

# Improve Safety and Security of Teleprotection Links by Applying Optical Fiber



Use standard optical fiber between teleprotection equipment and multiplexers.

## **Features and Benefits**

## IEEE C37.94 Standard Conversion

Converts older electrical teleprotection interfaces to new optical standard. The SEL-3094 links devices with ITU-T G.703, EIA-422, EIA-485, or EIA-232 electrical interfaces to IEEE C37.94 fiber-optic devices.



## **Easy Application**

All settings are made with ten control switches. LEDs indicate the state of inputs, outputs, and the communications link.

## High Speed

Uses one 64 kbps time slot in a digital multiplexer.

## Improved Safety and Isolation

Fiber-optic connections provide isolation from dangerous ground potential rise, prevent induced electrical noise, and eliminate signal ground loops.

## **Universal Power**

Power supply operates from 18 to 300 Vdc and 85 to 264 Vac.

## Making Electric Power Safer, More Reliable, and More Economical®

# **Application Examples**

Convert most electrical links to IEEE C37.94 fiber-optic standard.



Link an IEEE C37.94 compliant relay (i.e., SEL-311L) to a noncompliant multiplexer.



Connect a relay using its electrical interface to an IEEE C37.94 compliant multiplexer or transfer switch (i.e., SEL-2126).



Use optical fiber between relays and multiplexers that have only electrical interfaces available.

## **General Specifications**

## Data Links

	Electrical Connection	
	Connector	DB-25
	Interface	ITU-T G.703, EIA-422, EIA-232, or EIA-485 standard
	Optical Connection	
	Connector	Two ST <sup>®</sup> connectors
	Interface	IEEE C37.94 standard
Speed and Delay		
	Speed	64 kbps: ITU-T G.703, EIA-422
		9.6 kbps: EIA-232 or EIA-485
	Delay	Less than 200 µs

## Laser Safety Standards

Class 1 laser product USA—21 CFR 1040.10 Europe—IEC 60825-1:1993 + A1:1997 + A2:2001

## Substation- and Plant-Grade Equipment

Designed, built, and tested with the same practices, processes, and standards that we use for our protective relays, communications processors, and other products.



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