SEL-2407 Satellite-Synchronized Clock Guideform Specification

The satellite-synchronized clock shall provide high-accuracy time in multiple formats. Self-checking functions shall be included. Specific requirements are as follows:

High Accuracy. IRIG-B demodulated outputs shall be within ±100 nanoseconds (average) and ±500 nanoseconds (maximum) of UTC time. Modulated output and serial port IRIG-B outputs shall be ±1 microsecond of UTC time.

Holdover Accuracy. The clock shall have an accuracy of ±0.08 ppm for 20 minutes (over the entire operating temperature range) while the clock is not locked to the GPS satellite reference.

Time Outputs. The clock shall have a minimum of one modulated IRIG-B output and six demodulated IRIG-B outputs programmable to IRIG-B, 1 PPS, or 1k PPS. Any of the demodulated time outputs can be programmed for UTC or local time. The clock shall provide IRIG-B connection capability as well as ASCII time output at one serial port. An optional fiber-optic serial port shall also be available.

IEEE Extended Control Functions. IRIG-B outputs shall be capable of adding the extended control functions specified by IEEE 1344 and IEEE C37.118.

Daylight Time. The clock shall have automatic daylight saving time advance/return with presets for North America and Europe, or custom DST setting capability.

Alarm Contact. The alarm contact shall be programmable to include loss-of-satellite lock, loss of power supply, and processor self-test failure. Alternately, the clock shall provide an output pulse per programmable period for testing or time synchronization.

Display. Front-panel LEDs shall display UTC or local day and time as well as clock operational status.

Settings. Settings shall be accomplished through easily accessible control (DIP) switches.

Software. No proprietary software shall be required to communicate with the clock. Standard PC-compatible terminal emulation programs, such as HyperTerminal®, shall be sufficient to establish communication, provide commands and settings, and download data.

Computer Clock Setting Software. The clock shall support the capability to provide date and time to a PC or computer via a communications link using accessory software.

Security. Password security shall be provided to control clock access. Security features shall include a 12-character password length, requiring old password entry before changing to a new password, never showing the password on communications ports, and providing a lockout for failed password-entry attempts.

Wide-Range Power Supply. The clock shall have a power supply with an operating range of 18 to 300 Vdc and 85 to 264 Vac.

Operating Temperature. The clock shall have an operating range of –40° to +80°C with rated accuracy.

Robust Hardware. The clock shall meet and be tested for EMI, RFI, shock, vibration, and environmental compliance per the IEEE C37.90, IEC 60255, IEC 61000, and IEC 60068 standards.

Safety. The clock shall be CE-compliance marked, meeting the IEC 61010 standard, and shall be UL listed and CSA certified. The optional fiber-optic serial port shall be certified to IEC 60825-1 and 21 CFR 1040.10 Class 1 Laser Product compliance.

Warranty. The clock shall have a minimum warranty period of 10 years.