Protection Relays & Controls
EL731 SERIES

Earth-Leakage Protection–Grounded AC or DC Systems •
AC/DC Sensitive Earth-Leakage Relay



Description

The EL731 is a microprocessor-based AC/DC Sensitive Earth-Leakage Relay that offers complete coverage for all frequencies from 0 to 6,000 Hz. Two CTs are required for the entire frequency range, or one CT can be used for only low- or high-frequency detection. An RTD/PTC sensor input allows over-temperature and under-temperature protection for a motor or drive. The EL731 offers metering, password-protected alarm and trip settings and optional network communications. It is primarily used to add low-level ground-fault protection to variable-speed drives, and to dc circuits.

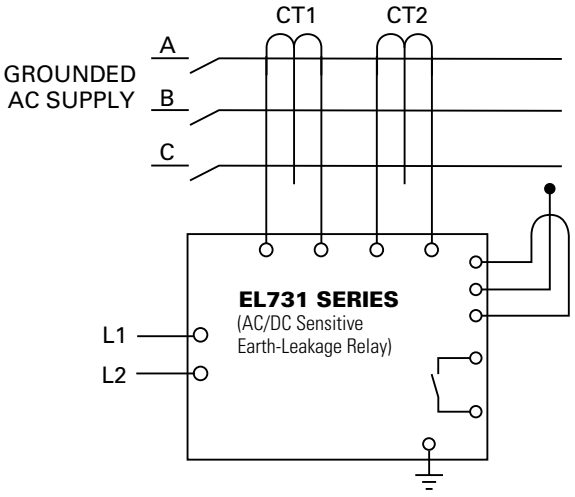
Features & Benefits

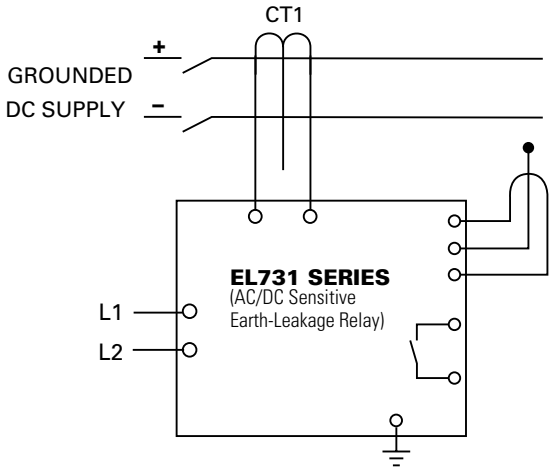
FEATURES	BENEFITS
Adjustable pickup (30-5,000 mA)	Adjustable trip setting provides a wide range of low-level protection and system coordination
Frequency range (0-90 Hz, 20-6,000 Hz)	Operate in either AC or DC mode or both. Use single or combined ranges. Separate metering
32-char OLED display	Earth-leakage metering, setup and programming
Local LED indication	Visual Trip, Alarm, CT connection indication
CT-Loop monitoring	Proactively monitors for open- or short-circuit CT wiring
Analog output (4-20 mA)	Connect to DCS. Allows connection to an optional meter (PGA-0520) or control system
Adjustable time delay	Adjustable trip delay for quick protection and system coordination
Alarm and trip settings	Detect a deteriorating condition before damage occurs
Temperature-sensor input	Monitor motor or drive temperature and respond to high- or low-temperature conditions
Output contacts	Three programmable outputs for tripping or alarming on leakage current, high, or low temperature
Network communication	Optional connection to plant network
Harmonic filtering	Eliminates nuisance tripping due to harmonic noise
Panel, Surface, and DIN-rail mounting	Compact enclosure and flexible mounting options allow for many installation options even in panels with limited space
Universal power supply	Provides flexibility for numerous applications

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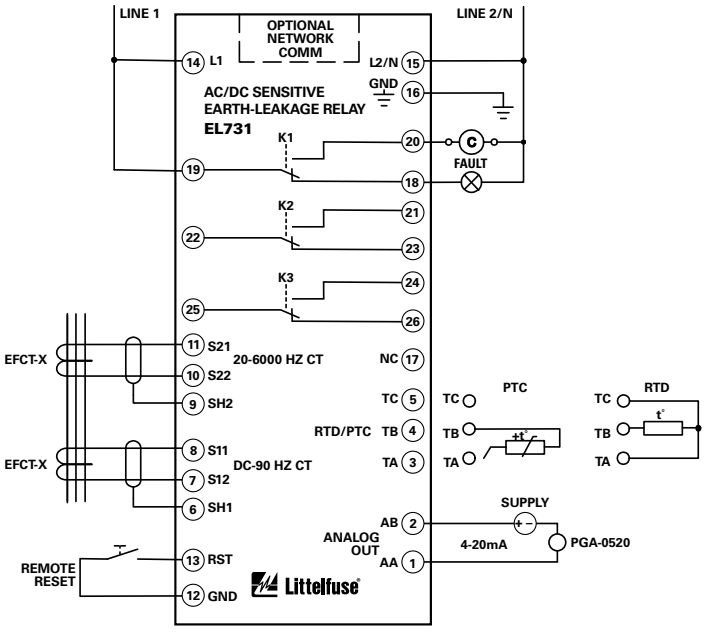
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Simplified Circuit Diagram





Wiring Diagram



Specifications

IEEE Device Numbers	AC ground fault (50G/N, 51G/N), DC ground fault (79G), PTC overtemperature (49), RTD temperature (38, 49)
Supply Voltage	120/240 Vac/Vdc, 24 Vdc, 48 Vdc/24 Vac
Trip Level Settings	30-5,000 mA AC and DC
Alarm Level Settings	30-5,000 mA AC and DC
Trip Delay	0.05-2 s
Output Contacts	3 Form C (programmable)
Contact Operating Mode	Fail-safe & non-fail-safe
Reset	Front panel and remote
Freq. Response, CT1	0-90 Hz
Freq. Response, CT2	20-6,000, 190-6,000, 20-90, 20-3,000 Hz; selectable
Current Transformer	EFCT-x series
CT Detection	Open & short detection
Terminals	Plug-in, wire clamping, 24 to 12 AWG (0.2-2.5 mm^2)
Communications	EtherNet/IP™, DeviceNet™, Profibus®,Modbus® TCP (optional)
Analog Output	4-20 mA (selectable 0-5 A or 0-100% trip-level setting)
Conformal Coating	Standard feature
Dimensions	**H** 48 mm (1.9”); **W** 96 mm (3.8”); **D** 129 mm (5.0”)
Approvals	UL Listed (E340889), CSA, RCM (Australia), CE
Warranty	5 years
Mounting	Panel; Surface and DIN (with optional AC700-SMK)

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Accessories



EFCT Series Earth-Fault Current Transformer
Required zero-sequence current transformer specifically designed for low level detection.



AC700-CUA Series Communication Adapter
Optional network-interface and firmware-upgrade communications adapters field-install in EL731.



AC700-SMK DIN-rail & Surface-mount Adapter
EL731 plugs into adapter for back-plane mounting.

ACCESSORIES	REQUIREMENT
EFCT Series CT	One Required
AC700-CUA Series Com. Unit	Optional
AC700-SMK Surface-Mount Kit	Optional
AC700-CVR-00 Watertight Cover (IP66) for Panel-Mount Applications	Optional
PGA-0520 Analog Meter	Optional

Ordering Information

ORDERING NUMBER	CONTROL POWER	COMMUNICATIONS
EL731-00-X0	120/240 Vac/Vdc	None
EL731-01-X0	120/240 Vac/Vdc	DeviceNet™
EL731-02-X0	120/240 Vac/Vdc	Profibus®
EL731-03-X0	120/240 Vac/Vdc	EtherNet/IP™
EL731-04-X0	120/240 Vac/Vdc	Modbus® TCP
EL731-10-X0	48 Vdc & 24 Vac	None
EL731-11-X0	48 Vdc & 24 Vac	DeviceNet™
EL731-12-X0	48 Vdc & 24 Vac	Profibus®
EL731-13-X0	48 Vdc & 24 Vac	EtherNet/IP™
EL731-14-X0	48 Vdc & 24 Vac	Modbus® TCP
EL731-20-X0	24 Vdc	None
EL731-21-X0	24 Vdc	DeviceNet™
EL731-22-X0	24 Vdc	Profibus®
EL731-23-X0	24 Vdc	EtherNet/IP™
EL731-24-X0	24 Vdc	Modbus® TCP

Note: When building a part number, replace the "X" with "1" for AS/NZS 2081:2011 Compliant product, "0" otherwise.

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