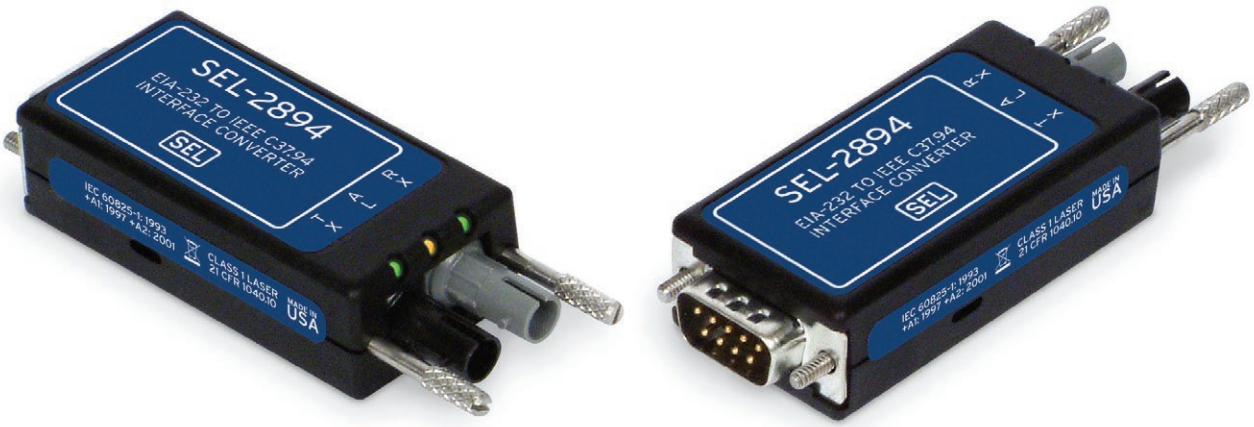
SEL-2894

Interface Converter



Improve safety and signal integrity with high-speed conversion to an optical interface

- IEEE C37.94 optical interface enables communications over distances up to 2 km.
- Low-latency data conversion in just 375 µs supports Mirrored Bits® communications.
- ST® connectors and multimode fiber-optic cable provide compatibility with IEEE C37.94 devices.
- Fiber-optic communications eliminate the effects of ground potential rise and electromagnetic interference (EMI).

Features

High-Speed Communications

Reduce latency. Each SEL-2894 Interface Converter adds only 200 µs of through delay, keeping latency to a minimum. The SEL-2894 works with EIA-232 signals from 300 bps to 19,200 bps.

Three Status Indicators

Verify the incoming (TX) and outgoing (RX) communications status via green LEDs. A yellow alarm LED indicates transmission problems.

Selectable Time Reference

Configure the internal clock for either external or internal IEEE C37.94 time reference with a side-mounted selector switch.

Easy Application

The transceiver receives power from the host device via the connector; no separate power supply or power wiring is needed.

Flexibility

Use the SEL-2894 with any EIA-232 device. The ST connectors accept multimode fiber-optic cables to connect to an IEEE C37.94 optical interface. The SEL-2894 works with SEL relays, other asynchronous EIA-232 devices, and IEEE C37.94-compliant devices.

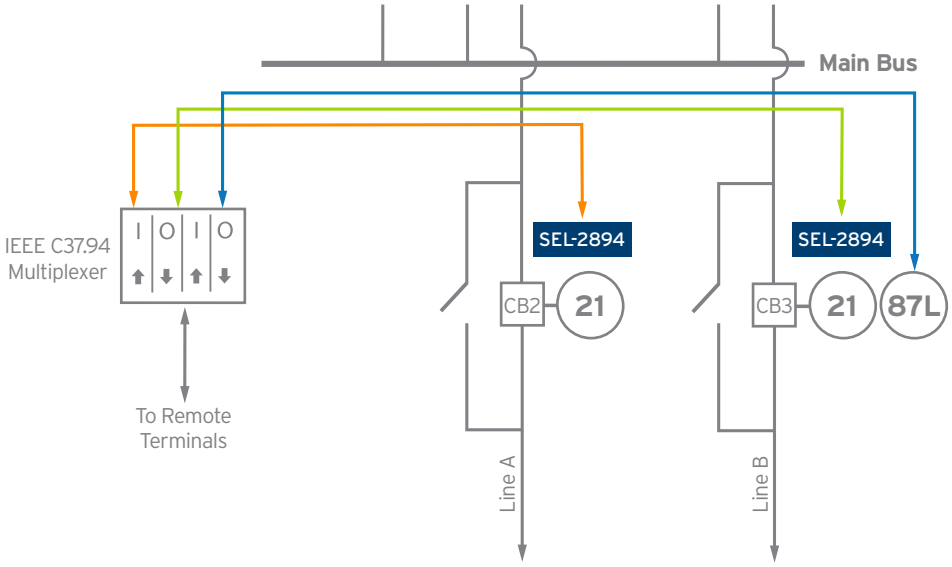
Applications

Fast Mirrored Bits Communications With Low Latency

Connect the SEL-2894 to any relay with Mirrored Bits communications. The SEL-2894 provides fast end-to-end data transport, making Mirrored Bits applications fast and seamless. The delay is less than 375 µs in back-to-back tests.

SEL-2126 Fiber-Optic Transfer Switch Compatibility

Connect the SEL-2894 fiber-optic interface directly to the SEL-2126 Fiber-Optic Transfer Switch to reroute Mirrored Bits communications links between relays with the EIA-232 electrical interface during bypass operations.

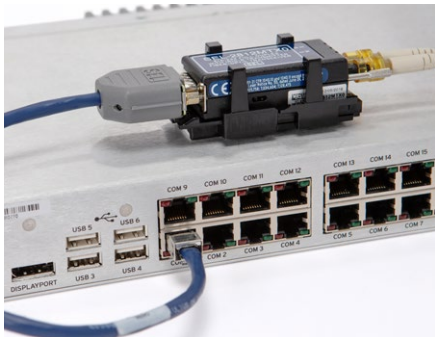


Fiber-optic communications isolate devices from ground-potential rise, EMI, and radio frequency interference (RFI).

Transceiver Mounting Options

Use an SEL Transceiver Mounting Kit and adapter cable when connecting the SEL-2894 to IEDs with an RJ-45 male serial connector or when the mounting depth is an issue (e.g., in switchgear applications). These kits provide a simple and secure way to remote-mount the transceiver away from the host connector:

- 915900573—Mounting Kit for SEL Transceiver; includes mount only
- 915900574—Mounting Kit for SEL Transceiver; includes mount and SEL-C478A cable (6 ft, DB-9 female to RJ-45 male)
- 915900575—Mounting Kit for SEL Transceiver; includes mount and SEL-C641 cable (6 ft, DB-9 female to DB-9 male)



SEL-2894 Specifications

General

Power Requirements

The SEL-2894 receives power* from the EIA-232 TXD data lines connected to Pin 3 and Pin 7 of the DB-9 connector. Additionally, the SEL-2894 accepts power applied to Pin 1.

Transmit Data Power Input	
Pin	Signal
3, 7	DCE

Other Power Input	
Pin/Input	Polarity and Voltage (Vdc)
1	+5 to +10

Data Link

Electrical Connection
Connector DB-9
Interface EIA-232 standard

Optical Connection
Connector 2 ST connectors
Interface IEEE C37.94 standard

Speed and Delay
Speed 300—19,200 bps (EIA-232)
Delay <200 µs

Laser Safety Standards

Class 1 laser product

USA
21 CFR 1040.10

Europe
EN 60825-1:2014 Class 1
EN 60825-2:2004 + A1:2007 + A2:2010

Fiber-Optic Link Budget

Optical Fiber	
Core Size	Optical Budget
50 µm	9.0 dB
62.5 µm	13.0 dB

Optical Source

850 nm VCSEL transmitter

Transmit Level
—23 to —11 dBm (50 µm multimode fiber)
—19 to —11 dBm (62.5 µm multimode fiber)

Fiber-Optic Receiver Sensitivity

—32 dBm

Distance

Up to 2 km

Operating Temperature

—40° to +85°C (—40° to +185°F)

*SEL-2894 Interface Converters built before May 2019 require power from Pin 1.

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