Littelfuse STARTCO

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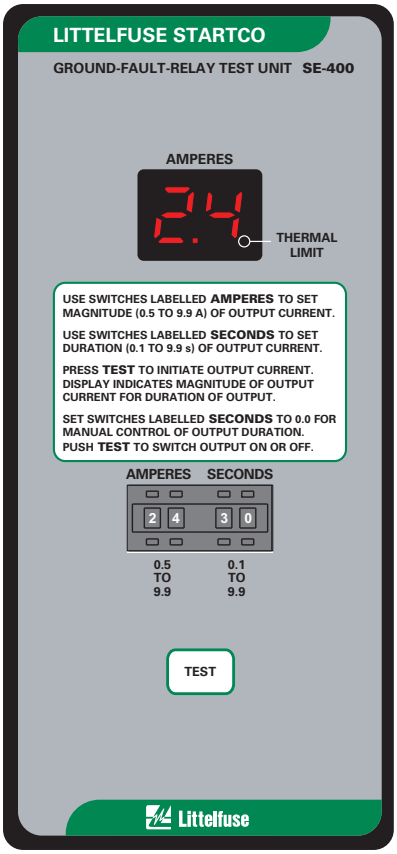
SE-400 MANUAL

GROUND-FAULT-RELAY TEST UNIT

Revision 1-A-072115



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DISCLAIMER

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1. GENERAL

The SE-400 is an ac current source with a programmable output. The magnitude and duration of the output can be selected with front-panel switches so that ground-fault-relay coordination can be confirmed at the push of a button.

The current output is transformer isolated from supply voltage.

2. OPERATION

2.1 FRONT-PANEL CONTROLS

2.1.1 AMPERES

The AMPERES switch has four push buttons and a two-digit numeric indicator to adjust current output to the desired value. The range is 0.5 to 9.9 A. If a value below 0.5 is selected, there will be no output.

2.1.2 SECONDS

The SECONDS switch has four push buttons and a two-digit numeric indicator to adjust output duration. The range is 0.1 to 9.9 s, or select 0.0 for continuous-output operation.

2.1.3 TEST

Press TEST for an output burst of the magnitude and duration selected by AMPERES and SECONDS. Press TEST again to stop a continuous-output operation.

2.2 INDICATION

The two-digit LED display indicates the magnitude of the output current for the duration of the output burst. The centre decimal point serves as a supply voltage indicator. A decimal point on the right side of the display is used to indicate a thermal-limit condition.

2.3 THERMAL LIMIT

When the SE-400 is used in the continuous-output mode, the internal circuit temperature can reach the thermal-limit temperature. To prevent damage to the SE-400, the current output is disabled and the thermal-limit indicator turns on. The output remains disabled until the temperature has fallen to a safe level, at which time the thermal-limit indicator turns off and the output is enabled.

3. INSTALLATION

SE-400 outline and mounting details are shown in Fig. 1. Panel-mounting procedures are shown in Fig. 2.

Connect L1 and L2 to supply voltage using L2 as N. Connect ground terminal 1 (⏚) to ground. Loop an output conductor through the windows of the ground-fault CT's connected to the ground-fault relays under test. Connect one end of the output conductor to terminal 1 (OP1) and the other end to terminal 12 (OP2). For output-conductor lengths under 40 ft, use 14 gauge wire. For output-conductor lengths over 40 ft and up to 80 ft, use 12 gauge wire.

If remote operation is required, connect a normally open momentary contact to terminals 8 and 9 (RMT1 and RMT2). Low-level contacts are recommended.

Typical connection diagrams are shown in Fig. 3.

4. TEST PROCEDURE

- Set the required output current level—0.5 to 9.9 A. The recommended test current is 120% of the ground-fault trip level of the device being tested.
- Set the output duration—0.1 to 9.9 s or 0.0 for push-on push-off operation.
- Press the TEST button. The ground-fault unit(s) being tested should trip.

5. TROUBLESHOOTING

Problem:

- No current output when the TEST button is pressed.

Possible Causes:

- Loose output connections.
- Resistance of the output wire is too high.
- VA requirement of the load is too high.
- Current is set to less than 0.5 A.
- No supply voltage.
- Thermal limit exceeded.
- Power-supply fuse F1 open.

Troubleshooting:

- Check the SE-400 operation by connecting a short length of wire across the output terminals and pressing the TEST button.
- If using a remote test switch, check remote switch operation and connection to the SE-400.

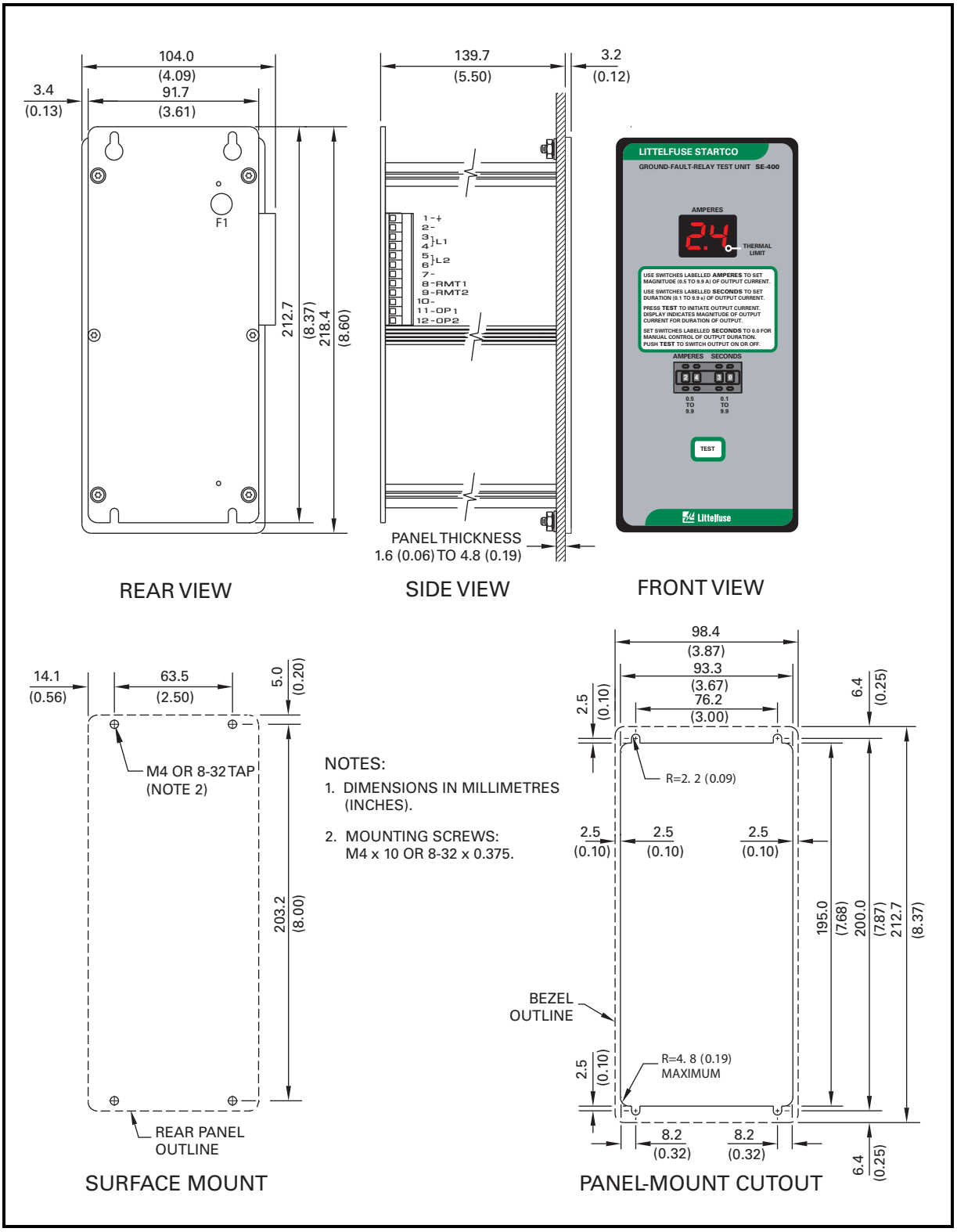

FIGURE 1. SE-400 Outline and Mounting Details.

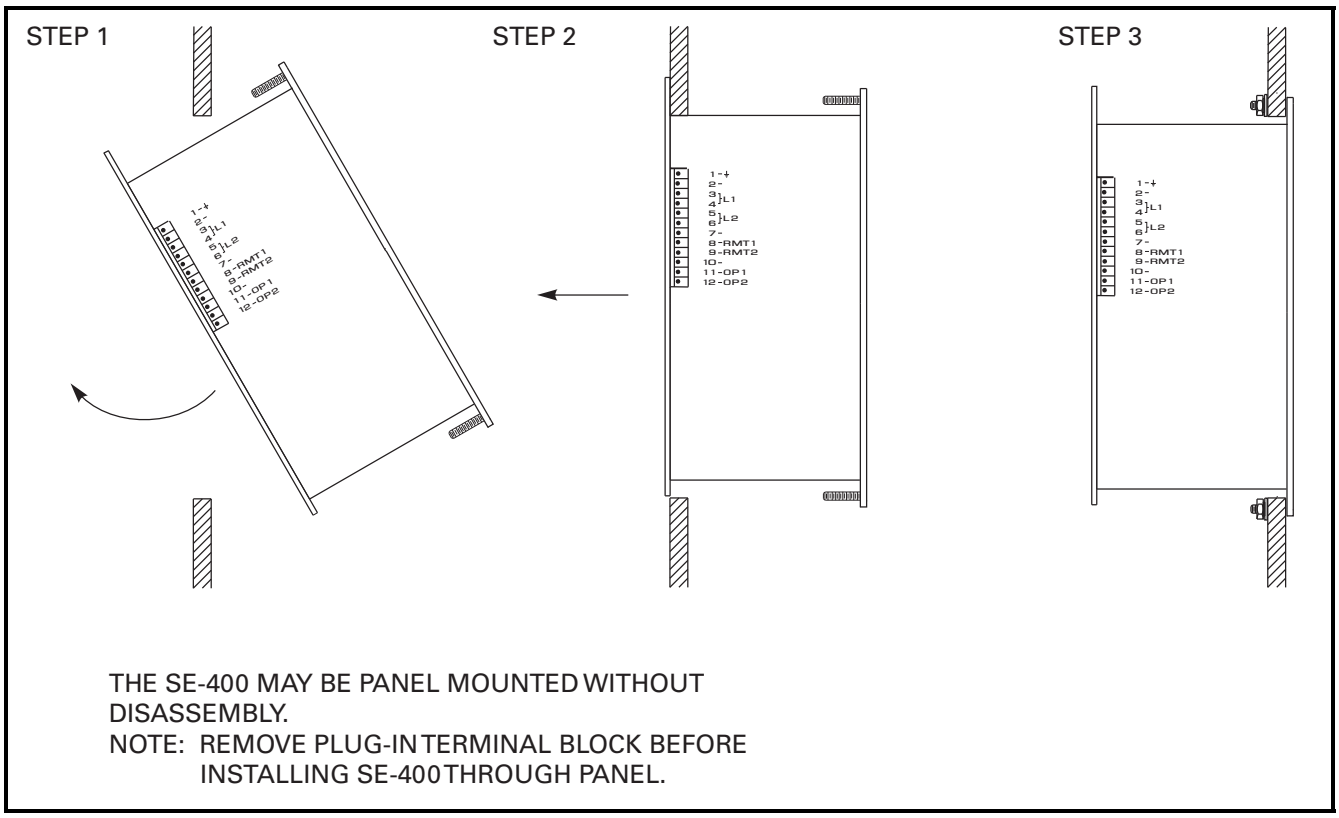

FIGURE 2. Panel-Mounting Procedure.

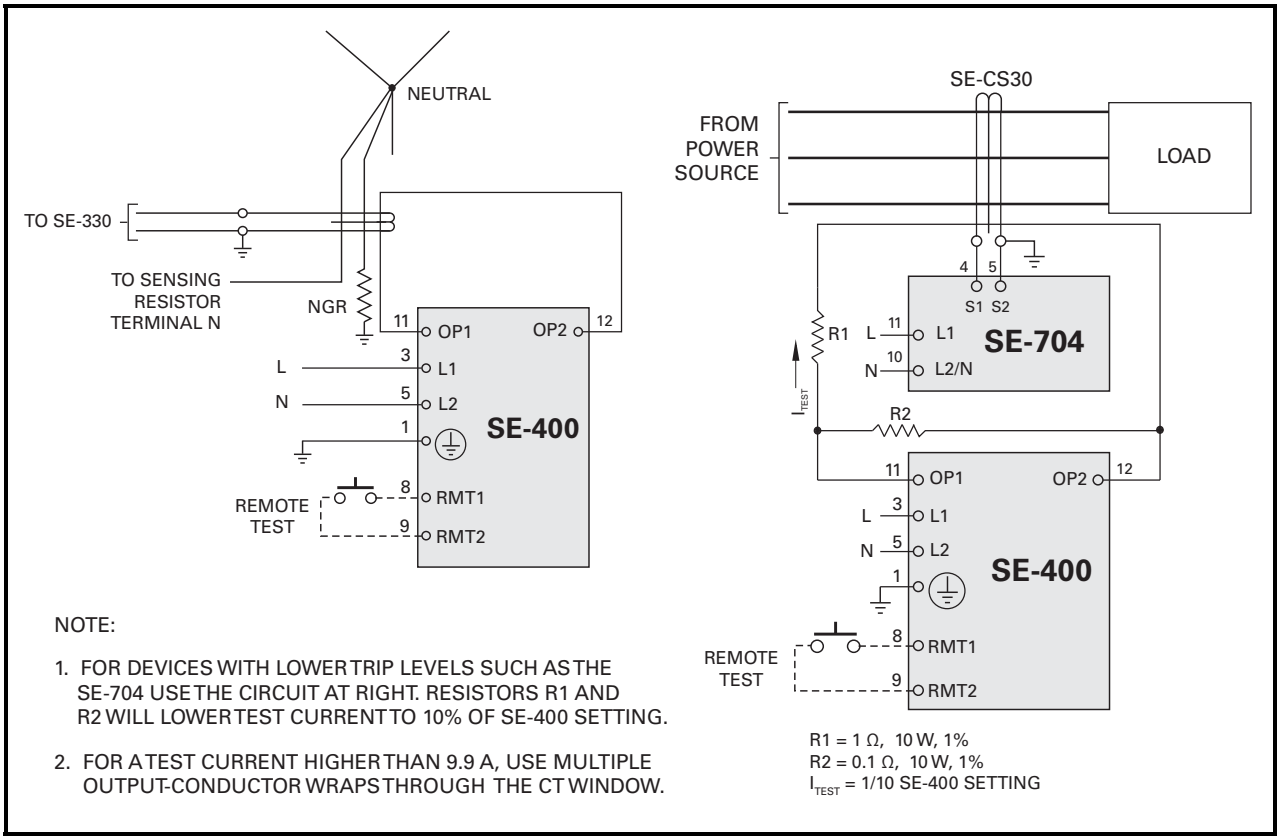

FIGURE 3. Typical Connection Diagrams.

6. TECHNICAL SPECIFICATIONS

Supply :
- 120 Vac..... 80 VA, 120 Vac, (+12, -30%), 50/60 Hz
- 240 Vac..... 80 VA, 240 Vac, (+12, -30%), 50/60 Hz

Fuse Rating (F1)..... 1 A, 250 Vac

Fuse Part Number..... Littelfuse 313.001 or Bussman AGC1

Output:
- Current Setting..... 0.5 to 9.9 A, 0.1-A increments
- Duration Setting..... 0.1 to 9.9 s, 0.1-s increments or continuous
- Maximum Burden..... 0.13 ohms
- Voltage ..... 5.0 Vac maximum
- Duty Cycle at 25°C (77°F):
  - 12 VA..... Continuous
  - 34 VA Maximum..... 15 minutes ON 30 minutes OFF
- Accuracy..... ± 3%

PWB Conformal Coating ..... MIL-1-46058 qualified, UL QMJU2 recognized

Dimensions:
- Height ..... 212.7 mm (8.4”)
- Width ..... 104.0 mm (4.1”)
- Depth ..... 142.9 mm (5.6”)

Shipping Weight..... 2.2 kg (4.8 lb)

Environment:
- Operating Temperature..... -40 to 60°C (-40 to 140°F)
- Storage Temperature..... -55 to 80°C (-67 to 160°F)

7. ORDERING INFORMATION

SE-400- □□

- BLANK – 120-Vac Supply
- 02 – 240-Vac Supply

SE-410 ..... Selector Switch
SE-400IRC ..... Impact Resistant Case

8. WARRANTY

The SE-400 Ground-Fault-Relay Test Unit is warranted to be free from defects in material and workmanship for a period of five years from the date of purchase.

Littelfuse Startco will (at Littelfuse Startco’s option) repair, replace, or refund the original purchase price of an SE-400 that is determined by Littelfuse Startco to be defective if it is returned to the factory, freight prepaid, within the warranty period. This warranty does not apply to repairs required as a result of misuse, negligence, an accident, improper installation, tampering, or insufficient care. Littelfuse Startco does not warrant products repaired or modified by non-Littelfuse Startco personnel.

APPENDIX A
SE-400 REVISION HISTORY

MANUAL RELEASE DATE	MANUAL REVISION	PRODUCT REVISION (REVISION NUMBER ON PRODUCT LABEL)
July 21, 2015	1-A-072115	05B

MANUAL REVISION HISTORY

REVISION 1-A-072115

SECTION 5

Fig. 3 updated.

SECTION 6

Voltage and accuracy specifications added.

APPENDIX A

Revision history added.

PRODUCT REVISION HISTORY

PRODUCT REVISION 05B

Current release.

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