ATTACHMENT FOR SOURCES SOUGHT FOR SYSTEMS PROTECTION RELAYS AND RELATED SCADA EQUIPMENT, NAVFAC PACIFIC, PEARL HARBOR, HAWAII

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Product Code:
Code 59 – Electrical and Electronic Equipment Components

NAICS:

335314 Relays, electrical and electronic, manufacturing

1. SEL-351S
   a. Multi-function protective relay with IEEE standard device functions identified on the Relay Function Table.
   b. Circuit breaker control push-buttons and breaker position indication
   c. 10 field programmable operator push buttons
   d. Metering, Monitoring, Synchrophasor Measurements, Power Quality, and Fault Locator
   e. Mirrored Bits communications for bidirectional digital communication with other devices
   f. Connectable to local network using Ethernet interface
   g. Communications Protocols:
      - MirrorEd BitS Communications
      - IEEE C37.118 Synchrophasors
      - IEC 61850 GOOSE
      - IEC 61850 MMS
      - Modbus TCP
      - Modbus RTU
      - Telnet
      - DNP3 Serial
      - DNP3 IP
      - Web Server
      - SNTP
      - FTP
      - SEL Fast Messages
      - ASCII
      - IRIG-B
   h. Communications Media
      - 10/100BASE-T Ethernet
      - 100BASE-FX Ethernet
      - EIA-232 Serial
      - EIA-485 Serial
      - USB Type B
      - BNC
      - Fiber-Optic MM ST Serial Port

2. SEL 387A
    a. Multi-function protective relay with IEEE standard device functions identified on the Relay Function Table.
    b. Metering and monitoring
        - Current A, B, C, 3I1, 3I2, Residual Phase and sequence currents for each winding.
        - Demand Current A, B, C, 3I2, Residual Phase and sequence demand currents for each winding.
        - Peak Demand A, B, C, 3I2, Residual Phase and sequence peak demand currents for each winding.
        - Phasors A, B, C, 3I1, 3I2, Residual Phase and sequence current phasors for each winding (magnitudes and angles).
        - Differential Currents IOP, IRT, InF2, InF5 Operate, restraint, second-harmonic, and fifth-harmonic currents.
        - Harmonics A,B,C Phase currents–fundamental to the 15th harmonic–for each winding.
        - RTD Temperatures As many as 24 individual temperatures from two SEL-2600 RTD modules.
    c. Sequential events recorder
    d. Serial Communications - The SEL-387A is equipped with four independently operated serial ports: one EIA-232 port on the front and two EIA-232 ports and one EIA-485 port on the rear. The relay does not require special communications software. Use any system that emulates a standard terminal system. Establish communication by connecting computers, modems, protocol converters, printers, a communications processor, SCADA serial port, and/or RTU for local or remote communication.
    e. LCD Display with operator interface.
    f. Status and Trip Target LEDs.

3. SEL 501
    a. Dual Universal Overcurrent Relay - Features two three-phase, current-based relays in one complete package.
        - Protects feeders, buses, transformers, motors, breakers, and other apparatus.
        - Is easily set from the front panel or communications port.
        - Includes metering, self-testing, alarm, and event reporting.
        - Saves two full reports and twenty summaries in nonvolatile memory.
        - Makes redundant protection practical—ideal for stacked breaker switchgear.
        - Includes low-level test interface.
        - Supports ASCII, SEL LMD, Modbus®, and Square-D SY/MAX protocol.

    b. Operation, Metering, and Communications
        - Complete operation from front-panel controls or rear-panel serial port.
        - Full access to event history, relay status, and meter information.
        - Instantaneous, demand, and peak demand currents metered.
        - Settings and control have passcode protection.
        - One serial port for two relays cuts communications burden in half.

- Modbus RTU protocol supports direct integration, via appropriate gateways, into SCADA or DCS systems.

c. Event Reporting
   - Relay stores twelve reports: newest two are in nonvolatile memory
   - Reports have fifteen-cycle duration and quarter-cycle resolution.
   - Unique event headers for each application.

4. SEL 735
   a. High Precision Revenue Metering Guarantee: 0.06%, 0.02% typical.
   b. Capture every power quality disturbance with preconfigured logs and triggers.
   c. Compare power quality measurements across the system with IEC 61000-4-30 power quality compliance.
   d. Perform statistical calculations while reporting only critical information to save system bandwidth.
   e. Standardize on one revenue meter for generation, transmission, distribution, intertie, main entrance, and sub-meter applications.
   f. Deliver complete billing data to Itron® MV-90® software over any communications port.
   g. Integrate into virtually any system with copper or fiber-optic Ethernet, serial, multi-drop, infrared, or telephone modem communications.
   h. Simultaneously communicate with ten other devices using industry standard protocols.
   i. LCD display with operator interface pushbuttons and controls.
   j. Power quality metering including harmonics and high speed load profiles.
   k. Time-of-Use Metering
   l. Logging and recording
   m. Metering integration with communication integration and security as part of a complete station integration package.
   n. Test block integration

5. SEL 2600
   a. Measures and transmits data from remote equipment including up to 12 RTDs
   b. Operates with four tpes of RTD inputs, 100 ohm platinum, 100 ohm nickel, 120 ohm nickel and 10 ohm copper
   c. Fiber optic communications link
   d. Connectivity to SEL devices including SEL-387A, SEL 2032

6. SEL 2032
   a. Supports Synchro-phasors - Collect synchro-phasor data from select SEL-300 and SEL-400 series relays. Map phasor data values to traditional SCADA protocols, such as DNP3 or Modbus®, for integration into Energy Management Systems and State Estimation.
   b. Addresses SCADA, engineering access, local HMI, and time synchronization using a single star network connection to each device.
   c. Use Modbus or DNP3 to communicate to off-site SCADA masters. Send relay time-stamped SER (sequential events recorder) data to SCADA masters using DNP3. Use protocol converters for other protocols.

d. Protection from frequent operating system crashes and upgrades of PC-based systems.
e. Single-Point Engineering Access. Gain engineering access to station IEDs through a single serial port, modem, or high-speed network (using the SEL-2701) connection.
f. Supports Multiple Masters. Provide an optimized and scaled data set to each master increasing communication performance and efficiency and reducing burden on master devices.
g. Time-Stamped Data - Collect relay SER data using SEL Fast SER messages locally or forward to local host or SCADA master as DNP3 event data.
h. Station Automation - Combine and react to station and system conditions using logic processing and data manipulation.
i. Provides Ethernet UCA2 connectivity.
j. Provides Ethernet DNP3 Connectivity.
k. Auto-configuration - Use auto-configuration with SEL IEDs to automatically collect descriptions of available data, data messages, and control to automate database creation and simplify message settings.
l. Time Synchronization - Distributes incoming IRIG-B or sends IRIG-B based on internal clock.