Identify oscillatory conditions with preconfigured modal analysis.

Measure system phase angles, voltages, currents, and real/reactive power.

Improve system efficiency by minimizing loop flow, optimizing voltages, and balancing loads.

Control circuit breakers, static VAR controls (SVCs), generators, and other devices with wide-area-based algorithms.

Making Electric Power Safer, More Reliable, and More Economical®
Connect to C37.118-compliant PMUs and relays with serial or Ethernet communications.

Preconfigured Function Blocks
- Power Calculation
- Phase Angle Difference
- Modal Analysis
- Substation and State Topology

Complete IEC 61131-3 Programming Engine

Flexible IEC 61131 Programming for Easy Setup and Powerful Applications

Apply preconfigured function blocks and customized applications to meet any control needs. Subcycle processing produces SEL Fast Operate commands to send to any connected SEL device or PMU.
• Send combined and conditioned measurements from an entire station to the energy management system (EMS). Isolate bad data, and alert operators of input failures.

• Calculate state vectors for adjoining stations to provide built-in measurement redundancy.
The SEL-3378 Synchrophasor Vector Processor is rugged enough for substation installations. Long life is assured, with no moving parts and a relay-type power supply.

### General Specifications

**Operating Temperature**
-40° to +75°C (-40° to +167°F)

**Communications Ports**
- **Serial Ports**: 16
  - **Console Port**: EIA-232 with DB-9 connectors
  - **Data Speed**: 9600 bps
- **Ethernet Ports**: 2
  - **Ethernet Port 1**: 10/100BASE-T copper or 100BASE-FX fiber-optic
  - **Ethernet Port 2**: 100BASE-FX fiber-optic

**IRIG-B Ports**
- **Time-Code Input Connector**: Female BNC
- **Time Code**: Demodulated IRIG-B TTL compatible
- **Time-Code Output Connector**: 15 rear DB-9 port connectors
- **Time Code**: Demodulated IRIG-B TTL compatible

**Synchrophasor Data Format**
- **Input Data Formats**: IEEE C37.118-2005 Ethernet and Serial
- **Output Data Formats**: IEEE C37.118-2005 Ethernet

**Synchrophasor Input/Output Message Rates**
- **60 Hz Nominal Data Rate**: 1, 2, 4, 5, 10, 12, 15, 20, 30, and 60 messages per second
- **50 Hz Nominal Data Rate**: 1, 2, 5, 10, 25, and 50 messages per second

**Synchrophasor Data Ports**
- **Serial**: 15
- **Ethernet**: 2

**Synchrophasor Processing Capacity**
- **Processing Capacity**: Data from as many as 16 PMCs
- **Typical Message Size**: 158 bytes
- **Maximum Data Rate**: 60 messages per second

**Fast Operate Commands**
- **Remote Bits per External Device**: 32
- **Breaker Control Bits per External Device**: 8
- **Output**: Serial and Ethernet

**Power Supply**
- 125/250 Vdc or 120/230 Vac; 50/60 Hz
- 48/125 Vdc or 120 Vac; 50/60 Hz
- 24/48 Vdc