Connectors: RJ-45 Female or LC Fiber (100 Mbps only)

Serial Ports
Ports: 17 (33 with optional expansion)
Type: EIA-232/EIA-485 (software selectable)
Data Rate: 300 to 115200 bps (Ports 1–16, 18–33)
300 to 57600 bps (Port 17)
Connector: DB-9 Female (Ports 1–16, 18–33), Isolated 8 pin (Port 17)

Time Synchronization: IRIG-B
Power: +5 Vdc power on Pin 1 (500 mA maximum)

USB Ports
Ports: 2
1 Host Port: Type A
1 Device Port: Type B

Inputs

Optoisolated Control Inputs
When used with dc control signals:
- 125 V ON for 100–135.5 Vdc OFF below 75 Vdc
- 48 V ON for 38.4–52.8 Vdc OFF below 28.8 Vdc

When used with ac control signals:
- 125 V ON for 85–150 V ac OFF below 53 V ac
- 48 V ON for 32.8–60 V ac OFF below 20.3 V ac

Current draw at nominal dc voltage: 2–4 mA

Outputs

Mechanical Durability: 10 M no load operations

DC Output Ratings
Rated Operational Voltage: 250 Vdc
Rated Voltage Range: 19.2–275 Vdc
Rated Insulation Voltage: 300 Vdc
Make: 30 A @ 250 Vdc per IEEE C37.90
Continuous Carry: 6 A @ 70°C; 4 A @ 85°C
Thermal: 50 A for 1 s
Contact Protection: 360 Vdc, 40 J MOV protection across open contacts

Operating Time (coil energization to contact closure, resistive load): Pickup/Dropout time \( \leq 8 \text{ ms} \) typical

Breaking Capacity
(10,000 operations) per IEC 60255-5-0-20:1974:
- 48 V 0.50 A L/R = 40 ms
- 125 V 0.30 A L/R = 40 ms

Cyclic Capacity
(2.5 cycles/second) per IEC 60255-5-0-20:1974:
- 48 V 0.50 A L/R = 40 ms
- 125 V 0.30 A L/R = 40 ms

AC Output Ratings
Rated Operational Voltage: 240 Vac
Rated Insulation Voltage: 300 Vac
Utilization Category: AC-15 (control of electromagnetic loads > 72 VA)
Contact Rating Designation: B300 (B = 5 A, 300 = rated insulation voltage)
Contact Protection: 270 Vac, 40 J
Continuous Carry: 3 A @ 120 Vac
1.5 A @ 240 Vac
5 A
Rated Frequency: 50/60 ±5 Hz
Operating Time (coil energization to contact closure): Pickup/Dropout Time: ≤8 ms
Electrical Durability Make VA Rating: 3600 VA, cos ϕ = 0.3
Electrical Durability Break VA Rating: 360 V A, cos ϕ = 0.3

Power Supply
Input Voltage
Rated Supply Voltage: 125–250 Vdc; 110–240 Vac, 50/60 Hz
48–125 Vdc; 120 Vac, 50/60 Hz
Input Voltage Range: 85–300 Vdc or 85–264 Vac
38.4–137.5 Vdc; 88–132 Vac
Power Consumption
AC: < 40 VA
DC: <30 W
Interruptions
20 ms @ 48 Vdc
50 ms @ 125 Vac/Vdc
100 ms @ 250 Vac/Vdc

Type Tests
Environmental Tests
IP20 excluding the terminal blocks
IEC 60255-21-1:1988
Vibration Endurance, Severity: Class 1
Vibration Response, Severity: Class 2
IEC 60255-21-2:1988
Bump Test, Severity: Class 1
Shock Withstand, Severity: Class 1
Shock Response, Severity: Class 2
Seismic: IEC 60255-21-3:1993
Quake Response, Severity: Class 2
Cold: IEEE Std 1613-2003 Service Conditions
IEC 60068-2-1:2007
[BS EN 60068-2-1:2007]
–40°C, 16 hours
Dry Heat: IEEE Std 1613-2003 Service Conditions
IEC 60068-2-2:2007
[BS EN 60068-2-2:1993 + REAF:2005]
85°C, 16 hours
Damp Heat, Cyclic: IEC 60068-2-30:2005
[BS EN 60068-2-30:2006]
25–55°C, 6 cycles,
95% relative humidity

Dielectric Strength and Impulse Tests
Dielectric (HiPot): IEEE Std 1613-2003,
IEC 60255-5:2000
[BS EN 60255-5:2001]
Section 5. Dielectric Tests
IEEE C37.90-2005,
Section 8: Dielectric Tests
Dielectric Strength Section
2500 Vac for one minute on contact inputs, contact outputs
3100 Vdc for one minute on power supply
Impulse: IEEE Std 1613-2003, Impulse Section
IEC 60255-5:2000
[BS EN 60255-5:2001], Impulse Section
IEEE C37.90-2005, Impulse Section
Severity Level: 0.5 Joule, 5 kV

RFI and Interference Tests
EMC Immunity
Electrostatic Discharge Immunity:
IEEE Std 1613-2003 ESD
IEC 60255-22:2-2008
[BS EN 60255-22-2:1997]
IEEE Std 61000-4-2:2008
[BS EN 61000-4-2:2009]
Severity Level 4
8 kV contact discharge
15 kV air discharge
Magnetic Field
Immunity:
IEC 61000-4-8:2001
[BS EN 61000-4-8:1994 + A1:2001]
1000 A/m for 3 seconds,
1000A/m for 1 minute
IEC 61000-4-9:2001
100 A/m
Power Supply Immunity:
IEC 60255-11:2008
IEC 61000-4-11:2004
[BS EN 61000-4-11:2004]
IEC 61000-4-29:2000
[BS EN 61000-4-29:2001]
Radiated RF Immunity:
IEC 60255-22:3-2007
[BS EN 60255-22-3:2008]; 10 V/m
IEEE Std 1613-2003 RFI
IEC 61000-4-3:2008
[BS EN 61000-4-3:2006 + A1:2008],
10 V/m
IEEE C37.90.2-2004, 35 V/m
Fast Transient, Burst Immunity:
IEC 60255-22-4:2008
[BS EN 60255-22-4:2008]
IEEE Std 61000-4-4:2004 + CRGD:2006
[BS EN 61000-4-4:2004]
4 kV @ 5.0 kHz
2 kV @ 5.0 kHz for comm. ports
Surge Immunity:
IEC 60255-22-5:2008
[BS EN 60255-22-5:2002]
IEEE Std 61000-4-5:2005
[BS EN 61000-4-5:2006]
2 kV line-to-line
4 kV line-to-earth
Surge Withstand Capability Immunity:
IEEE C37.90.1-2002,
2.5 kV oscillatory, 4 kHz fast transient
IEEE Std 1613-2003 SWC
IEC 60255-22-1:2007
2.5 kV common-mode
1.0 kV differential-mode
1 kV common-mode on comm. ports
Conducted RF Immunity:
IEC 60255-22-6:2001
[BS EN 60255-22-6:2001]
IEC 61000-4-6:2008
[BS EN 61000-4-6:2007]
10 Vrms
Digital Radio Telephone
RF Immunity:
10 V/m at 900 MHz and 1.89 GHz

SEL-3530 RTAC Data Sheet
Schweitzer Engineering Laboratories, Inc.
### EMC Emissions

Radiated and Conducted Emissions:
  - Class A

### Certifications

<table>
<thead>
<tr>
<th>ISO:</th>
<th>Equipment is designed and manufactured using ISO 9001 certified quality program.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE Safety:</td>
<td>IEC 60255-5</td>
</tr>
<tr>
<td>EMC:</td>
<td>EN 61000-6-2</td>
</tr>
</tbody>
</table>
Notes