



SEL-2902 RJ45 to DB-9 Adapter Panel

Easily adapt the SEL computer platform's RJ45 serial ports to DB-9 connectors



Key Features and Benefits

- ▶ **Retrofit Applications.** Retain existing serial cables and transceiver installation when upgrading an SEL-3530 Real-Time Automation Controller (RTAC) or SEL-2020/SEL-2030/SEL-2032 Communications Processor to the SEL-3350 Automation and Computing Platform and SEL-3355 Automation and Computing Platform.
- ▶ **Flexible Mounting Options.** Use rack-mount, surface-mount, or DIN-rail mounting options to support several different types of installations.
- ▶ **Secure Transceiver Mounting.** Provide solid mounting for SEL serial transceivers when used with the SEL-3350 and SEL-3355.
- ▶ **Cable Management.** Use the included rack-mount brackets to allow the use of existing cable management solutions.

Product Overview



Figure 1 SEL-2902 2U Adjustable Rack Mount, Front

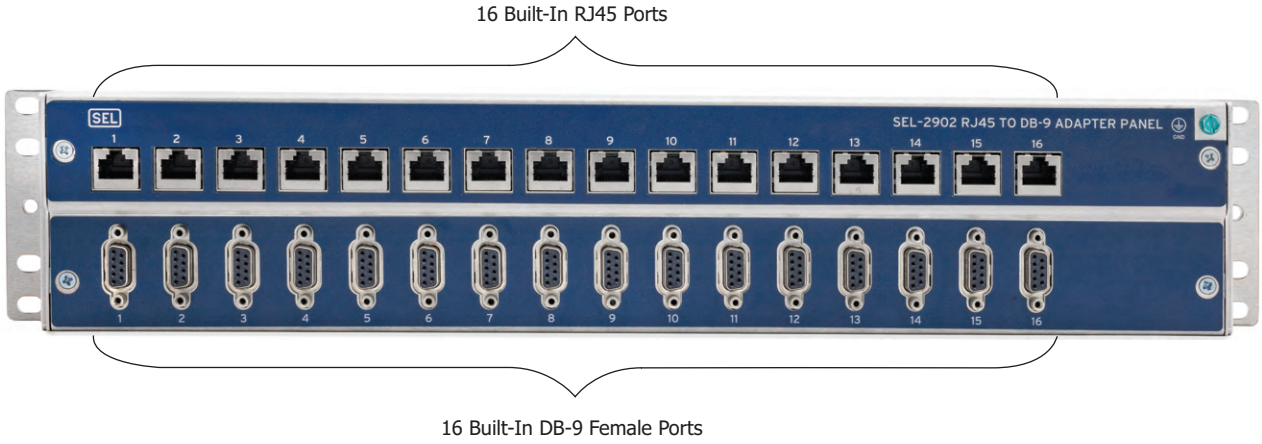


Figure 2 SEL-2902 2U Adjustable Rack Mount and Surface Mount, Rear

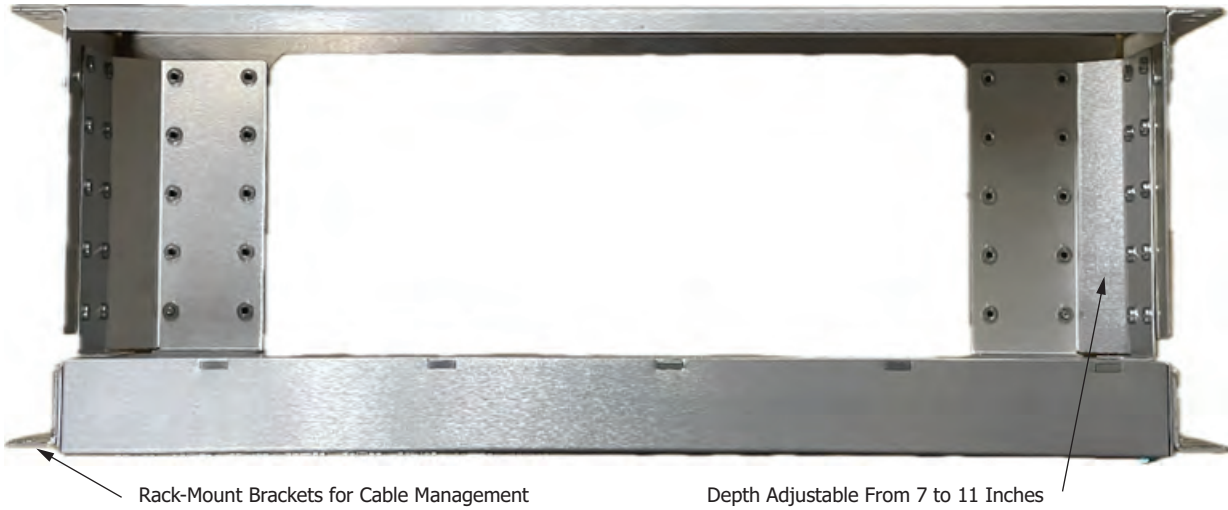


Figure 3 SEL-2902 2U 19-Inch Adjustable Rack Mount, Top

Table 1 SEL-2902 RJ45 to DB-9 Connector Pinout Diagram

SEL-3350 Series Signal (EIA-232)	RJ45 Connector	DB-9 Connector
-IRIG-B out (GND)	1	6
+5 Vdc ^a	2	1
+IRIG-B out	3	4
Signal Ground (GND)	4	5
Receive Data (RXD)	5	2
Transmit Data (TXD)	6	3
Clear to Send (CTS)	7	8
Request to Send (RTS)	8	7
SHIELD	SHELL	SHELL

^a Software-enabled on the SEL-3500 series.

Grounding

Connect all chassis grounding terminals labeled GND on the rear panel to a rack frame ground or main station ground for proper safety and performance. Use 14 AWG

(2 mm²) or larger wire, less than 3 m (10 ft) in length, for this connection. All ground terminals connect directly to the internal chassis ground of the SEL-2902.

Applications

SEL-2020, SEL-2030, SEL-2032, and SEL-3530 Retrofit Application

The adapter panel with the adjustable-depth rack-mount option can be configured between 7 and 11 inches in depth to match an existing SEL-2020, SEL-2030, SEL-2032, or SEL-3530 installation. Matching the

device depth allows existing communications cables with DB-9 connectors to be retained. Use an SEL-CA605 cable or equivalent shielded Ethernet patch cable to connect the adapter panel RJ45 port to the ports on an SEL-3350, as shown in *Figure 4*, or an SEL-3355 that is using the optional SEL-3390S8 Serial Adapter Cards.



Figure 4 SEL-2902 Installed Below an SEL-3350, Using the Ethernet Cable Kit (915900638) and Retaining Existing Serial Cables and Transceivers With a DB-9 Connector

SEL-3350 and SEL-3355 and Secure Mounting of Transceivers

Securely mount the adapter panel with the surface-mount ordering option to a solid surface, a 19 in rack-mount panel, or DIN rail by using the optional DIN-rail mount-

ing kit (915900639). Connect serial transceivers with a DB-9 male connector to the DB-9 port. An SEL-CA605 or equivalent shielded Ethernet patch cable can be used to connect the RJ45 port to the ports on the SEL-3350 or SEL-3355.

Installation

Unit Location and Placement

For trouble-free operation, use the following guidelines to properly install the SEL-2902.

Mount the SEL-2902 with the SEL-3300 series device in a sheltered indoor environment (a building or an enclosed cabinet) that does not exceed the temperature and humidity ratings for the unit (see *Specifications* on page 10). The unit is rated as Installation/Overvoltage Category II (at <5 km altitude) and Pollution Degree 2. These ratings allow you to mount the unit indoors or in an outdoor (extended) enclosure where the unit is protected from direct sunlight, precipitation, and full wind pressure but temperature and humidity are not controlled. To satisfy safety requirements, install the unit in a suitable fire/electrical/mechanical enclosure.

To ensure best EMI and EMC performance, the SEL-CA605 cable or equivalent shielded Ethernet patch cable that connects the SEL-3300 series device to the SEL-2902 RJ45 port should not exceed 2 meters (6.6 feet) in length.

Mounting Bracket Adjustment

The adjustable-depth mounting option ships by default at 8 in, as shown in *Figure 5*. Adjust the depth in 1 in increments from a minimum depth of 7 in to a maximum of 11 in, as shown in *Figure 6*.

To adjust the depth, remove four screws from the side and eight screws from the bottom, as shown in *Figure 7*. Move the adapter panel to the desired depth, as shown in *Figure 8*. Reinstall the screws, as shown in *Figure 9*. Torque the screws to 12 in-lb.

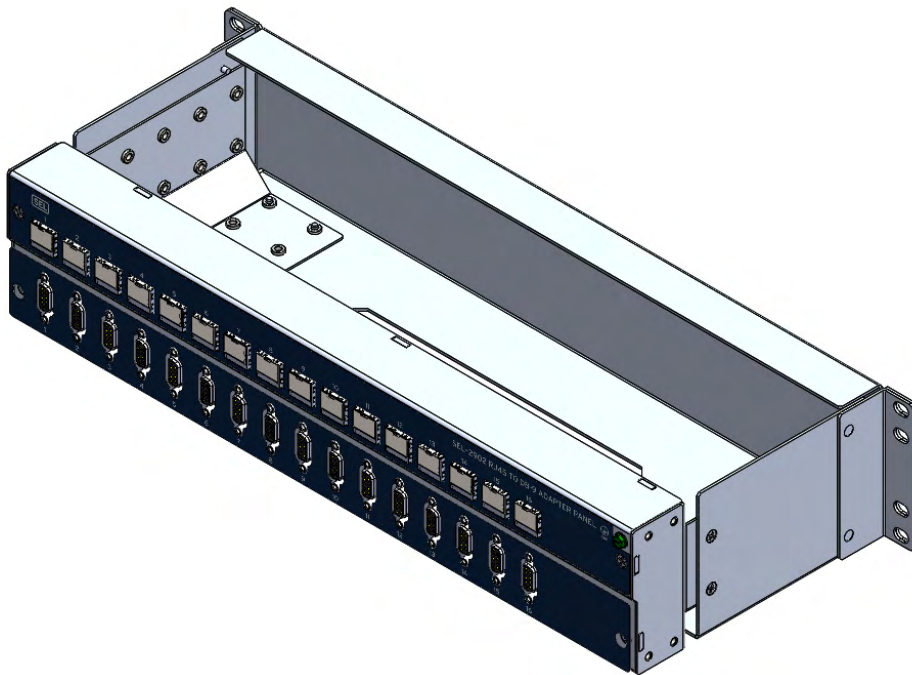


Figure 5 Adjustable Rack Mount Configured to Depth of 8 Inches

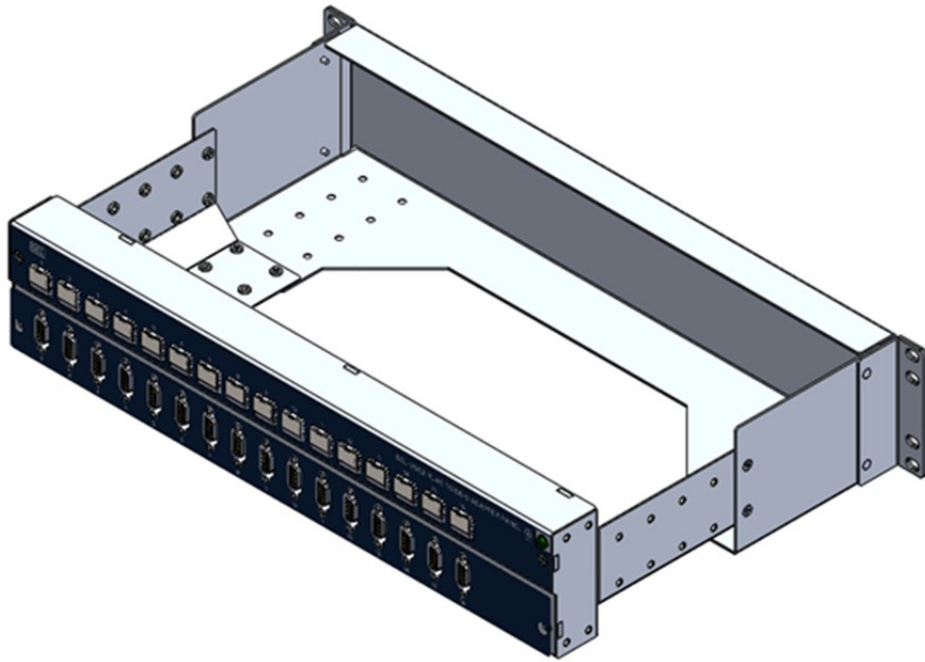


Figure 6 Adjustable Rack Mount Configured to Depth of 11 Inches

Adjusting Rack-Mount Depth

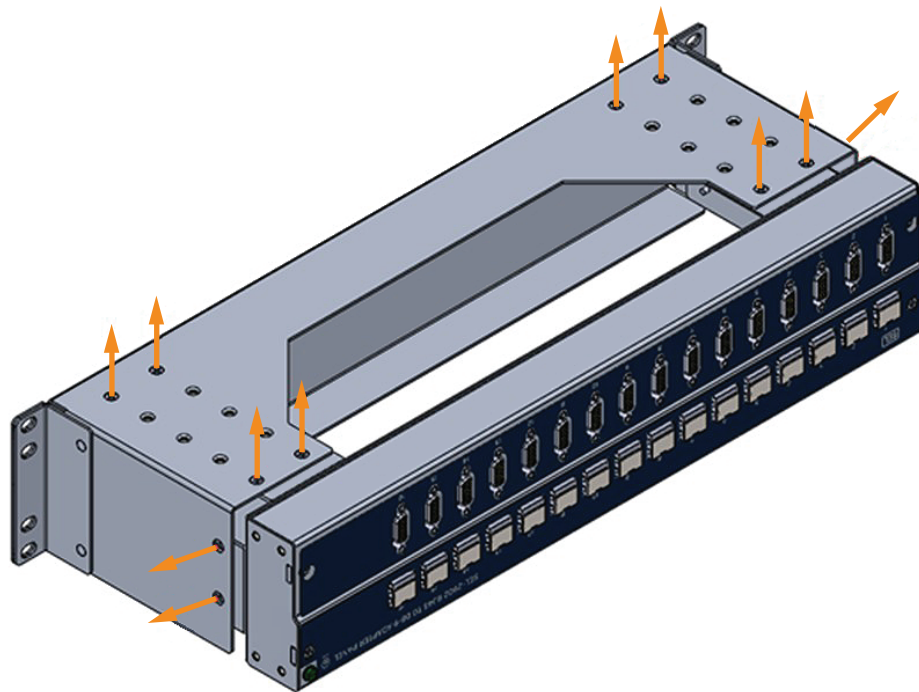


Figure 7 Remove Screws

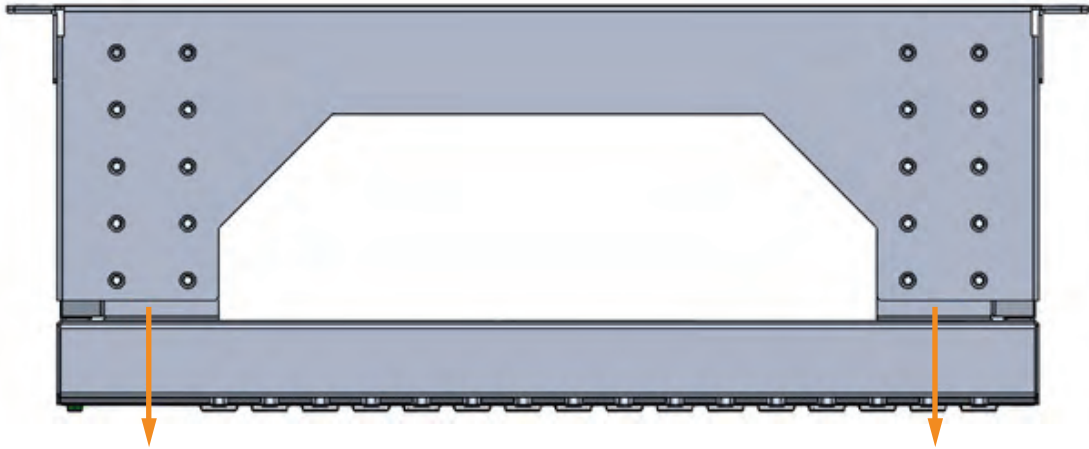


Figure 8 Move to Desired Depth

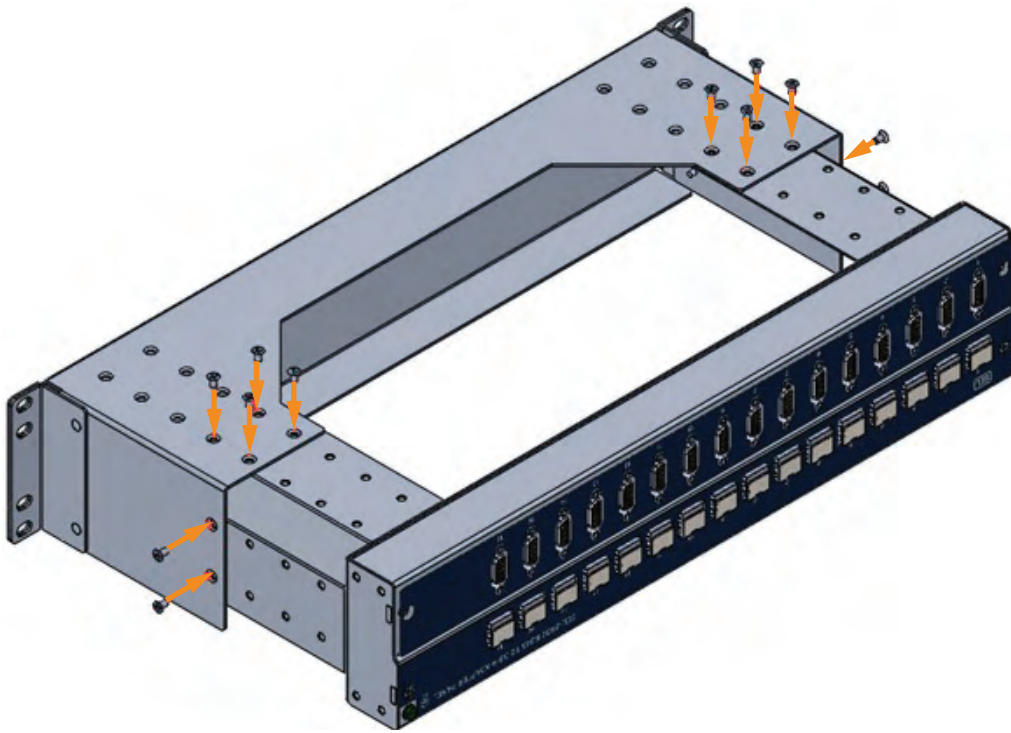


Figure 9 Reinstall Screws (11-Inch Depth Configuration Shown)

Surface Mounting

To mount the adapter panel with the surface-mount option, use the dimensions shown in *Figure 14* and drill holes no larger than 3/16 in (5 mm).



Figure 10 Surface-Mount Option

DIN-Rail Mounting

To use the optional DIN-rail mounting kit (915900639), snap the two DIN-rail clips onto your DIN rail. Align the DIN-rail clips with the center of the adapter panel mounting ears, as shown in *Figure 11*. Thread the included #8 plastic screw through the hole and into the DIN-rail clip. Torque the screw to 12 in-lb after it is fully seated.

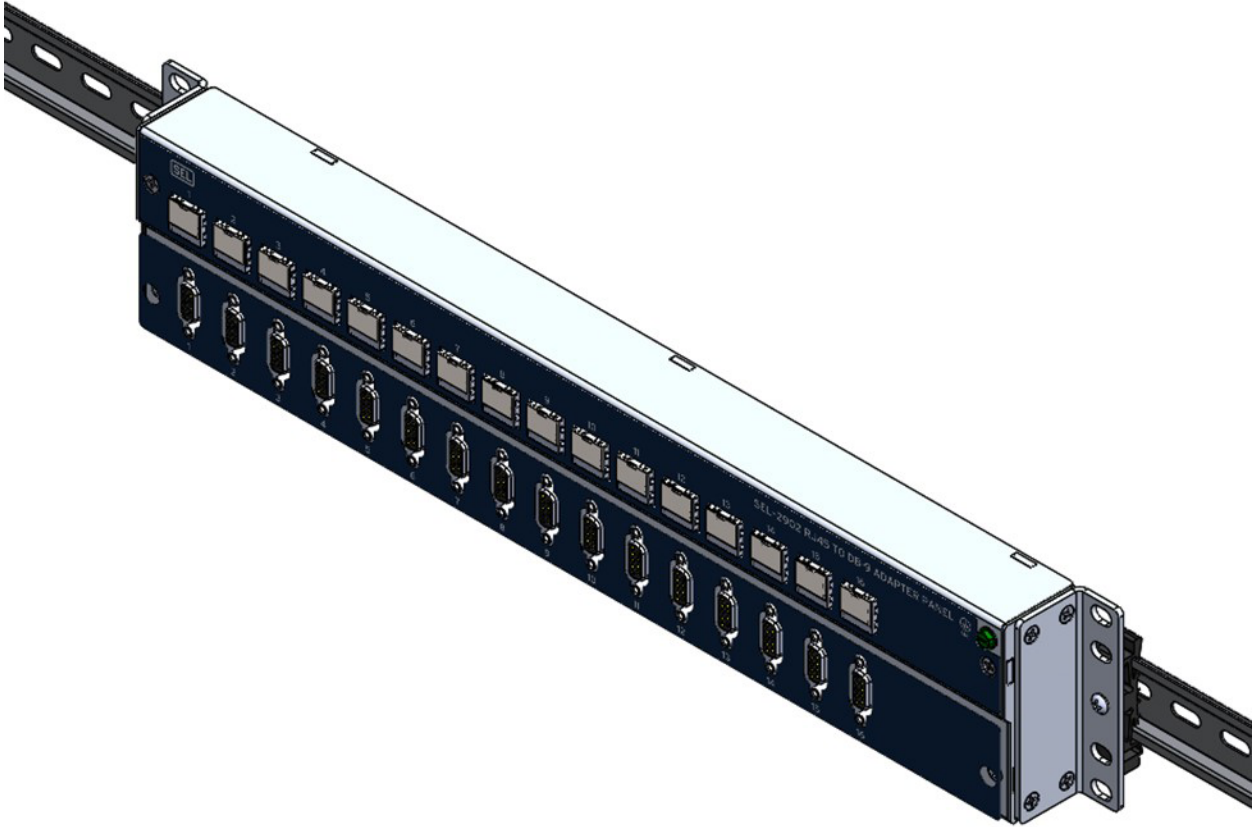


Figure 11 DIN-Rail Mounting Example

Cable Management

Each SEL-2902 that is configured with the adjustable-depth bracket is shipped with accessory mounting ears and hardware, as shown in *Figure 12*. The mounting ears can only be installed (torque screws to 12 in-lb) after the adapter panel has been installed. Use third-party cable management brackets compatible with 2U, 19 in rack-mount holes.

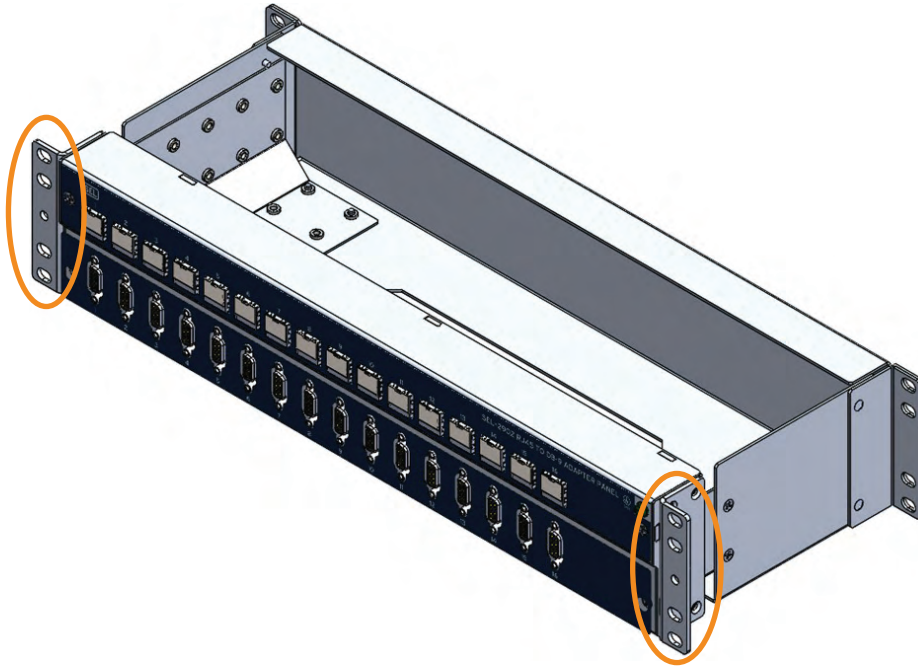
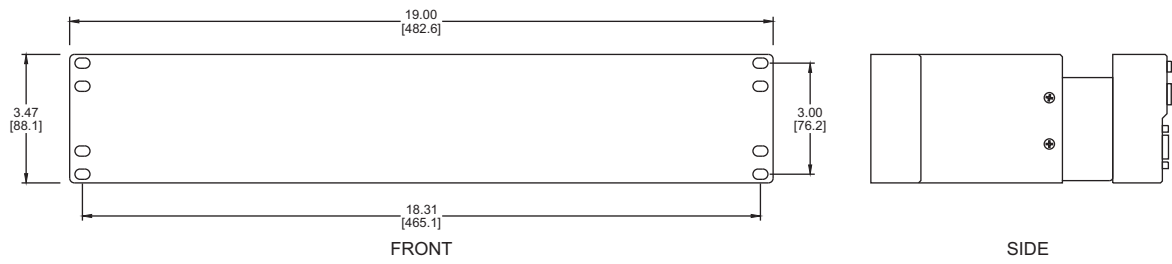
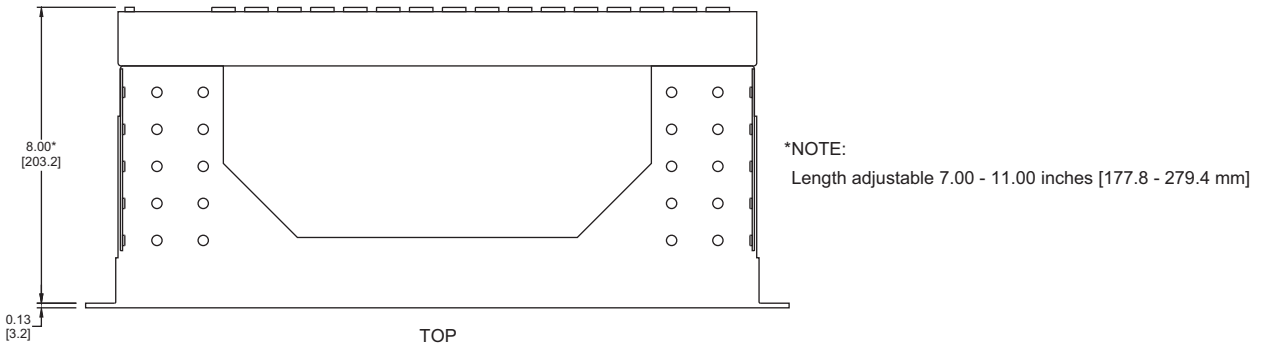


Figure 12 Installed Mounting Ears

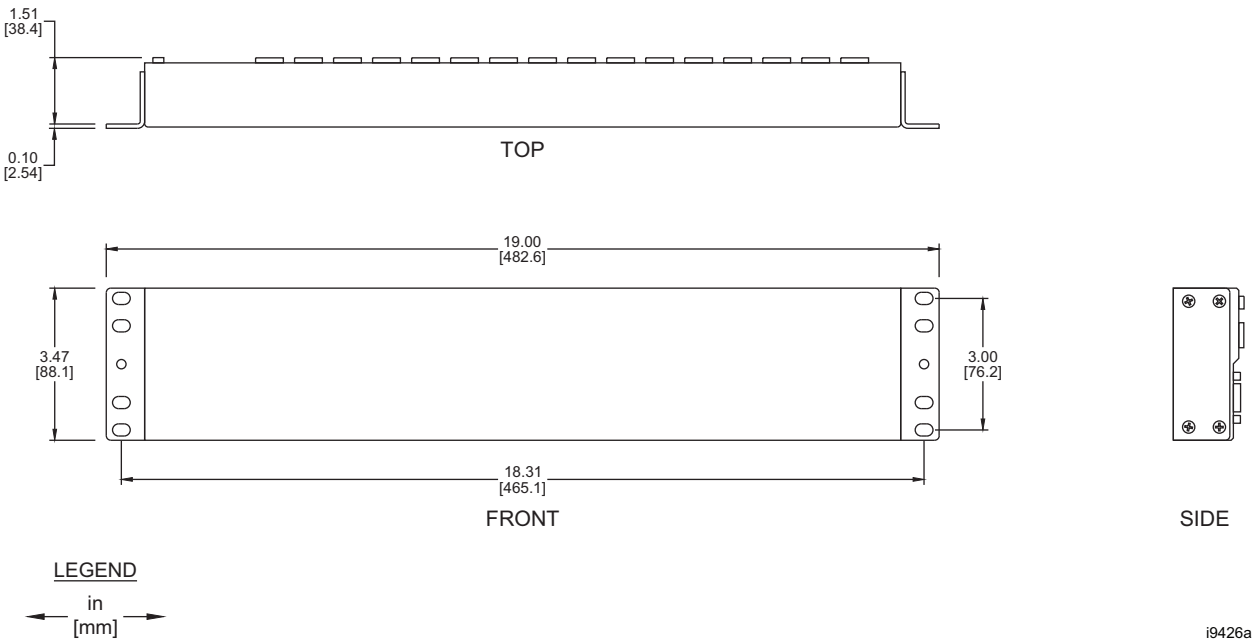
Dimensions



LEGEND
in
[mm]

i9427a

Figure 13 Adjustable Rack-Mount Adapter Panel



i9426a

Figure 14 Surface-Mount Adapter Panel

Specifications

Compliance

Designed and manufactured under an ISO 9001 certified quality management system
47 CFR 15B Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

UL Listed to U.S. and Canadian safety standards
(File E220228; NRAQ)

CE Mark
RoHS Compliant

General

Connectors:	Female DB-9, Shielded RJ45 Jack, Shielded
Power Requirements:	None
Dimensions:	See <i>Figure 13</i> and <i>Figure 14</i> .
Relative Humidity:	5 to 95% noncondensing
DB-9 Jack Screw Torque:	6 in-lb
Operating Temperature Range:	-40° to +85°C (-40° to +185°F)

Ground Screw (#6 Crimp Ring Terminal Is Recommended)

Warning: When using stranded wire, use crimp ferrules to safely capture all wire strands before assembling and attaching the plug or ground wire.

Insulation Ratings: 300 V, 90°C (194°F), minimum

Wire Material:	Copper
Size:	12–18 AWG (4.00–0.75 mm ²)
Length:	<3.0 m (<9.8 ft)
Tightening Torque Min/Max:	0.9–1.36 Nm (8–12 in-lb)

Mounting Brackets

Tightening Torque Min/Max: 2–4 Nm (18–35 in-lb)

Type Tests

To ensure protection-level EMI and EMC performance, type tests were performed using shielded serial cables with the shield grounded at both ends of the cable.

Electromagnetic Compatibility Immunity

Conducted RF Immunity:	IEC 60255-26:2013 EN 60255-26:2013 § 7.2.7 IEC 61850-3:2013 EN 61850-3:2014 EN 55011:2009+A1:2010 EN 55022:2010+AC:2011 EN 55032:2015 + A11:2020 CISPR 11:2009+A1:2010 CISPR 11:2015 + A1:2015 + A2:2019 CISPR 22:2008 Canada ICES-001 (A)/ NMB-001 (A) CISPR 32:2015 + A1:2019 ANSI C63.4:2014 CSA CISPR 11:19 ICES-001, Issue 5 47 CFR Part 15.107 47 CFR Part 15.109
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Other type tests and standards are inherited from the SEL-3350 Automation and Computing Platform and can be found in *Section 1: Introduction and Specifications* in the *SEL-3350 Instruction Manual*.

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

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Notes

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This product is covered by the standard SEL 10-year warranty. For warranty details, visit selinc.com or contact your customer service representative.

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