SEL-3401 Digital Clock Instruction Manual

Features, Benefits, and Applications

The SEL-3401 Digital Clock displays the time or date in a large and easy-to-see form and is ideal for control rooms, military bases, substations, power plants, factories, and other industrial facilities. The SEL-3401 displays the time from an IRIG-B time source, such as the SEL-2401, SEL-2407, and SEL-2488 Satellite-Synchronized Clocks. When an IRIG-B input is unavailable, the SEL-3401 displays the time or date by using an internal, battery-backed clock that is accurate to 15 seconds per month.

The SEL-3401 Digital Clock provides the following features:

➤ **Visibility.** Bright; easy-to-read; red, green, or amber 76 mm (3 in) digits display time or date.

➤ **Accuracy.** Accepts demodulated IRIG-B time code from a GPS receiver/IRIG-B time source.

➤ **Reliability.** Synchronized internal, battery-backed clock keeps time if the IRIG-B source is lost.

➤ **Flexibility.** Displays time or date. Time displays in either 12- or 24-hour format.

➤ **Mounting and Distribution Options.** Connect multiple surface- or rack-mount display clocks to a single high-accuracy IRIG-B time source. Ideal for reducing labor and wiring connection costs.

Product Overview

Figure 1 and *Figure 2* provide a functional overview of the rack-mount SEL-3401. *Figure 3* shows the rear panel of the surface-mount SEL-3401.
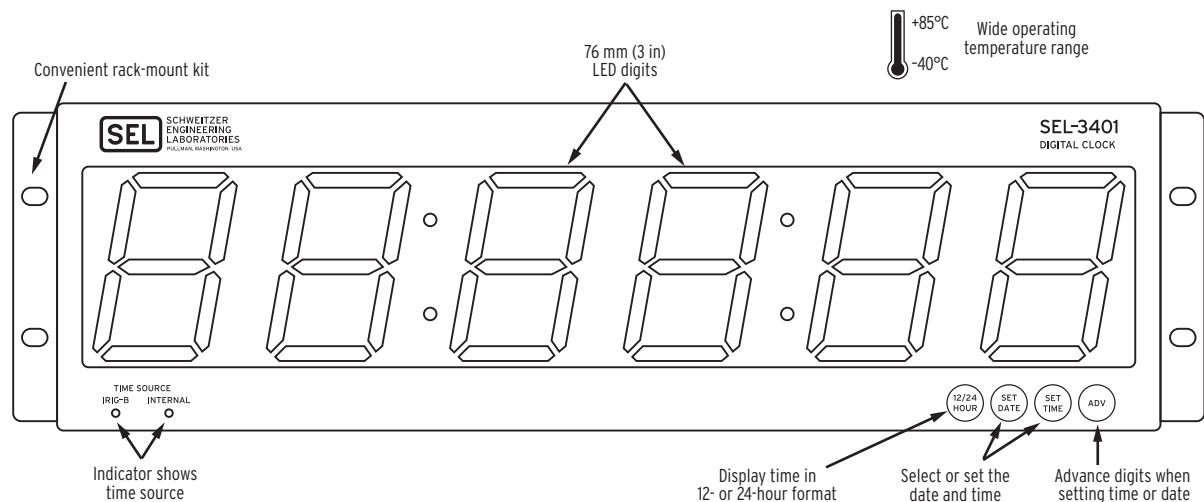

Figure 1   SEL-3401 Rack-Mount Front Panel
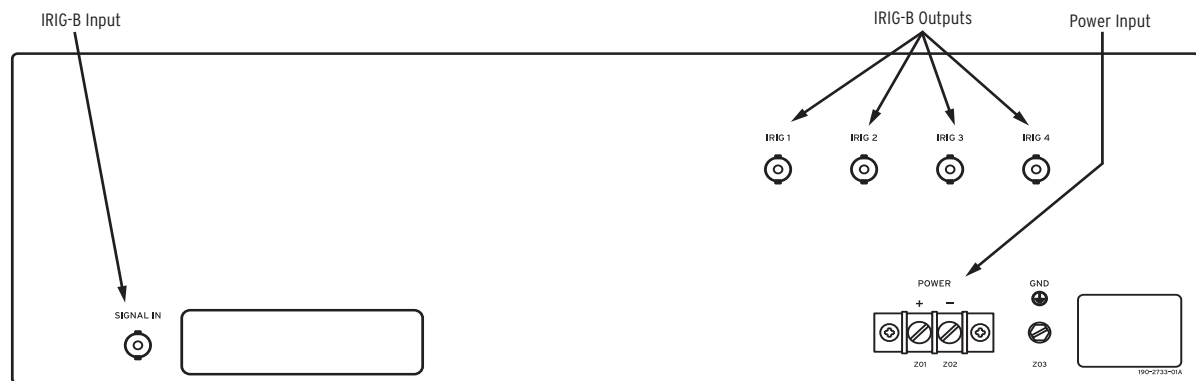

Figure 2   SEL-3401 Rack-Mount Rear Panel; BNC IRIG-B Outputs (Part Number 34011440XX)
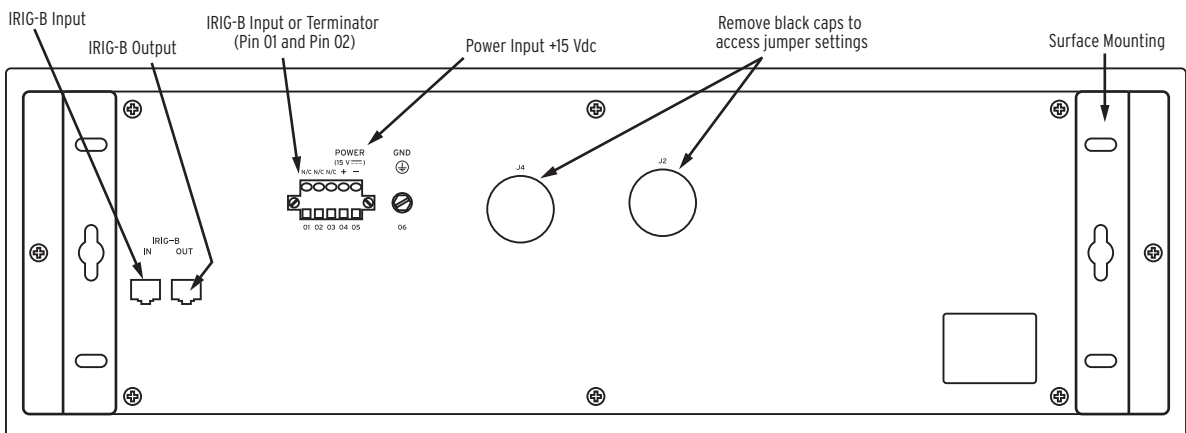

Figure 3   SEL-3401 Surface-Mount Rear Panel; RJ45 IRIG-B Output and RJ45/Terminals Input (Part Number 34010X10XX)

Accessories

Accessories enhance your SEL-3401 application. Relevant digital clock accessories are listed in *Table 1*.

Table 1   Digital Clock Accessories

SEL Part Number	Description
240-0056	+15 Vdc power supply, 100–240 Vac input[a]
SEL-C962	RG-58 cable with BNC connector to ferrules
240-1799	BNC tee, female, male, female (equipment mount)
240-1801	BNC tee, female, female, male (equipment mount)
240-1802	BNC tee, female, female, female (in-line cable, 3-way splice)
240-1800	BNC terminator, 50 Ω
915900036	Wire-lead terminator, 50 Ω
915900049	BNC female connector to RJ45
SEL-C953	BNC male-to-male cable

a. This power supply is not rated for use in industrial or substation locations.

Note: Purchase a Cat 5 cable with RJ45 male terminations locally.

Applications

The SEL-3401 Digital Clock has many uses in control rooms, military bases, substations, power plants, factories and other industrial facilities where you need accurate, easily viewed time. You can optimize various configurations of the clock for efficient and easy installation in your facility.

Time-code wiring for the Digital Clock can be RG-58A/U coaxial cables or Category 5 (Cat 5) with wires 7 and 8 connected (brown and white/brown).

Coaxial Cable

Figure 4 shows the SEL-C962 RG-58A/U coaxial cable time-code distribution into the base Digital Clock (with no IRIG-B output). Use the 915900036 50 Ω terminator for signal integrity. The terminator provides an impedance match from the high-output signal source (the SEL clock) along the characteristic impedance of the coaxial or Cat 5 cable, and is applied at the input of the Digital Clock.
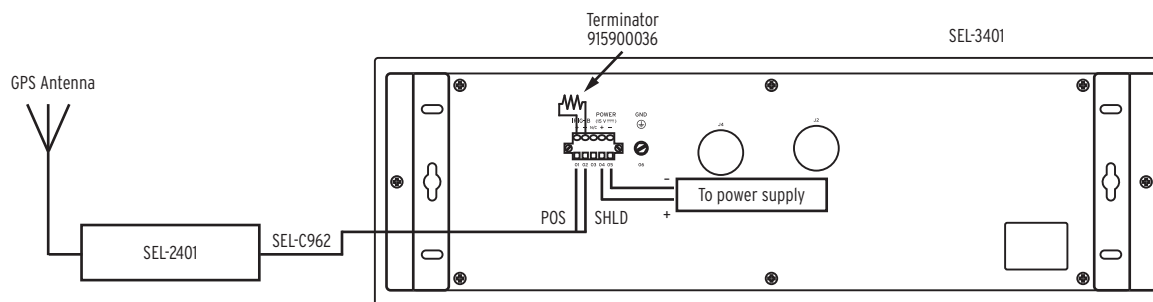

Figure 4   Single Clock With RG-58A/U Coaxial Cable Wiring (SEL-34010X00XX)

Cat 5

Similarly, you can connect the Digital Clock with Cat 5 cabling to an RJ45 panel-mounted jack in the SEL-34010X10XX version. Use the 915900049

BNC to RJ45 adapter, as shown in *Figure 5*. Again, the 915900036 50 Ω terminator is installed to properly terminate the input circuit.
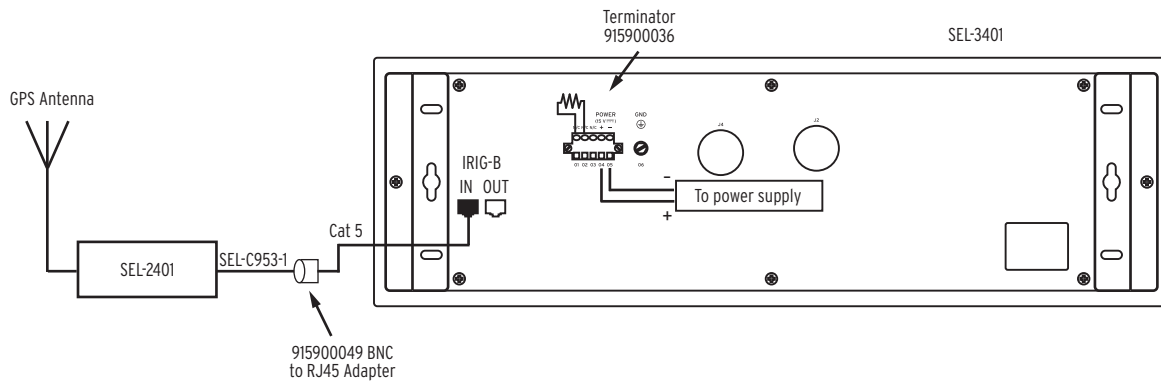

Figure 5   Single Clock With Cat 5 Wiring (SEL-3401OX1OXX)

Installation and Maintenance

Surface-Mount Installation

The following steps describe installing the SEL-3401 surface-mount chassis to a wall. See *Figure 8* for dimension drawings.

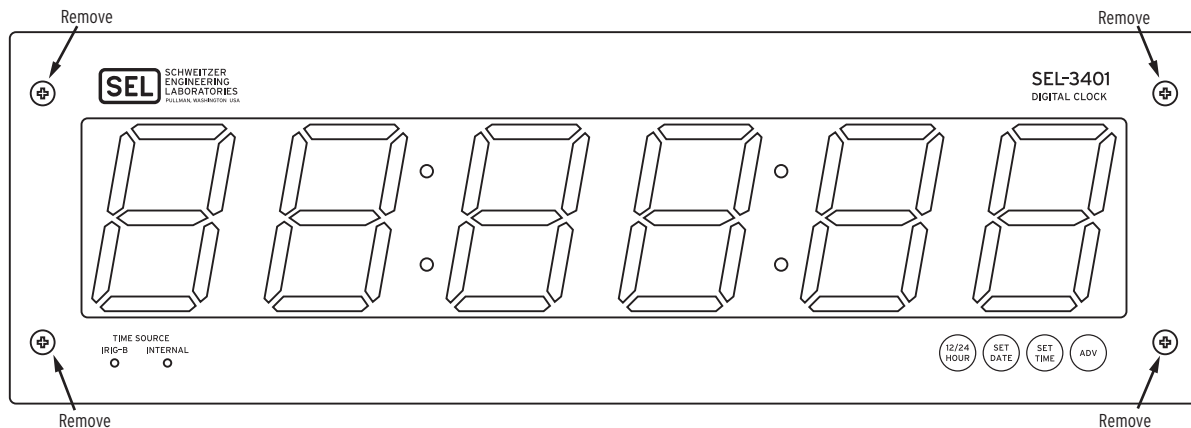Step 1.   Remove the four screws from the front panel, releasing the two surface-mount brackets.

Figure 6   Four Screws on the Front Panel Hold the Surface-Mount Brackets

When preparing to mount the SEL-3401, consider the routing of the power and IRIG-B cables.

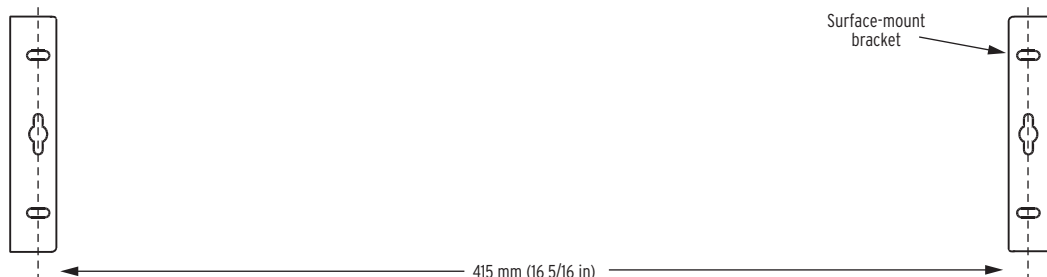Step 2.   Securely attach the surface-mount brackets in the selected location 415 mm (16 5/16 in) apart.

Figure 7   Surface-Mount Brackets Mounting Template

Step 3. Connect the power and IRIG-B cable (if used) to the rear of the SEL-3401.

Step 4. Install the SEL-3401 on the mounting brackets. There are guide pins to assist in alignment.

Step 5. Reinstall the four front-panel screws.

Rack-Mount Installation

The SEL-3401 is available in a rack-mount version that bolts easily into a standard 19-inch rack (see *Figure 9*). From the front of the clock, insert four rack screws (two on each side) through the holes on the relay mounting flanges.

IRIG-B Input

The SEL-3401 accepts a demodulated (also referred to as unmodulated) IRIG-B002 or IRIG-B000 input. The IRIG-B002 time-code format is a binary-coded decimal (BCD) time code (HH,MM,SS,DDD); this time-code format is "regular" IRIG-B. The IRIG-B000 time-code format consists of BCD time code (HH,MM,SS,DDD), plus straight binary seconds (SBS) of the day (0–86400 s). The IRIG-B000 time-code format also contains control functions that depend upon user applications.

Pressing and releasing the **SET TIME** pushbutton for less than 3 seconds displays the time. If an IRIG-B input is present, the IRIG-B time is displayed and the battery-backed clock time is automatically set. If an IRIG-B input is not present, the battery-backed clock time is displayed.

Pressing and releasing the **SET DATE** pushbutton for less than 3 seconds displays the month, day, and year from either the IRIG-B input or the battery-backed clock. If an IRIG-B000 input is present, the clock displays the month, day, and year from the IRIG-B000 signal and automatically sets the values in the battery-backed clock. The IRIG-B002 time code does not support the year, so the clock displays and automatically sets only the month and day in the battery-backed clock. With the IRIG-B002 input, the year displayed is undetermined. To accommodate this situation, you have the two following options using the Year-Source Selection jumper (J2). See *Table 3* for Year-Source Selection jumper recommendations.

➤ With the jumper installed, the SEL-3401 uses the year information supplied by the IRIG-B000 signal.

➤ With the jumper removed, the SEL-3401 uses the year stored in the battery-backed clock.

IRIG-B Output

The IRIG-B output provides demodulated IRIG-B on Pins 7(+) and 8(-) of the RJ45 IRIG-B OUT connector or on the four BNC outputs on the horizontal rack-mount option. If an IRIG-B000 or IRIG-B002 input is present, the IRIG-B input signal is passed to IRIG-B output with minimal delay. When no IRIG-B input signal is present, the SEL-3401 derives the IRIG-B output signal from the internal battery-backed clock, and the Year-Source Selection jumper (J2) determines the time-code format (IRIG-B000 or IRIG-B002). See *Table 3* for Year-Source Selection jumper settings.

Power Connections

The surface-mount SEL-3401 requires +15 Vdc ±10% to operate properly. Do not use a voltage higher than 16.5 Vdc or you will damage the equipment. Use an external fuse holder in the positive (+) lead with a slow-blow fuse rated for 1.50 A.

The dc power source must be connected with the proper polarity, as indicated by the (**+**) and (**−**) symbols on the SEL-3401. Positive (**+**) polarity on the SEL power supply, part number 240-0056, is indicated by white insulation.

The rack-mount SEL-3401 comes with a 125/250 Vdc or Vac power supply. Control power passes through these terminals to a fuse and to the switching

power supply. The control power circuitry is isolated from the clock chassis ground. Refer to *Specifications on page 12* for power supply ratings. The power supply rating is listed on the serial number sticker on the rear panel.

Compression Terminal Connectors

Terminate connections to the SEL-3401 compression terminal by stripping 8.0 mm (0.31 in) of the wire insulation. Tightening torque for the terminal connector screws is 0.79 Nm (7 in-lb).

Indicators

The SEL-3401 has two status indicator LEDs. *Table 2* describes the operation of the LEDs.

Table 2   Status Indicators LEDs

Label	Color	Description
IRIG-B	Green	The SEL-3401 is receiving and displaying an IRIG-B signal.
IRIG-B	Green/Flashing	The SEL-3401 is receiving an IRIG-B signal of poor quality.
INTERNAL	Green	The SEL-3401 is *not* receiving an IRIG-B signal and is displaying the time stored in the internal battery-backed clock.

Cleaning

Use care when cleaning the SEL-3401. Perform the following steps:

Step 1. Remove power from the SEL-3401 before cleaning the rear-panel area.

Step 2. Use a mild soap or detergent solution and a damp cloth to clean the chassis.

Be careful cleaning the front panel because a permanent plastic sheet covers the panel.

Do not use abrasive materials, polishing compounds, or harsh chemical solvents (such as xylene or acetone) on any surface.

Settings

All time and date settings for the SEL-3401 are performed through the front-panel pushbuttons. The pushbuttons are shown in *Figure 1*. The pushbuttons have the following functions.

12/24 HOUR

Pressing the 12/24 HOUR pushbutton toggles the clock display between 12- and 24-hour time. For instance, if the time is 11:30:00 p.m., pressing the 12/24 HOUR pushbutton toggles between 23:30:00 and 11:30:00.

Pressing the 12/24 HOUR pushbutton for longer than three seconds displays the SEL-3401 firmware identification (FID) number. Release the pushbutton to return to the normal display. For details, see *Determining the Firmware Version on page 13*.

SET DATE

Pressing the SET DATE pushbutton for less than three seconds displays the present date. When displaying the date, the clock does not light the colon separators.

Pressing the **SET DATE** pushbutton for more than three seconds enters the date-set mode. In the date-set mode, the most significant digit of the year flashes first, indicating that the value may be changed. The year, month, and day are set in that order. You can change the value of the flashing LED by pressing the **ADV** pushbutton. Pressing the **SET DATE** pushbutton again sets the flashing LED and advances to the next digit. To advance past the flashing digit, press the **SET DATE** pushbutton. Continue this process until the correct date is set. When the last seven-segment LED is set, the SEL-3401 returns to normal operation and stores the date in the battery-backed clock.

SET TIME

Pressing the **SET TIME** pushbutton for less than three seconds causes the clock to display the present time and illuminates the colons used to separate hours/minutes and minutes/seconds.

Pressing the **SET TIME** pushbutton for more than three seconds enters the time-set mode. In time-set mode, the most significant digit hour LED begins to flash, indicating that the value may be changed. The hour, minutes, and seconds are set in that order. You can change the value of the flashing LED by pressing the **ADV** pushbutton. Pressing the **SET TIME** pushbutton again sets the flashing LED value and advances to the next digit. To advance past the flashing digit, press the **SET TIME** pushbutton. Continue this process until the correct time is set. When the last seven-segment LED is set, the SEL-3401 returns to normal operation and stores the time in the battery-backed clock.

ADV

Pressing the **ADV** pushbutton, while in time-set and date-set modes, increments the value indicated for the flashing digits. Pressing the **ADV** pushbutton for more than three seconds when not in a setting mode begins the LED self-test. See *Self-Test on page 9* for details.

Accessing Jumpers

The SEL-3401 has two sets of jumpers (labeled **J2** and **J4**) to set the clock. Jumper J2 consists of one row of eight pins displayed in *Table 3*. Jumper J4 consists of two rows of four pins displayed in *Table 4*. There is one way to access these jumpers depending on the mounting option.

Surface Mount

To access the jumpers on the surface-mount SEL-3401, remove the two plastic caps on the back of the digital clock, as seen in *Figure 3*.

Rack Mount

To access the jumpers on the rack-mount SEL-3401, remove the top panel plate. The jumpers are located on the back of the circuit board.
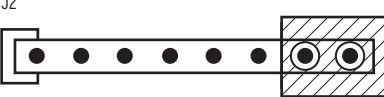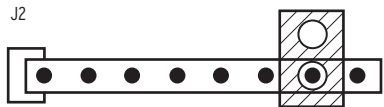
Year-Source Selection

Use the Year-Source Selection jumper (J2) to select the year source, either from the IRIG-B source or the internal battery-backed clock (see *Table 3*).

The SEL-3401 is shipped from the factory with the Year-Source Selection jumper (J2) installed, which displays the year from the IRIG-B time-code information.

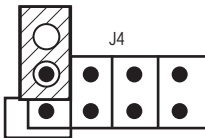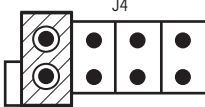**Table 3   Year-Source Selection Jumper (J2) Recommendations**

Year-Source Selection	Jumper Position
Jumper Installed (Default) Displays the year from the IRIG-B time-code information. Use with IRIG-B000 time source, which includes year information. IRIG-B output format is IRIG-B000 when no IRIG-B input is present.	
Jumper Removed Displays the year stored in the internal battery-backed clock. Use with IRIG-B002 time source, which does not include year information. IRIG-B output format is IRIG-B002 when no IRIG-B input is present.	

Front-Panel LED Dimming

Use the dimming jumper to reduce the brightness of the front-panel display. The SEL-3401 is shipped from the factory with front-panel dimming disabled.
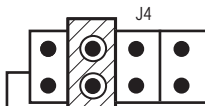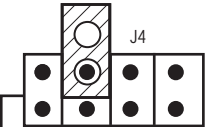
Table 4   Front-Panel Dimming Jumper (J4) Positioning

Dimming Front Panel	Jumper Position
Jumper Removed (Default) The clock displays brighter with no jumper across Pin 1 and Pin 2. This is the default for shipment.	
Jumper Installed Installing the dimmer jumper across Pin 1 and Pin 2 reduces the brightness of the front-panel display.	

IRIG-B Output

Use the IRIG-B jumper to control when the SEL-3401 outputs IRIG-B if it has a locked signal (see *Table 5*). This is only available on an SEL-3401 ordered with IRIG-B outputs.

The SEL-3401 is shipped from the factory with the IRIG-B output jumper enabled. In this mode, the SEL-3401 will only output IRIG-B if the external IRIG-B signal is present and healthy. When the SEL-3401 loses the IRIG-B signal and switches to the internal clock, it will disable the IRIG-B outputs. If the jumper is removed, the SEL-3401 will always output IRIG-B regardless of the IRIG-B source.

Table 5   IRIG-B Output Jumper (J4) Positioning

IRIG-B Output	Jumper Position
Jumper Installed (Default) Installing a jumper across Pin 3 and Pin 4 disables all IRIG-B output signals if the SEL-3401 loses the external IRIG-B signal and is running on the internal clock.	
Jumper Removed With no jumper on J4 across Pin 3 and Pin 4, the SEL-3401 will always output an IRIG-B signal, whether it has a locked input source or is running on its internal clock. In this mode, the IRIG-B output format will be based on the Year-Source Selection jumper.	

Testing and Troubleshooting

Self-Test

The SEL-3401 has a display self-test that is activated by pressing the **ADV** pushbutton for more than 3 seconds. When in display-test mode, each LED position counts from 0 to 9, illuminating the appropriate segments. After the last display test, the SEL-3401 returns to normal operation.

While in display-test mode, pressing the **ADV** pushbutton ends the test and restores normal operation.

Battery Replacement

⚠CAUTION

There is danger of explosion if the battery is incorrectly replaced. Replace only with Rayovac no. BR2335 or equivalent recommended by manufacturer. See Owner's Manual for safety instructions. The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C, or incinerate. Dispose of used batteries according to the manufacturer's instructions. Keep battery out of reach of children.

A battery maintains the time if external power is lost or removed. The battery is a 3-V Lithium-Carbon Monofluoride coin cell, IEC No. BR2335 or equivalent. At room temperature (25°C), the battery lasts for at least two years if there is no other power to the SEL-3401. The battery cannot be recharged.

To change the battery, perform the following steps:

Step 1. Remove the power (and the IRIG-B signal, if applied) from the SEL-3401.

Step 2. **Surface mount**: Remove the rear-panel screws and rear panel.

Rack mount: Remove the top-panel screws and top panel.

Step 3. Locate the battery in the middle of the circuit board.

Step 4. Remove the battery from beneath the clip and install a new one being careful not to deform the clip.

The positive side (**+**) of the battery faces up.

Step 5. Replace the rear/top-panel and rear/top-panel screws and tighten securely.

Step 6. Apply power to the SEL-3401. If an IRIG-B signal is not connected to the SEL-3401, set the date and time by using the **SET DATE** and **SET TIME** pushbuttons (see *Settings on page 6* for details).

Troubleshooting Procedure

Troubleshooting procedures for common problems are listed in *Table 6*. The table lists each symptom, possible causes, and corresponding solutions.

Table 6   Troubleshooting Procedures

Symptom	Possible Cause/Solution
Digital clock will not light.	Check the power to ensure 15 Vdc or 125/250 Vdc or Vac is applied and the power is connected in the correct polarity.
IRIG-B LED will not light.	Check that a valid demodulated IRIG-B000 or IRIG-B002 is connected to the SEL-3401 and the IRIG-B source is connected in the correct polarity.
Digital clock loses time when power is cycled.	Check the 3-V coin cell battery, and replace if needed. See *Battery Replacement on page 9*.
Year does not display correctly.	See *IRIG-B Input on page 5* for year-display discussion.
Display stops updating.	This condition occurs when the IRIG-B input is being driven by a noncompliant demodulated IRIG-B signal (e.g., modulated IRIG-B, 1k PPS signal, etc.). Confirm that a demodulated IRIG-B signal is applied to the IRIG-B input.

Mechanical Diagrams
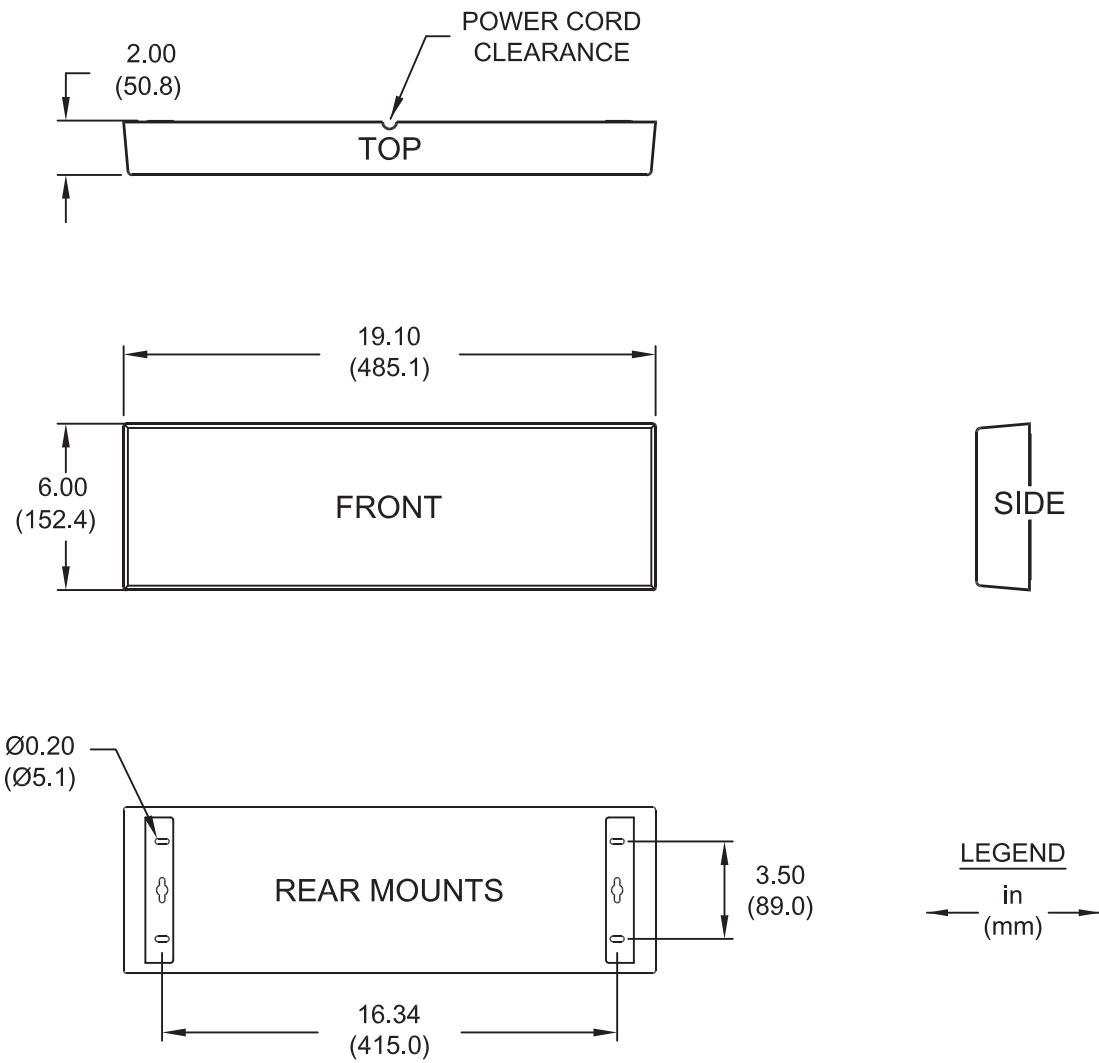
SURFACE-MOUNT CHASSIS

POWER CORD
CLEARANCE

2.00
(50.8)

TOP

19.10
(485.1)

6.00
(152.4)

FRONT

SIDE

Ø0.20
(Ø5.1)

REAR MOUNTS

3.50
(89.0)

LEGEND

in
(mm)

16.34
(415.0)

Figure 8   Surface-Mount SEL-3401 Dimension Drawing

RACK-MOUNT CHASSIS

8.93
(226.7)

TOP

0.20
(5.1)

19.00
(482.6)

5.22
(132.6)

FRONT

2.25
(57.2)

18.31
(465.1)
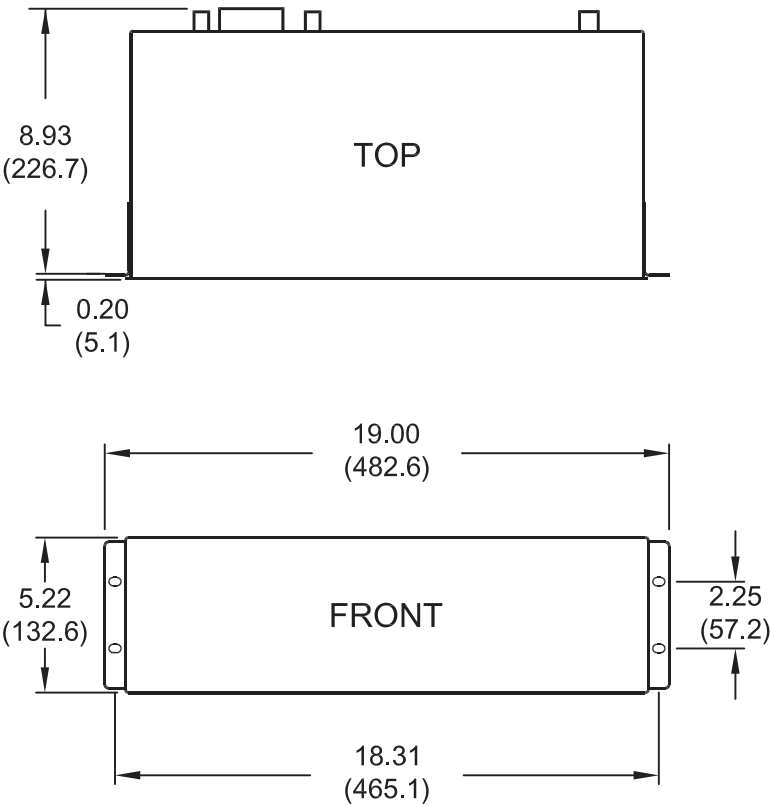
LEGEND

in
(mm)

i9114a

Figure 9   Rack-Mount SEL-3401 Dimension Drawing

Specifications

Compliance

Designed and manufactured under an ISO 9001 certified quality management system

47 CFR 15B, Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may be likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by the manufacturer can void the user's authority to operate the equipment.

Power Input

Surface-Mount Version

Voltage:	15 Vdc
Burden:	8 W

Use UL/CSA-approved power source.

Rack-Mount Version

Voltage:	125/250 Vdc or Vac
Range:	75–250 Vdc or Vac
Burden:	<10 W

IRIG-B Time Input

Demodulated IRIG-B000 or IRIG-B002

Input Impedance: 1.33 kΩ (units manufactured before September 2011 were 332 Ω)

IRIG-B Output Drive Level

(SEL-34010X10XX Only)

Demodulated IRIG-B000 and IRIG-B002, TTL: 120 mA, 3.5 Vdc, 25 Ω

Internal Clock Accuracy

±15 seconds per month when power is present

±5 minutes per month when power is not present

Display

Digit Height:	76 mm (3 in)
Color Order Options:	Red, Green, Amber
Time Display Format:	Hour:Minutes:Seconds (HH:MM:SS)
Date Display Format:	Month:Day:Year (MM:DD:YY)

Settings

Date and Time can only be stored when an external IRIG-B time source is unavailable.

Indicators

IRIG-B or internal clock time source

Operating Temperature Range

–40° to +80°C (–40° to +176°F)

Humidity

0% to 95% without condensation

Altitude

2000 m (6562 ft)

Unit Weight

2.0 kg (4.4 lb)

Dimensions

Surface-Mount Version

Height:	152.4 mm (6.00 in)
Depth:	50.8 mm (2.00 in)
Width:	485.1 mm (19.10 in)

Rack-Mount Version

Height:	132.6 mm (5.22 in)
Depth:	226.7 mm (8.93 in)
Width:	482.6 mm (19.00 in)

Type Tests

Electromagnetic Compatibility Emissions

IEC 60255-25:2000
CISPR 11:2009 + A1:2010
CISPR 22:2008
Canada ICES-001 (A) / NMB-001 (A)
47 CFR Part 15.107 and 109
Severity Level: Class A

Electromagnetic Compatibility Immunity

Conducted RF Immunity:	IEC 61000-4-6:2006 IEC 60255-22-6:2001 Severity: 10 Vrms
Electrostatic Discharge Immunity:	IEC 60255-22-2:2008 IEC 61000-4-2:2001 IEEE C37.90.3-2001 Severity: 2, 4, 6, 8 kV contact discharge; 2, 4, 8, 15 kV air discharge
Radiated Radio Frequency Immunity:	IEC 60255-22-3:2000 IEC 61000-4-3:2006 Severity: 10 V/m IEEE C37.90.2-2004 Severity: 35 V/m

Environmental

Cold:	IEC 60068-2-1:1990 + A1:1993 + A2:1994 Test Ad: 16 hrs @ –40°C
Dry Heat:	IEC 60068-2-2:1974 + A1:1993 + A2:1994 Test Bd: 16 hrs @ +85°C
Damp Heat Cyclic:	IEC 60068-2-30:2005 Test Db: 95% relative humidity, 25° to 55°C, 6 cycles (12 + 12 hour cycle)
Vibration Resistance:	IEC 60255-21-1:1988 Endurance Severity: Class 1 Response Severity: Class 2
Shock Resistance:	IEC 60255-21-2:1988 Bump Test Severity: Class 1 Shock Withstand Severity: Class 1 Shock Response Severity: Class 2
Seismic (Quake Response):	IEC 60255-21-3:1993 Severity: Class 2
Object Penetration and Dust Ingress:	IEC 60529:2001 + CDRG:2003 Severity: IP30 from front of equipment; IP30 from rear of equipment excluding the terminal blocks

Firmware and Manual Versions

Determining the Firmware Version

To find the firmware revision number in your Digital Clock, press and hold the **12/24 HOUR** pushbutton for longer than three seconds. The SEL-3401 displays the FID number on the six, seven-segment LEDs until the pushbutton is released.

The firmware release date is after the "R."

For example:

R06013

is firmware release date of the 13th day of 2006.

Table 7 lists the firmware versions, a description of modifications, and the instruction manual date code that corresponds to firmware versions. The most recent firmware version is listed first.

Table 7   Firmware Revision History

Firmware Identification (FID) Number	Summary of Revisions	Manual Date Code
R07018	➤Added rack-mount option with 125/250 Vdc or Vac power supply. ➤Added dimming jumper for front-panel display. ➤Added IRIG-B output jumper to disable IRIG-B outputs if the digital clock loses external synchronization lock.	20070529
R06013	Initial version.	20060113

Determining the Manual Version

The date code at the bottom of each page of this manual reflects the creation or revision date.

Table 8 lists the instruction manual release dates and a description of modifications. The most recent instruction manual revisions are listed at the top.

Table 8   Manual Revision History

Revision Date	Summary of Revisions
20210715	➤Updated *Specifications*.
20190731	➤Updated *Table 1: Digital Clock Accessories*. ➤Updated *Specifications*. ➤Updated *Technical Support*.
20110801	➤Added amber display option to *Features, Benefits, and Applications*. ➤Added amber display option to *Specifications*.
20110422	➤Added reference to green and red display options in *Features, Benefits, and Applications*. ➤Added Display information in *Specifications*.
20091120	➤Updated *Specifications*.
20090508	➤Updated/added time accessory products.
20070529	➤Added *Accessing Jumpers* section. ➤Added *Front-Panel LED Dimming* and *IRIG-B Output* sections. ➤Removed extra information on installing multiple clocks. ➤Added rack-mount information in *Specifications*.
20060601	➤Added *Applications* section. ➤Added material on single IRIG-B output version.
20060113	Initial version.

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

Schweitzer Engineering Laboratories, Inc.
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Notes

⚠CAUTION

There is danger of explosion if the battery is incorrectly replaced. Replace only with Rayovac no. BR2335 or equivalent recommended by manufacturer. See Owner's Manual for safety instructions. The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C, or incinerate. Dispose of used batteries according to the manufacturer's instructions. Keep battery out of reach of children.

⚠CAUTION

Equipment components are sensitive to electrostatic discharge (ESD). Undetectable permanent damage can result if you do not use proper ESD procedures. Ground yourself, your work surface, and this equipment before removing any cover from this equipment. If your facility is not equipped to work with these components, contact SEL about returning this device and related SEL equipment for service.

⚠CAUTION

Use of controls or adjustments, or performance of procedures other than those specified herein, may result in hazardous radiation exposure.

⚠CAUTION

Applying a voltage higher than 16.5 Vdc will damage the equipment.

⚠WARNING

Operator safety may be impaired if the device is used in a manner not specified by SEL.

⚠DANGER

Contact with instrument terminals can cause electrical shock that can result in injury or death.

⚠ATTENTION

Une pile remplacée incorrectement pose des risques d'explosion. Remplacez seulement avec un Rayovac no BR2335 ou un produit équivalent recommandé par le fabricant. Voir le guide d'utilisateur pour les instructions de sécurité. La pile utilisée dans cet appareil peut présenter un risque d'incendie ou de brûlure chimique si vous en faites mauvais usage. Ne pas recharger, démonter, chauffer à plus de 100°C ou incinérer. Éliminez les vieilles piles suivant les instructions du fabricant. Gardez la pile hors de la portée des enfants.

⚠ATTENTION

Les composants de cet équipement sont sensibles aux décharges électrostatiques (DES). Des dommages permanents non-décelables peuvent résulter de l'absence de précautions contre les DES. Raccordez-vous correctement à la terre, ainsi que la surface de travail et l'appareil avant d'en retirer un panneau. Si vous n'êtes pas équipés pour travailler avec ce type de composants, contacter SEL afin de retourner l'appareil pour un service en usine.

⚠ATTENTION

L'utilisation de commandes ou de réglages, ou l'application de tests de fonctionnement différents de ceux décrits ci-après peuvent entraîner l'exposition à des radiations dangereuses.

⚠ATTENTION

L'application d'une tension supérieure à 16.5 VCC causera des dommages à l'équipement.

⚠AVERTISSEMENT

La sécurité de l'opérateur peut être compromise si l'appareil est utilisé d'une façon non indiquée par SEL.

⚠DANGER

Tout contact avec les bornes de raccordement de l'appareil peut causer un choc électrique pouvant entraîner des blessures ou la mort.

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