SEL-3400

IRIG-B Distribution Module

Verify time signals, simplify cabling, and distribute precise time to 240 devices.

- 12 IRIG-B output ports synchronize time on 240 devices.
- 2 IRIG-B inputs provide time source redundancy and verification.
- Configurable cable delay compensation maintains high time synchronization accuracy to connected devices.
- Consolidated IRIG-B cabling simplifies installation and troubleshooting.

Note: Positive retention on all connections

Time-Synchronize Multiple Devices in the Substation

Precise time synchronization is essential in electrical substations for phasor measurement units (PMUs), information processors, digital fault recorders, protective relays, and other devices. Connect an SEL ICON® Integrated Communications Optical Network or SEL satellite-synchronized clock to the SEL-3400 IRIG-B Distribution Module for 12 additional demodulated IRIG-B outputs and for a visible time display in the substation.

Used in combination with an SEL ICON or SEL satellite-synchronized clock, the SEL-3400 enables synchrophasor control, relay event correlation, and time-stamped reporting with a broader collection of devices.

Time Distribution

The SEL-3400 has 12 demodulated IRIG-B outputs that can provide time synchronization to hundreds of devices and simplify cabling in equipment racks.

Time Display

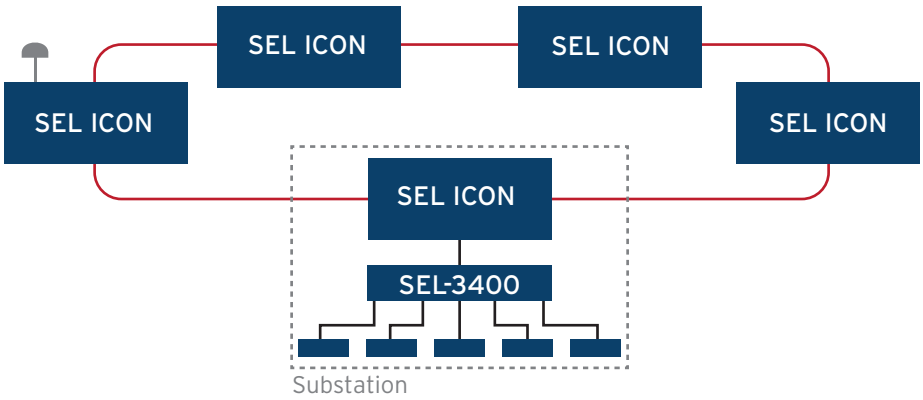
The LED time display makes the time or date easily visible in the substation in all lighting conditions.

Validate Time Sources

The SEL-3400 can receive two IRIG-B inputs. The time inputs can be configured for redundancy to maintain accurate time in the event of time source degradation or failure, or for verification of IRIG-B signals to provide a layer of protection from spoofing attacks on input sources.

Apply With an ICON Ring Network

The SEL ICON can distribute time over a wide-area network (WAN) with better than 1-microsecond accuracy, even in the event of a GPS failure. In a substation, the SEL-3400 is the perfect complement to an ICON because the SEL-3400 provides additional IRIG-B ports to synchronize many devices. Also, the SEL-3400 provides a visible time display in the substation.

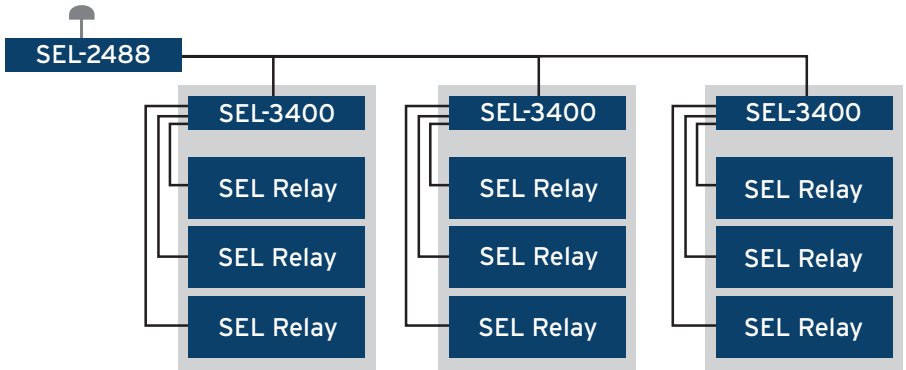


Increase Distance for IRIG-B Cabling

If you need to synchronize devices with demodulated IRIG-B, using an SEL-3400 can extend the distance between the clock and devices. This is very useful in large facilities where you want to avoid using multiple GPS clocks. The SEL-3400 is designed to compensate for its input-to-output latency. It can also be configured to compensate for the latencies of connected cabling.

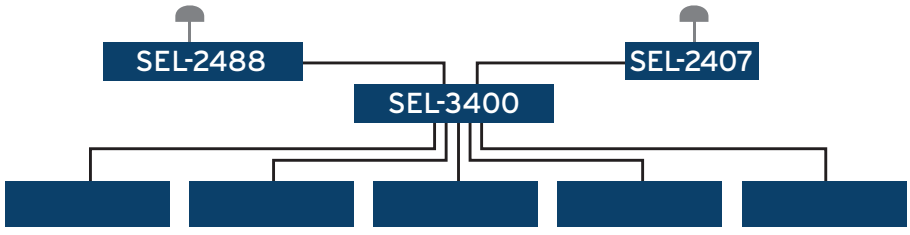
Simplify Cabling

Combine one SEL-2488 Satellite-Synchronized Network Clock with an SEL-3400 at the top of each equipment panel to simplify cabling. The outputs from the SEL-2488 can feed the SEL-3400 Modules, and each SEL-3400 can serve time to all of the devices in its panel. When setting up your configuration this way, you'll be able to look at the SEL-3400 status LEDs and easily see that all devices in that panel have precise time.



Increase Time Source Dependability

When two inputs are configured for redundancy, if the primary input is lost or its time quality is worse than the secondary input, the SEL-3400 switches to the secondary input and indicates the change via the alarm contact. When two inputs are configured for verification, the SEL-3400 will compare the time signals. If the signals match, the SEL-3400 will provide a valid IRIG-B output, but if there is a discrepancy in the signals, the IRIG-B output will report the failed time quality and trigger an alarm.



SEL-3400 Specifications

General

Ports	**Input Ports (2)** IRIG-B **Output Ports (12)** IRIG-B **IRIG-B Formats** B000, B002, B004
Time Accuracy	**Input-to-Output** ±50 ns
Power Supply	**Voltage Ratings** 24/48/125/250 Vdc 120/230 Vac, 50/60 Hz **Power Consumption** Less than 10 W
Operating Conditions	-40° to +85°C (-40° to +185°F) 0 to 95% noncondensing
Certifications	Exceeds IEEE C37.90, IEC 60255, and IEEE 1613 Class 1 Standards FCC Class A

SEL Making Electric Power Safer, More Reliable, and More Economical

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