

EL731 MANUAL

EARTH-LEAKAGE RELAY

January 6, 2012

REVISION P7



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Factory default password is 1111

New Password

See Section 3.2.4.

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1 INTRODUCTION

1.1 GENERAL

The EL731 is a microprocessor-based earth-leakage relay for AC, DC, combined AC/DC, and variable-frequency power circuits supplied by solidly or resistance-grounded systems that require earth-leakage detection as low as 30 mA. Earth-leakage metering and two setting levels (alarm and trip) are provided. It is uniquely suited for sensitive earth-fault protection for adjustable-speed drive (ASD) circuits that often operate at low speeds.

Settings and configuration selections provide frequency-response ranges of 0 to 100 Hz, 20 to 90 Hz, 90 to 15,000 Hz, and 20 to 15,000 Hz. In each case, alarm- and trip- setting ranges are 30 to 5,000 mA.

The three output relays with normally closed and normally open contacts can be programmed for various functions and can be set to operate in the fail-safe or non-fail-safe mode for undervoltage or shunt-trip applications.

Additional features include: A 2 x 16-character OLED display, current and temperature metering, programming and menu-navigation push buttons, password security, LED trip and alarm indication, auto-reset alarms and latching trips with front-panel and remote reset, trip memory, 4- to 20-mA analog output, CT verification with LED indication, and conformal coated circuits.

Earth-leakage current is sensed by one or two EFCT-series core-balance zero sequence current transformers. The trip level range of the earth-leakage circuit is 30 to 5,000 mA. With two CT's connected, the EL731 performs independent metering. Trip time delay is configurable from instantaneous to 2 seconds in millisecond increments.

An optional temperature-sensor input provides metering and protection for a motor or drive.

An optional Ethernet/IP communications interface is available. Contact the factory for other communication interface options.

1.2 EL731 FEATURES

- AC Ground Overcurrent (50/51 G/N)
- DC Ground Overcurrent (79 G)
- PTC Overtemperature (49)
- RTD Temperature (38, 49)

1.2.1 METERING

- Earth-Leakage Current
- RTD Temperature or PTC Overtemperature

1.2.2 DATA LOGGING

- Trip Counters
- Alarm Counters

1.2.3 INPUTS AND OUTPUTS

- AC Earth-leakage Current Transformer
- DC Earth-leakage Current Transformer
- Remote Reset Input (one shot operation)
- Network Communications (Ethernet/IP – Optional)
- 4-20-mA Analog Output, (programmable, loop powered)
- Temperature-Sensor input, (RTD or PTC)

1.2.4 OPERATOR INTERFACE

- 2 x 16 OLED display
- Display control and programming keys
- LED status indication

1.2.5 COMMUNICATIONS INTERFACE

An optional Ethernet/IP interface is available.

An optional update adapter is available for firmware updates. For ordering information, see Section 7 of manual.

2. INSTALLATION

Outline and details for panel-mounting an EL731 are shown in Fig. 1. Insert the EL731 through the cutout and slip the panel-mount clamp over the EL731 body. Slide the panel-mount clamp forward to engage the latch tabs with the mating body retainer grooves. Lock the unit in place by tightening the four clamp screws against the panel.

NOTE: Do not over tighten the clamp screws as this might deform the clamp and release the latch tabs.

Outline and details for surface-mounting the EL731 are shown in Fig. 2 and Fig 3. A detailed instruction sheet is included with the optional AC700-SMK Surface-Mounting Hardware Kit.

1 SYSTEM WIRING

A typical connection diagram for the EL731 is shown in Fig. 3 and described in the following sections.

2.1.1 SUPPLY VOLTAGE

Provide supply voltage from the line side of the controller or from an independent source. Connect supply voltage to terminals 14 and 15 (L1, L2/N) as shown in Fig. 3. In 120-Vac systems, L2/N is designated as the neutral conductor. For direct-current power supplies, use L1 for the positive terminal and L2/N as the negative terminal. Connect terminal 3 ($\oplus$) to ground.

2.1.2 CURRENT TRANSFORMER CONNECTIONS

This earth-leakage relaying system consists of an EL731 earth-leakage relay and one or two EFCT-series current sensors connected as shown in Fig. 3. The system can use CT1 or CT2 alone or combined.

Pass the phase conductors through the CT window(s) and position them in the centre of the opening (for 4-wire and single-phase systems, also pass the neutral conductor through the CT window). Do not pass earth conductors through the CT window. In applications that require shields or drain wires to pass through the CT window, return them through the CT window before connecting them to earth.

Using shielded twisted-pair cable, connect CT1 to terminals 8 and 7 and connect the shield to terminal 6. Current-sensor connections are not polarity sensitive. See Figs. 6, 7 and 8 for current-sensor dimensional drawings. Each EFCT-series sensor includes 6 m (19.2') cable.

Using shielded twisted-pair cable, connect CT2 to terminals 11 and 10, connect the shield to terminal 9. Current-sensor connections are not polarity sensitive. See Figs. 6, 7 and 8 for current-sensor dimensional drawings. Each EFCT-series sensor includes 6 m (19.2') cable.

2.1.3 ANALOG OUTPUT

The analog output is loop powered. The connection is shown in Fig. 3. The analog output is isolated to 120 Vac from all other EL731 terminals.

2.1.4 PTC OR RTD INPUT

The temperature-sensor input on the EL731 can be configured for either RTD or PTC operation. Connect as shown in Fig. 3.

Select the sensor type in the *Setup* | *Hardware* | *Temp Sensor* menu

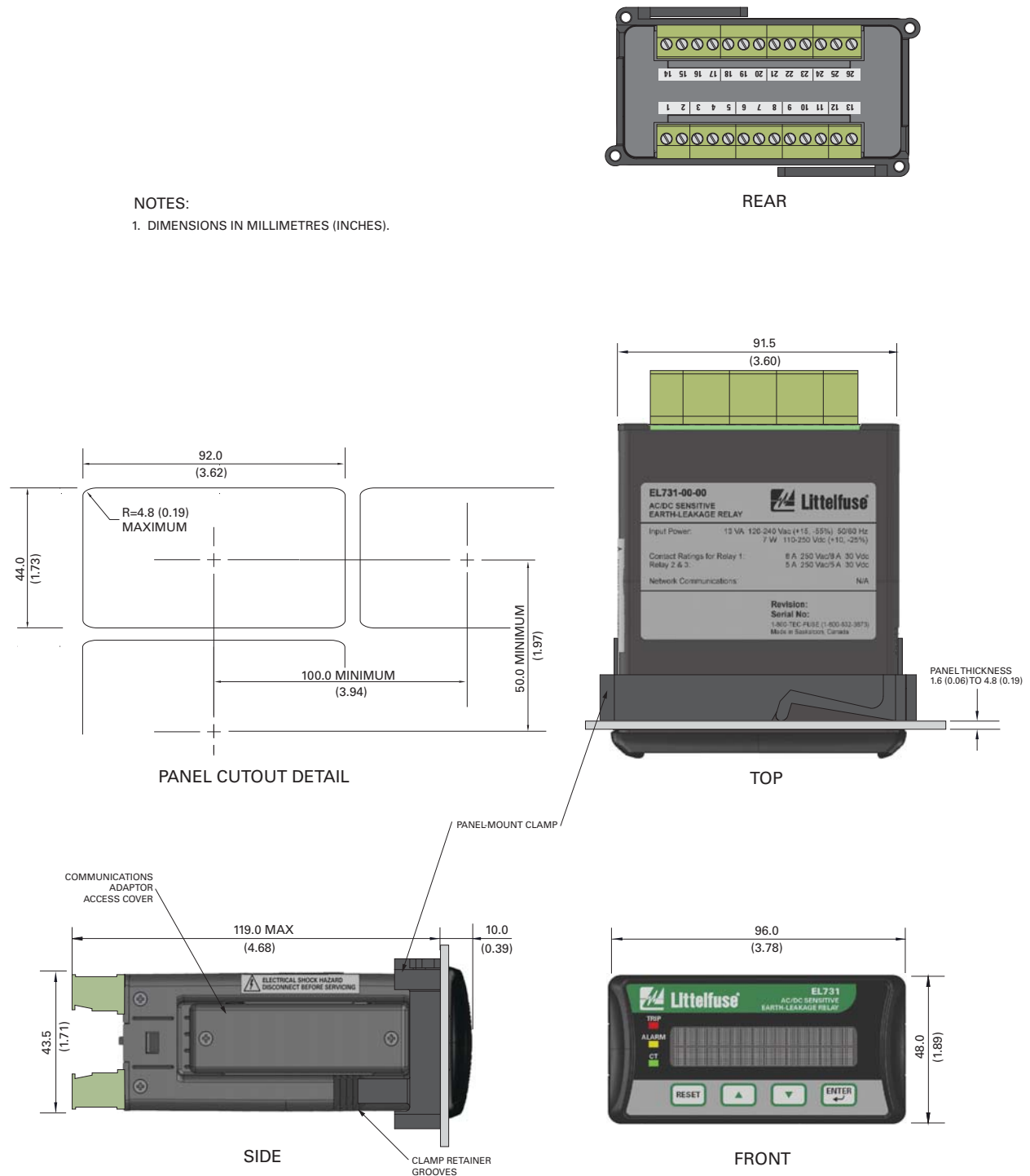


Figure 1. EL731 Outline and Mounting Details.

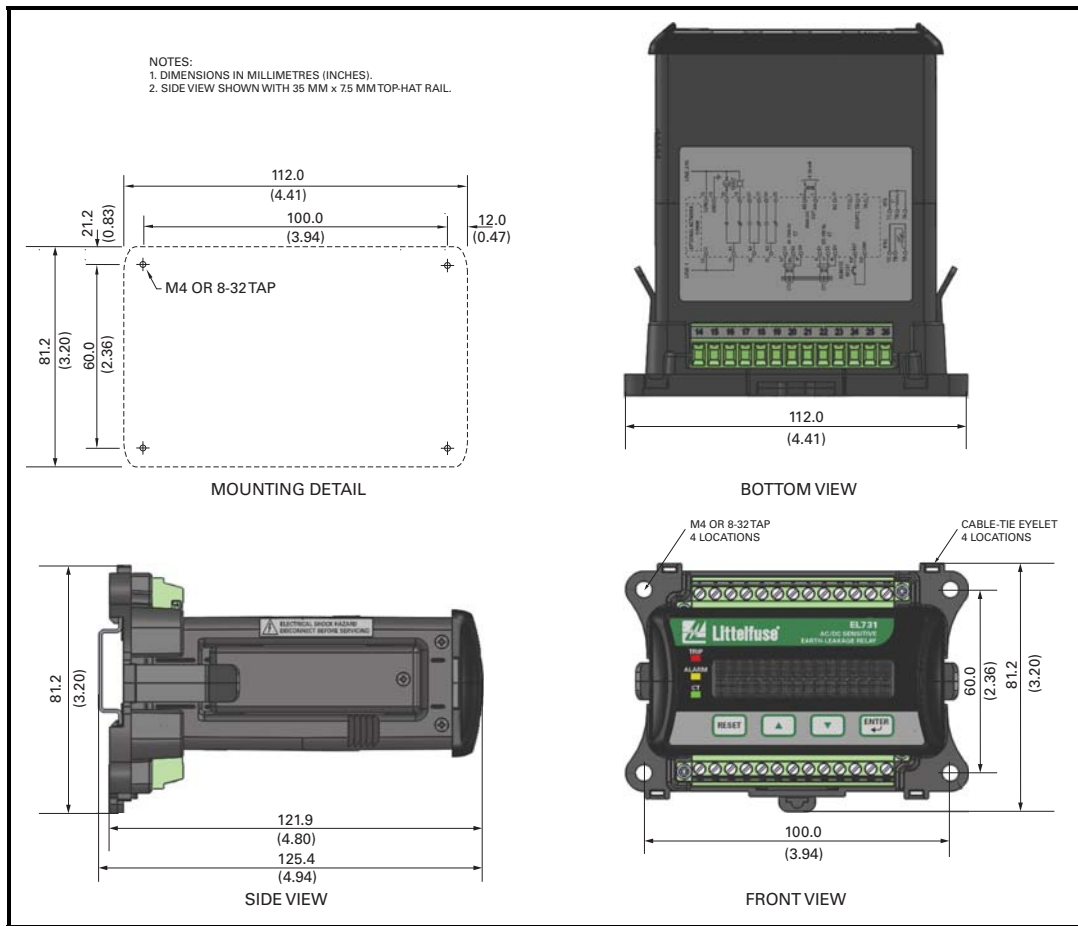
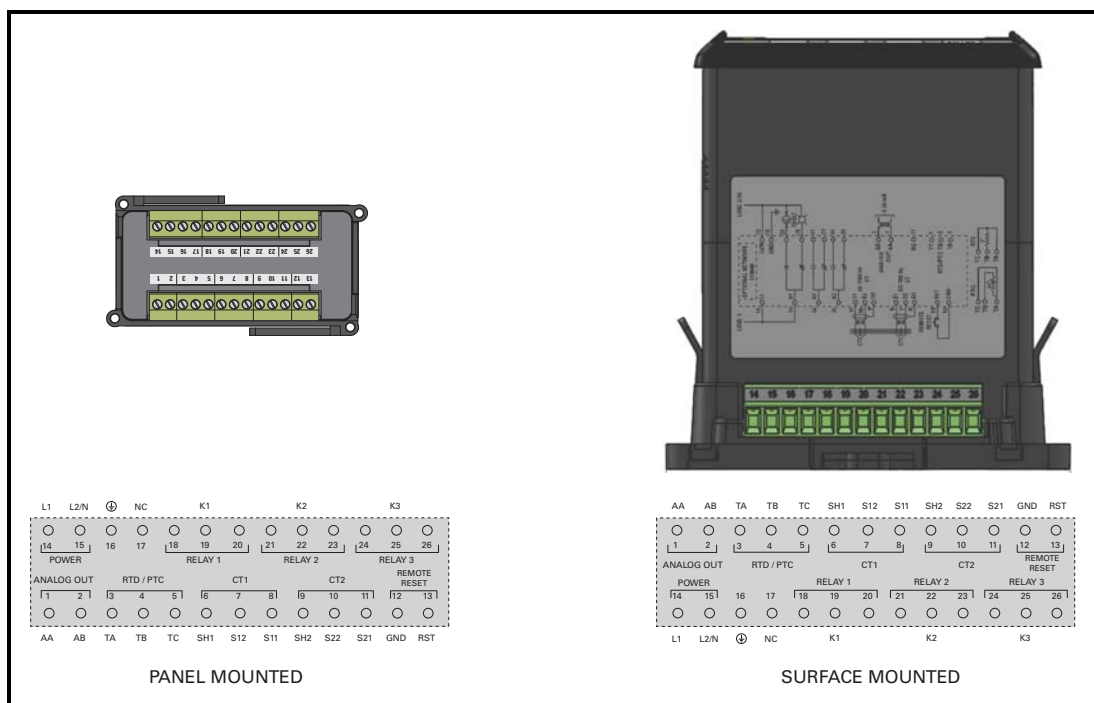


Figure 2. AC700-SMK Outline and Mounting Details.



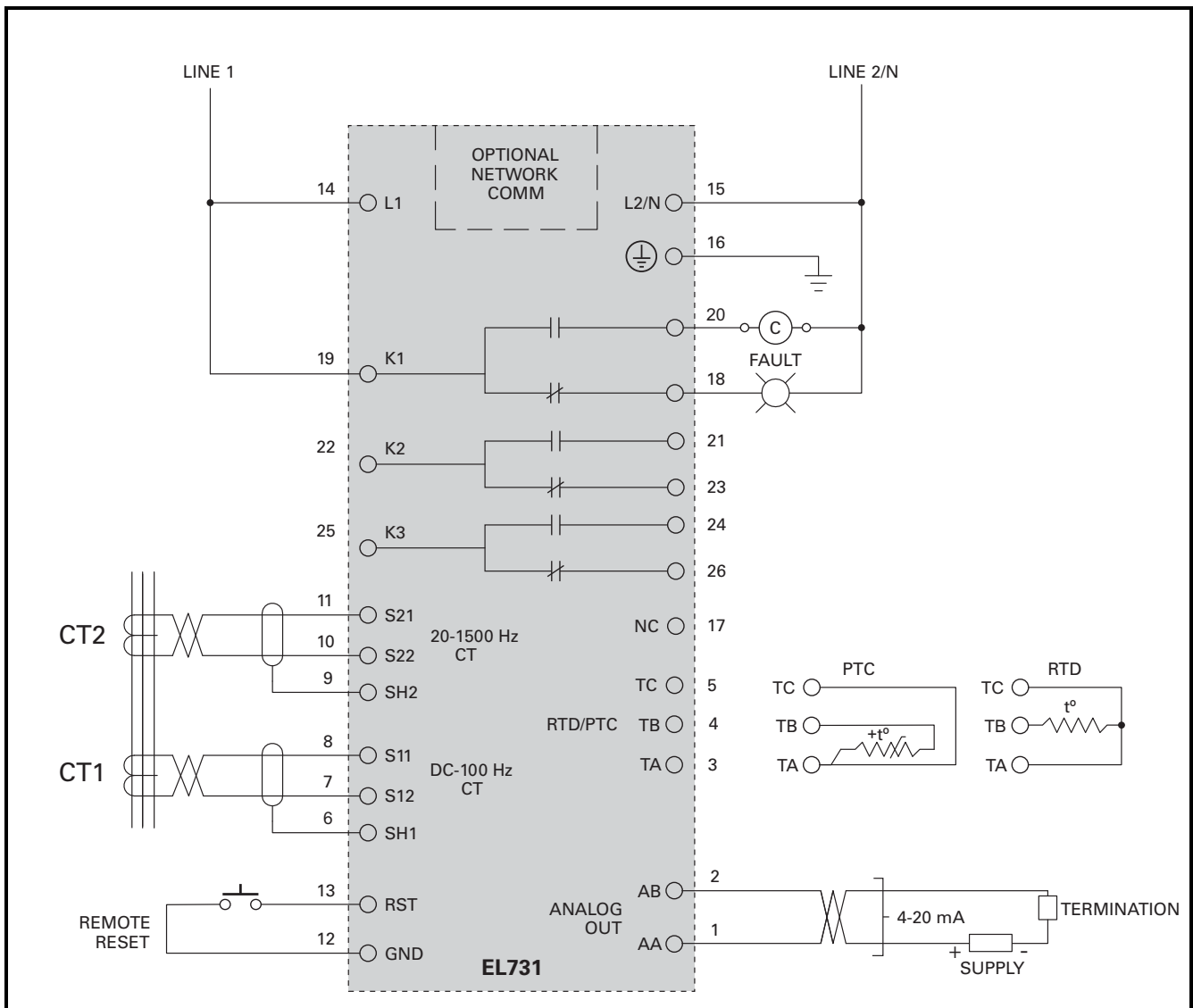


Figure 4. Connection Diagram.

2.1.5 ETHERNET/IP COMMUNICATIONS (OPTIONAL)

The EL731 supports an Ethernet/IP communication interface. The communication interface module installs through the side of the enclosure as shown in Fig. 4.

To field-install an AC-700-CUA Communications Upgrade Adapter, remove the supply voltage, remove the adapter access cover, insert the adapter, and retain with supplied screws – Apply the supply voltage.

With the communications module installed, a standard RJ-45 network cable can be used to connect the EL731 to an Ethernet/IP network. Configure the interface using the IP config software available through the product website. The software requires Microsoft Windows operating system. The Ethernet interface supports 10/100-Mbit, full-or-half duplex operation.

2.1.6 REMOTE RESET

Connect a normally open switch to the remote-reset input (terminals 12 & 13) as shown in Fig. 3.

2.1.7 RELAY OUTPUTS

The EL731 has three programmable Form-C relay outputs. Program choices are trip, alarm, watchdog or current detected. Set the relay configuration in the *Setup | Relay Outputs | Relay X* menus.



Figure 5. EL731 with installed Anybus Communications Module (AC-700-CUA-03).



Figure 6. EL731 with Firmware Upgrade Module (AC-700-CUA-00).

3. OPERATION AND SETUP

3.1 DISPLAY AND INDICATION

The EL731 front panel has three LED's, a 2-line x 16-character alphanumeric OLED display and four push buttons to navigate through programming, status, and system-information menus. The display will revert to screen-saver mode after 15 minutes. Press any key to exit the screen saver.

The RESET switch is used to clear the trip condition of the relay. The trip state will only be cleared if the fault is no longer detected.

The up and down arrow keys (▲▼) are used to navigate the menu system.

The ENTER key is used to select menu items and to choose settings.

All EL731 settings can be accessed using the EL731 menu system or the optional network communications interface. In the following sections, menu items and setup parameters are listed in *italics* and are shown in the format displayed on the OLED display.

Menu selection is in the following format:

Menu 1 | Sub Menu 1 | Sub Menu 2 | Sub Menu 3 | ...

When browsing a selection list, an asterix (*) indicates the active item. If the intent is to exit the list and not to change the setting, press ENTER on the selection that has the asterix (*).

If the item is a string (or numerical) input and no change is desired, press ENTER until the display returns to the menu system. To exit a main-menu list, scroll and select *Exit*.

A menu map is provided in Appendix A at the end of this manual.

3.1.1 FRONT-PANEL LED INDICATION

3.1.1.1 TRIP

The red LED labeled TRIP indicates a trip condition when flashing. Refer to Table 1 for applicable flash codes.

TABLE 1: TRIP FLASH CODES

FAULT	CODES
Overcurrent CT1	1 short, 1 long
Overcurrent CT2	2 short, 1 long
User Test	3 short, 1 long
CT1 Detection	4 short, 1 long
CT2 Detection	5 short, 1 long
NVRAM Error	6 short, 1 long
CT1 Calibration Failure	7 short, 1 long
Watchdog	Fast flash

Trip cause is also available on the OLED display through the | *Messages* | *State* menu item.

3.1.1.2 CT STATUS

The green LED labeled CT will flash during CT1 calibration. It will be solid green when CT connections is correct, and off when a CT is connected incorrectly.

3.1.1.3 ALARM

The yellow LED labeled ALARM will be on when measured current is above the alarm setting.

3.1.2 ETHERNET/IP MODULE LED INDICATION

There are three LED's on the optional AC700-CUA-03 Ethernet/IP communications module. Their purpose and indication are shown in Tables 2, 3, and 4.

TABLE 2: NETWORK STATUS LED (NS)

LED STATE	DESCRIPTION
Off	No power or no IP address
Green	On-line, one or more connections established
Green, flashing	On-line, no connections established
Red	Duplicate IP address, FATAL error
Red, flashing	One or more connections timed out

TABLE 3: MODULE STATUS LED (MS)

LED STATE	DESCRIPTION
Off	No power
Green	Controlled by a Scanner in Run State
Green, flashing	Not configured, or Scanner in Idle state
Red	Major fault (EXCEPTION-state, FATAL error)
Red, flashing	Recoverable fault(s)

TABLE 4: LINK/ACTIVITY LED (LINK)

LED STATE	DESCRIPTION
Off	No link, no activity
Green	Link established
Green, flickering	Activity

3.2 MAIN MENUS

The “top” menu item (select Exit in the main menu) displays earth-leakage current(s) as a numeric percent of full scale and as a bar graph.

3.2.1 METERING

Menu: *Metering*

With *Metering* selected in the main menu, press the ENTER key to display a list of metering options. Use the Up and Down arrow keys to scroll through the options list. Press the ENTER key to display the selected information.

Information available: CT1 primary current (mA), CT2 primary current (mA), combined CT1 and CT2 current (mA), internal EL731 temperature (°C & °F), PTC status, and RTD temperature (°C & °F).

3.2.2 MESSAGES

Menu: *Messages*

Selecting this menu item allows the trip state, alarm state, trip counter, alarm counter, and EL731 running time to be viewed.

3.2.3 SETUP

3.2.3.1 EARTH-FAULT-CT INPUT

Menu: *Setup | Protection | CTx Earth Fault*

The Earth Fault *Enable/Disable* menu enables or disables current monitoring through the selected CT input. When enabled, the system checks to ensure the CT is connected properly. A trip will occur if the CT is incorrectly connected. See section 3.1.1.1.

The *Trip Time* menu sets the trip delay. The range for this menu item is 0 – 2 seconds in millisecond increments where 0 indicates that as soon as current is detected above the Trip Level, a trip occurs.

The *Trip Level* menu sets the trip level. The setting range is 30 mA to 5 A (30 mA increments). The *Alarm Level* setting range is the same as the *Trip Level* range. Trips are latched, requiring a local or remote reset input, and alarms auto-reset.

The *Calibrate* menu applies to CT1 (0 to 100 Hz). When CT1 is used, the system must be calibrated after installation with CT1 connected and power removed from the load. The CT LED flashes during calibration.

The *Input Filter* menu applies to CT2 (20 to 15,000 Hz) and allows selection of different input filters. The available filters and their descriptions are shown in Table 5.

TABLE 5: CT2 INPUT FILTERS

FILTER	FREQUENCY RESPONSE
No Filter	20 Hz to 15 kHz
Low Pass Filter at 90Hz	20 to 90 Hz
High Pass Filter at 90Hz	90 Hz to 15 kHz

3.2.3.2 TEMPERATURE PROTECTION

Menu: *Setup | Protection | PTC Local Temp | Protection | RTD Local Temp*

Menu: *Setup | Hardware | Temp Sensor*

The temperature-sensor input, at terminals 3, 4, and 5, can be configured as a PTC thermistor or a 100-ohm-platinum RTD (or disabled) in the *Setup | Hardware | Temp Sensor* menu. PTC Overtemperature alarm and trip actions can be selected in the *Setup | Protection | PTC Temperature* menu, or alarm and trip temperature settings and actions can be programmed in the *Setup | Protection | RTD Temperature* menu.

3.2.3.3 OUTPUT RELAY ASSIGNMENTS

Menu: *Setup | Relay Outputs | Relay x*

Each of the three output relays can be assigned to one of the functions listed in Table 6. More than one relay can be assigned the same function.

The default assignments are Trip (fail-safe) for Relay 1, Alarm (fail-safe) for Relay 2, and Watchdog for Relay 3.

TABLE 6: RELAY FUNCTIONS

FUNCTION	ASSIGNMENT OR ACTION
Trip	Relay operates when a trip occurs. Fail-safe or non-fail-safe mode selection is active.
Alarm	Relay operates when an alarm occurs. Fail-safe or non-fail-safe mode selection is active.
Watchdog	Relay is energized when the supply voltage is applied and the EL731 is operating properly.
Current	Relay is energized when current is detected

The fail-safe mode setting for each relay allows the individual relay to be configured as fail-safe (normally energized) or non-fail-safe (normally de-energized).

The *Test* function performs a test of the specified relay’s external connection.

3.2.3.4 ANALOG OUTPUT

Menu: *Setup | Analog Output*

A 4-20 mA programmable current output is provided.

Analog % Level enables the output to be configured such that 20 mA corresponds to full scale of the selected CT (5 A) or corresponds to the trip level for the selected CT.

CT Select selects which CT measurement will be represented by the analog output. The selections are *CT1*, *CT2*, or both.

3.2.3.5 MISCELLANEOUS CONFIGURATION

Menu: *Setup | System Config*

Used to access additional system configuration elements described in the following sections.

3.2.3.5.1 PASSWORD

Menu: *Setup | System Config | Change Password*

Menu: *Setup | System Config | Password Enable*

Used to enable and change the EL731 password (four-character numeric field). When enabled, the password must be entered to change a set point. The factory default password is 1111.

3.2.3.5.2 MENU TIMEOUT

Used to set the time before the system times out due to lack of activity and the menu system returns to the main menu display (See Section 3.2). In *password* mode the password entered will be cleared. The timeout is measured from the last key press.

3.2.3.5.3 MAINTENANCE

Used to clear trip and alarm counters, load defaults, restart the system, display the firmware version, build date, and serial number. See Section 3.2.4.

3.2.4 PASSWORD

Menu: *Password*

With password security active, all set points are locked. To enable programming, the password must be entered through the *Password* menu.

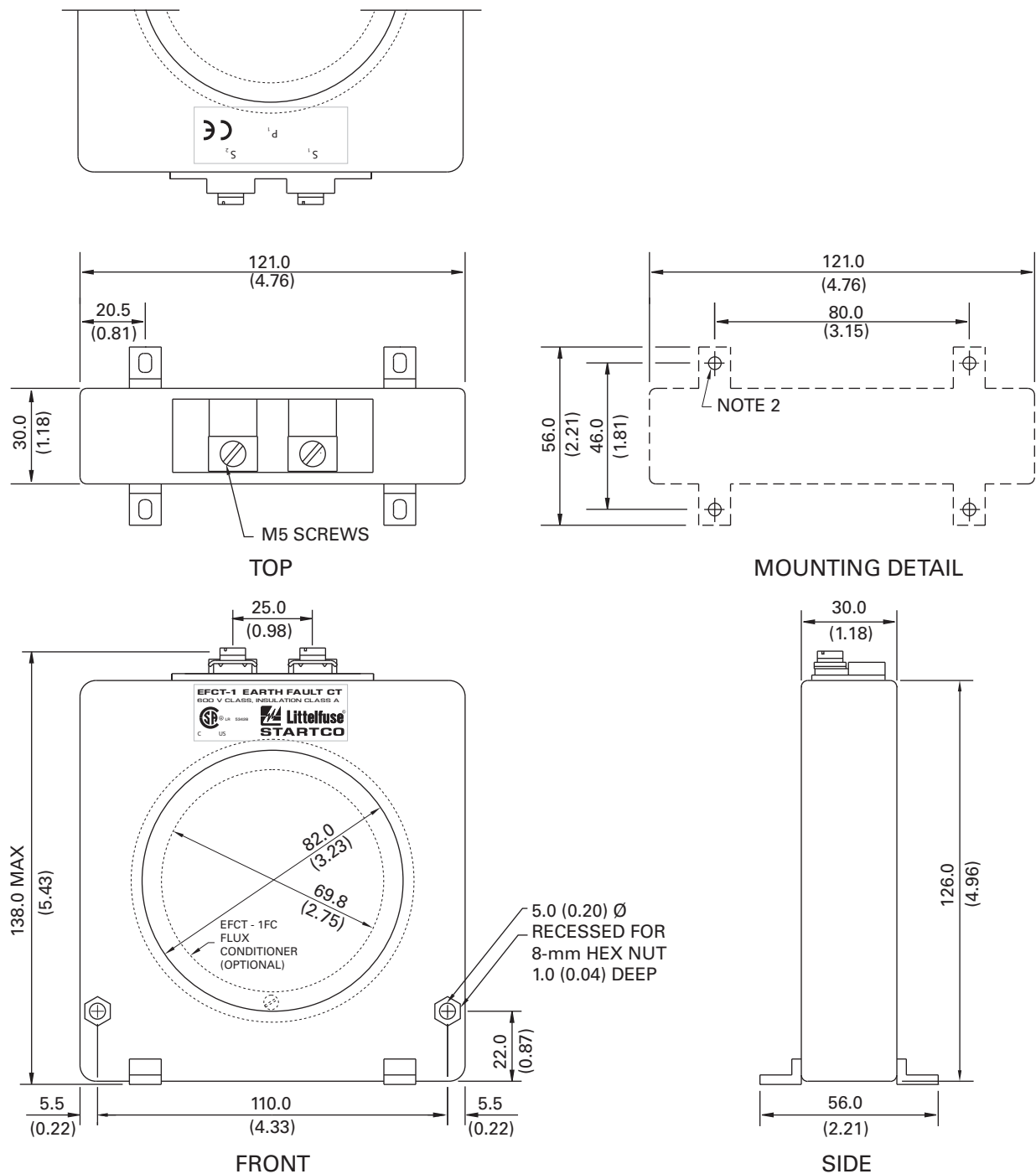
While navigating through the menus when a valid password has been entered, an asterix (*) is shown at the beginning of the first line of the display.

3.3 TRIP RESET

The RESET button will clear a trip when pressed for two and a half seconds. The trip will only clear if the fault is no longer present. Keeping RESET pressed will not prevent an alarm or trip. If password is enabled, reset will not function until a valid password has been entered.

4. THEORY OF OPERATION

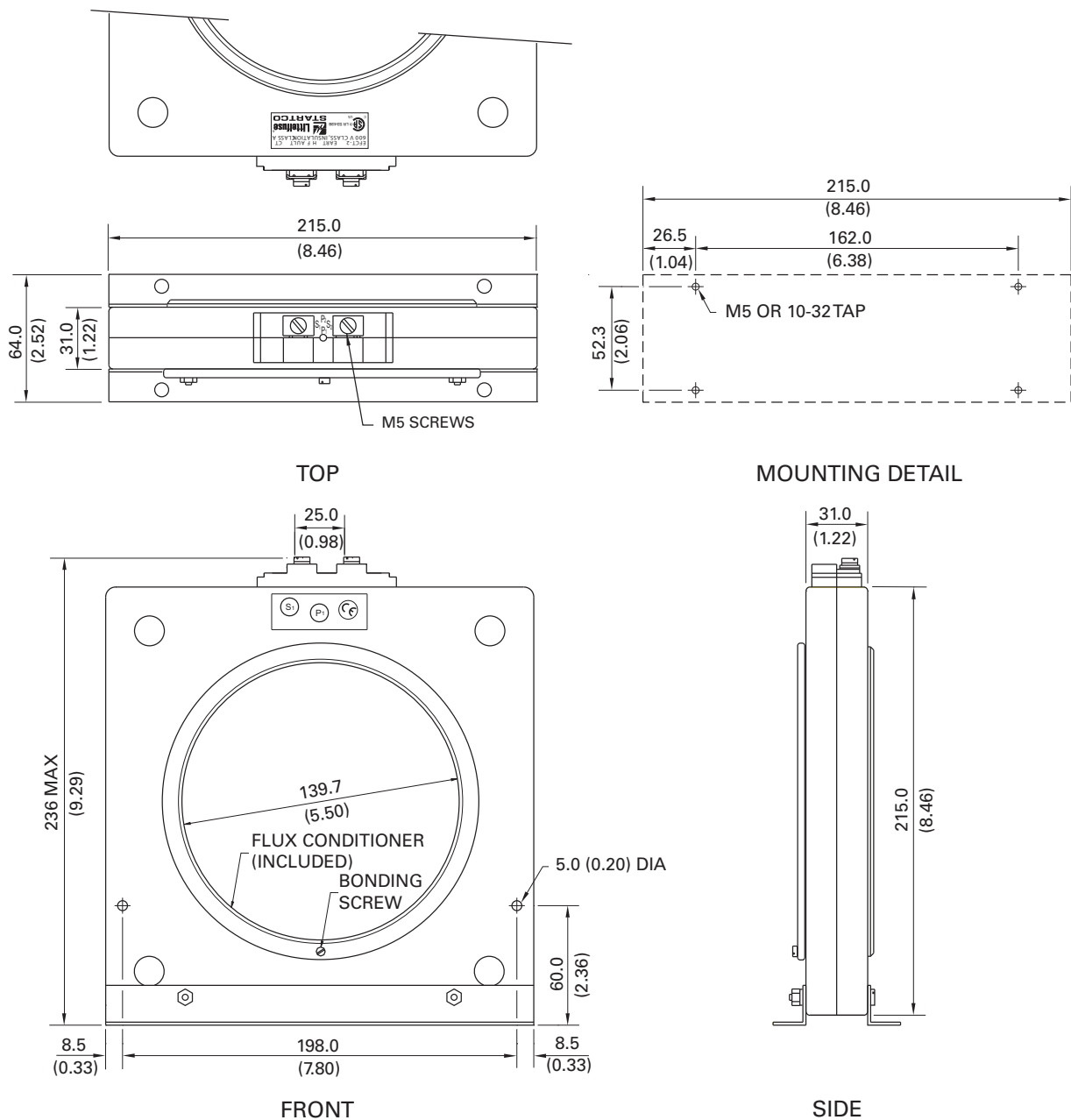
A square wave voltage with a consistent peak-to-peak value is applied to the secondary of the CT. Current is measured in the secondary to determine the point of CT saturation. When CT saturation is detected, the polarity of the voltage is switched. The duty cycle of the resulting square wave changes as a function of primary current. This change can be detected for both AC and DC primary current.



NOTES:

1. DIMENSIONS IN MILLIMETRES (INCHES).
2. MOUNTING SCREWS: M4 OR 8-32.
3. PRESS MOUNTING FEET IN PLACE USING INSTALLATION TOOL PROVIDED.

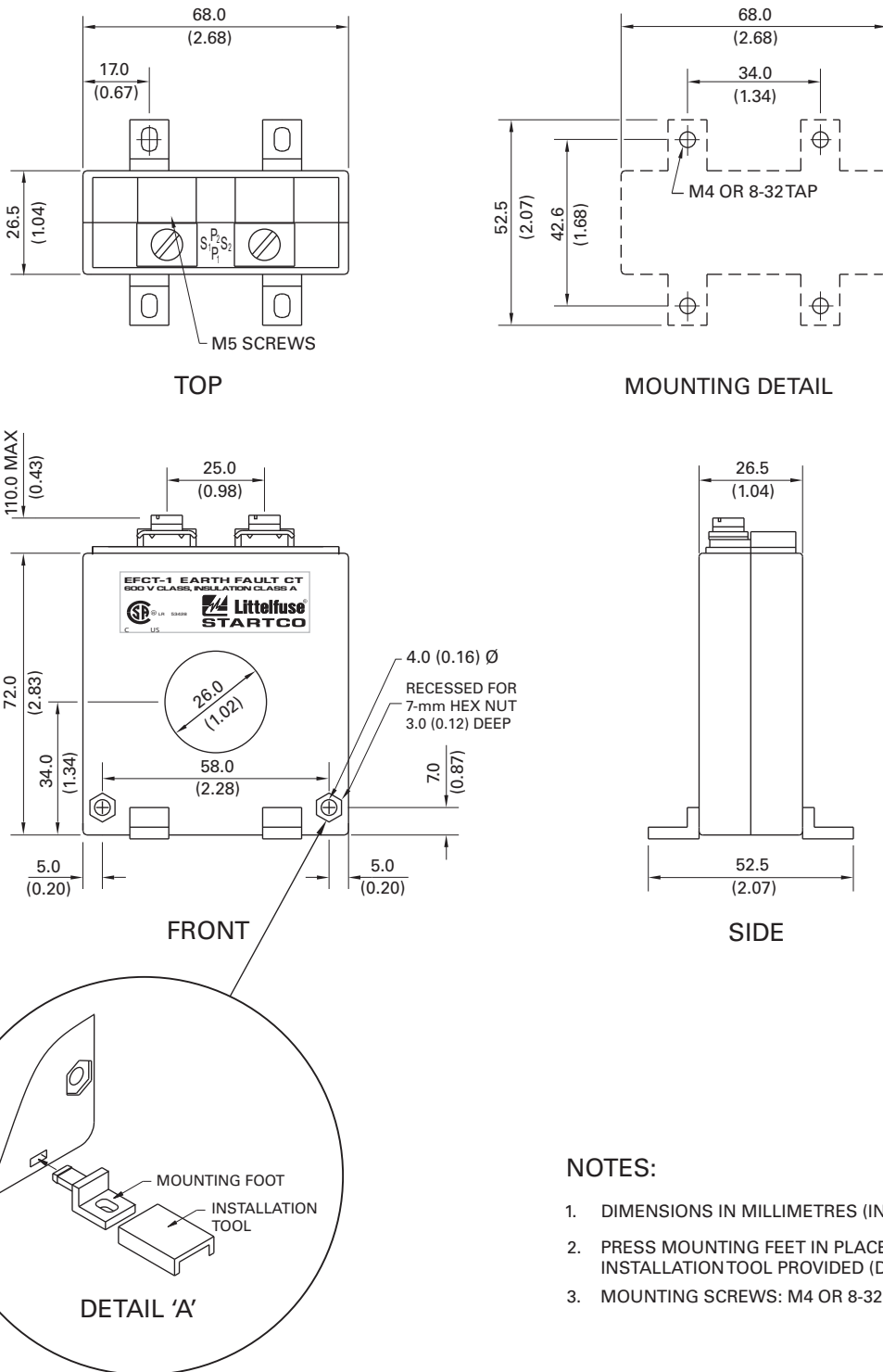
Figure 7. EFCT-1 Outline and Mounting Details.



NOTES:

1. DIMENSIONS IN MILLIMETRES (INCHES)
2. MOUNTING SCREWS: M5 OR 10-32.

Figure 8. EFCT-2 Outline and Mounting Details.



NOTES:

1. DIMENSIONS IN MILLIMETRES (INCHES).
2. PRESS MOUNTING FEET IN PLACE USING INSTALLATION TOOL PROVIDED (DETAIL 'A')
3. MOUNTING SCREWS: M4 OR 8-32.

Figure 9 EFCT-26 Outline and Mounting Details.

5. PERSONAL COMPUTER INTERFACE

5.1 FLASH MEMORY UPDATE

The control program for the EL731 is stored in flash memory. This allows field upgrades to be made through the upgrade module (optional). The following are required:

- A windows PC with a USB interface and the SE-Flash program installed. Programs are available at www.startco.ca.
- A file containing the EL731 code (.s19 file)
- A USB cable, TIA232 or CA-945 converter with Ethernet cable.
- An AC700-CUA-00 Upgrade Module

6. TECHNICAL SPECIFICATIONS

Supply:

Option 1	13 VA, 120 to 240 Vac (+10, -45%) 50/60 Hz; 7 W, 100 to 250 Vdc (+10, -25%)
Option 2	7 W, 16 to 30 Vdc (+20, -25%)
Option 3	7 W, 32 to 60 Vdc (+20, - 25%) 9 VA, 24 to 44 Vac (±10%), 50/60 Hz

DC and Low Frequency (Current Transformer 1)

Frequency Response.....	DC to 100 Hz
Measurement Method.....	True RMS
Detection Method.....	CT Driven Oscillator
Trip-Level Setting	30 mA to 5 A
Alarm-Level Setting.....	30 mA to 5 A
Trip-Time Settings	0 to 2 seconds
Trip Accuracies:	
Trip Level.....	TBD
Time Delay	- 5% (Minimum of 40 ms at 60 Hz)

CT EFCT series

Thermal Withstand

Continuous	TBD
1 second.....	TBD
Detection	CT Open & Short

AC/Carrier (Current Transformer 2)

Frequency Response:	
Filter 1	20 Hz to 15 kHz
Filter 2	90 Hz to 15 kHz
Filter 3	20 Hz to 90 Hz
Measurement Method.....	True RMS
Detection	CT Open & Short
Trip-Level Setting	30 mA to 5 A
Alarm-Level Setting.....	30 mA to 5 A
Trip Time Settings.....	0 to 2 seconds

Trip Accuracies:

Trip-Level	TBD
Trip-Time	- 5% (minimum 40 ms at 60 Hz)

CT EFCT series

Thermal Withstand

Continuous.....	TBD
1 second.....	TBD

Output Relays:

Relay 1:

Contact configuration	N.O. and N.C.
Operating Mode	Fail-Safe/Non-Fail-Safe
CSA/UL Rating	8 A Resistive, 250 Vac, 8 A Resistive, 30 Vdc

Relays 2 & 3:

Contact configuration	N.O. and N.C.
Operating Mode	Fail-Safe/Non-Fail-Safe
CSA/UL Rating	5 A Resistive, 250 Vac, 5 A Resistive, 30 Vdc

Terminals	Wire Clamping, 24 to 12 AWG (0.2 to 2.5 mm ²) conductors
-----------------	--

4-20 mA-Analog Output:

Type	Loop Powered
Range	4 to 22 mA
Loop Voltage.....	8 to 26 Vdc
Load	500 Ω (maximum with 24-Vdc supply)
Isolation	120 Vac
Parameter	CT1, CT2, Combined Current

Communication Options

Network Protocol	Ethernet/IP
------------------------	-------------

Display Type	2x16 OLED
--------------------	-----------

Dimensions: (Body)

Height	44 mm (1.7")
Width	92 mm (3.6")
Depth	100 mm (3.9")

Dimensions: (Bezel)

Height	48 mm (1.9")
Width	96 mm (3.8")
Projection.....	13.7 mm (0.54")

Shipping Weight.....	TBD
----------------------	-----

PTC-Thermistor Input:

Cold Resistance 1500 Ω maximum at 20°C
Trip Level 2800 $\Omega \pm 100 \Omega$
Reset Level 1500 $\Omega \pm 100 \Omega$
Sensor Current 1 mA maximum

RTD Input:

RTD Type 3 wire Pt100
Range -40 to 200°C with open
and short detection
Sensor Current 1 mA
Lead Composition 25 Ω maximum
Accuracy 3°C

Environment:

Operating Temperature -40 to 60 C
Storage Temperature -55 to 80 C
Humidity 85% Non-Condensing

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

Certification CSA



CSA C22.2 No.14 Industrial Control Equipment
UL 508 Industrial Control Equipment
UL 1053 Ground Fault Sensing and Relaying
Equipment

Surge Withstand ANSI/IEEE C37.90.1-2002
(Oscillatory and Fast
Transient)

7. ORDERING INFORMATION

EL-731-  **-00**

Future Use
Communications:
0 = None
3 = Ethernet/IP
Supply:
0 – Universal AC/DC Supply
1 – 24Vdc Supply
2 – 48Vdc/24Vac Supply

EFCT-1 Earth-Fault Current Transformer,
82-mm (3.2") window
EFCT-2 Earth-Fault Current Transformer,
with Flux Conditioner
139-mm (5.5") window
EFCT-26 Earth-Fault Current Transformer,
26-mm (1.0") window
EFCT-1FC Flux Conditioner, 70 mm (2.7") Window
PGA-0500 Analog Percent Current Meter

AC700-SMK..... DIN Rail and Surface-Mount Adapter

AC700-CUA-0  **-0**

Communications
Upgrade
Adapter
Adapter Type
0 – Firmware Upgrade
Module
3 – Ethernet/IP

8. WARRANTY

The EL731 Earth-Leakage Relay is warranted to be free from defects in material and workmanship for a period of 5 years from the date of purchase.

Littelfuse Startco will (at Littelfuse Startco's option) repair, replace, or refund the original purchase price of an EL731 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.

9. PERFORMANCE TEST

Some jurisdictions require periodic earth-fault performance tests. A test record form is provided for recording the date and the result of the performance tests. The following earth-fault system tests are to be conducted by qualified personnel.

- a) Evaluate the interconnected system in accordance with the overall equipment manufacturer's detailed instructions.
- b) Verify proper location of the EFCT current sensors. Ensure the cables pass through the current-sensor window. This check can be done visually with knowledge of the circuit. The connection of the current-sensor secondary to the EL731 is not polarity sensitive.
- c) Verify that the system is correctly earthed and that alternate earth paths do not exist that bypass the current sensor. High-voltage testers and resistance bridges can be used to determine the existence of alternate earth paths.
- d) Verify proper reaction of the circuit-interrupting device in response to a simulated or controlled earth-fault current. To simulate earth-fault current, use CT-primary current injection. Fig. 9 shows a test circuit using an SE-400 Ground-Fault-Relay Test Unit. The SE-400 has a programmable output of 0.5 to 9.9 A for a duration of 0.1 to 9.9 seconds. Fig. 9 shows the use of resistors that reduce the injected current to 10% of the SE-400 setting. Set the test current to 120% of the EL731 setting. Inject the test current through the current-sensor window. Verify that the circuit under test has reacted properly. Correct any problems and re-test until the proper reaction is verified.
- e) Record the date and the results of the test on the attached test-record form.

NOTE: Do not inject test current directly into current-sensor-input terminals 10 and 11.

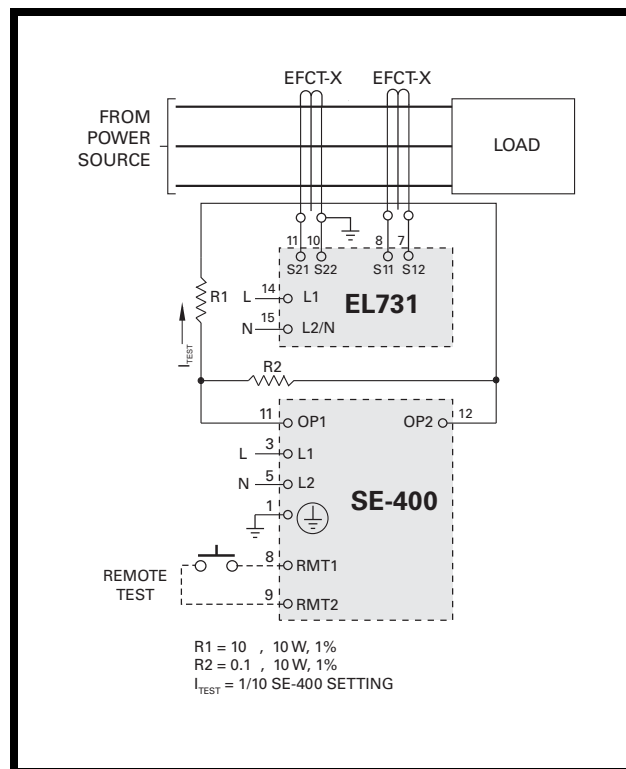


Figure 10. Earth-Fault-Test Circuit.

TABLE 7. EARTH-FAULT-TEST RECORD

[illegible]

Retain this record for the authority having jurisdiction.

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Menu Level

1 2

3

4

5

6

Appendix A EL731 MENU MAP

Earth Leakage Current→ {CT1 and/or CT2 current in percent as value and bar graph}

Metering ▶

CT1 Current→ {CT1 Current in Milliamperes}
CT2 Current→ {CT2 Current in Milliamperes}
Full Current→ {CT1+CT2 Current in Milliamperes}
Internal Temp→ {EL731Temperature Measurement}
PTC Status→ {PTC state}
RTD Temperature→ {RTD Temperature in Celsius & Farenheit}
Exit→ {Return to Previous Menu}

Messages ▶

Trip State→ {Trip Status}
Alarm State→ {Alarm Status}
Trip Counter→ {Trip Counter}
Alarm Counter→ {Alarm Counter}
Running Time→ {Running Hours}
Exit→ {Return to Previous Menu}

Setup ▶

Protection ▶

CT1 Earth Fault ▶

Enable/Disable→ [E/D]
Trip Time→ [X]
Trip Level→ [X]
Alarm Level→ [X]
Calibrate→ [P]
Exit→ {Return to Previous Menu}

CT2 Earth Fault ▶

Enable/Disable→ [E/D]
Trip Time→ [X]
Trip Level→ [X]
Alarm Level→ [X]
Input Filter→ [E]
Exit→ {Return to Previous Menu}

PTC Local Temp ▶

Trip Action→ [E/D]
Alarm Action→ [E/D]

RTD Local Temp ▶

Trip Action→ [E/D]
Trip Level→ [X]
Alarm Action→ [E/D]
Alarm Level→ [X]

Menu Level

1	2	3	4	5	6
		Exit→	{Return to Previous Menu}		
		Relay Outputs ▶	Relay 1 ▶	Function→ [E] Fail-safe Mode→ [E/D] Test→ [P] Exit→ {Ret. to Prev Menu}	
			Relay 2 ▶	Function→ [E] Fail-safe Mode→ [E/D] Test→ [P] Exit→ {Ret. to Prev. Menu}	
			Relay 3 ▶	Function→ [E] Fail-safe Mode→ [E/D] Test→ [P] Exit→ {Ret. to Prev. Menu}	
		Exit→	{Return to Previous Menu}		
		Analog Output ▶	Analog % Level→ [E] CT Select→ [E]		
		Exit→	{Return to Previous Menu}		
		Hardware ▶	Temp. Sensor→ [PTC Sensor / RTD Sensor / Disabled]		
		System Config ▶	Change Password→ [S] Password Enable→ [E/D] Menu Timeout→ [X] Maintenance→		
				Clear Counters→ [P] Load Defaults→ [P] Restart System→ [P] Firmware Ver.→ [P] System Version→ [P] ROM Version→ [S] Build Date→ [S] Serial Number→ [S] Exit→ {Ret. to Prev Menu}	
		Exit→	{Return to Previous Menu}		
	Exit→	{Return to Previous Menu}			
	Password→ [S]				
	Exit→ {Return to Main Menu}				

LEGEND

►: This menu item has a sub menu, press enter view sub menu.

→: Last menu, press enter key to view data.

[P]: Prompt for response from user

[Y/N]: Yes/No.

[X]: Numeric.

[S]: String. Specific string format may be required.

[E]: Selection is from a list of values.

[EA]: Ethernet Address (xxx.xxx.xxx.xxx).

[E/D]: Enable/Disable.