

Protection Relays and Controls

EL500 Series

Single Function Earth Leakage Relay



Description

The EL500 Earth Leakage Relay is a microprocessor-based device designed to measure leakage current and isolate the faulty circuit from the system. Leakage current is sensed through a core-balance current transformer (CBCT). When the leakage current exceeds the trip level setting for the time setting, the device will trip. The trip level and trip time settings are adjustable with front-mounted potentiometers. Additional features include LED trip and power indication, LED bar graph indication for leakage current, front-panel and remote test and reset, and CT OPEN indication.

Features

Monitors, detects and protects power systems from earth leakage faults

Wide range of selectable earth leakage current: 30 mA - 30 A

Configurable earth leakage trip time: 0-10 s

Wide auxiliary supply range: 110 - 240 Vac / Vdc

Base or DIN-rail mounting

Instantaneous trip for 5 times of set value of leakage current

1 changeover (Form C) and 1 NO (Form A) relay output

Ordering Information

CATALOG NUMBER	DESCRIPTION
EL500-00-10	110-240 Vac / Vdc, Current Range 30 mA-30 A, 1 C/O+1 NO, Manual Reset

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Specifications

Supply Voltage	110 - 240 Vac / Vdc
Supply Variation	±20 %
Fuse	Use external 250 mA time-delay fuse
Frequency	50 / 60 Hz
Power Consumption (Max.)	5 VA
Leakage Current Range (IΔn)	30 mA to 30 A
Trip-level settings (A)	0.03, 0.1, 0.3, 0.5, 1, 3, 5, 10, 20, 30
Type Class	'A' True RMS measurement (as per IEC 60947-2 appendix M) up to I Δ n = 3 A
Max. Crest Factor	4
Reset Mode	Manual Reset
Reset Enable and Reset Time	Below 50% of set current threshold in presence of CBCT and < 1 s
Trip Time (Δt in s)	0.00, 0.06, 0.15, 0.25, 0.5, 0.8, 1, 2.5, 5, 10
Test/Reset	Local and Remote (potential free-contacts, up to 10 m cable length for external button)
Setting Accuracy	+0, -20 % (including CBCT accuracy)
Repeat Accuracy	±2%
Output:	
Relay Output	1 Changeover (Form C) and 1 NO (Form A)
Contact Rating	5 A (Resistive) at 240 Vac / 30 Vdc
Electrical Life	1 x 10 ⁵ operations
Mechanical Life	1 x 10 ⁷ operations
Utilization Category:	
AC-15	Rated Voltage (Ue): 120 / 240 V, Rated Current (Ie): 3.0 / 1.5 A
DC-13	Rated Voltage (Ue): 125 / 250 V, Rated Current (Ie): 0.22 / 0.1 A
LED Indication:	
Power	Power On (Solid Green)
EL/CT	EL Trip (Solid Red), CT Open (Blinking Red)
Leakage Current Bar Graph	30% of setting (Solid Green) 45% of setting (Solid Green) 60% of setting (Solid Yellow) 75% of setting (Solid Red) LEDs blink when TST/RST is pressed
Operating Temperature	-15 °C to +60 °C
Storage Temperature	-20 °C to +80 °C
Humidity (Non Condensing)	95% (Rh)
Enclosure	Flame Retardant UL94-V0
Dimension (WxHxD) (in mm)	36 x 90 x 66.2
Weight (unpacked) Approx.	150 g
Mounting	Base / DIN-rail
Degree of Protection	IP20 for Terminals, IP40 for Enclosure

Certification & Standards

CE	Low Voltage Directive – 2014 / 35 / EU EMC Directive – 2014 / 30 / EU
RoHS	RoHS Directive 2011 / 65 / EU Delegated Directive 2015 / 863 / EU
IEC	IEC60947-2 Appendix M. IEC62020, IEC61008, IEC60775

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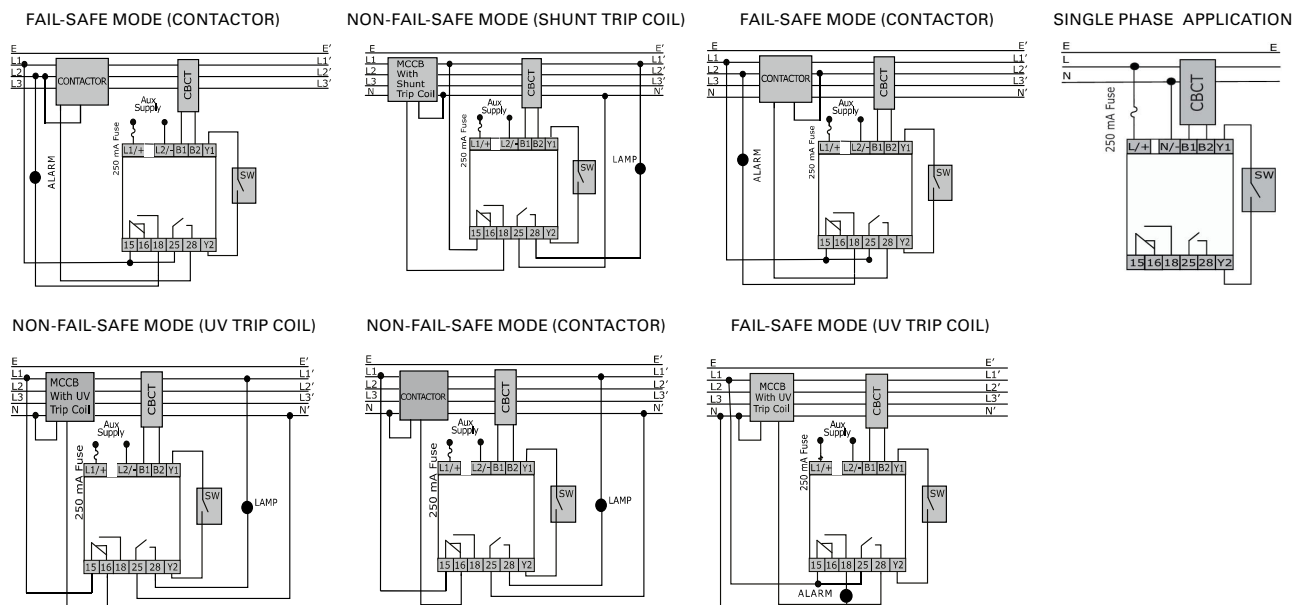
EMI/EMC

Harmonic Current Emissions	IEC 61000-3-2
Voltage Flicker & Fluctuations	IEC 61000-3-3
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 11
Radiated Emission	CISPR 11
Test Voltage between Input and Output	IEC 60947-5-1 (2 kV)
Test Voltage between all terminals & enclosure	IEC 60947-5-1 (2.5 kV)
Over voltage category	IEC 60947-1
Impulse Voltage between Input and Output	IEC 60947-5-1 (4 kV)
Single Fault	IEC 61010-1
Insulation Resistance	UL 508 (> 50 k Ω)
Leakage Current	UL 508 (< 3.5 mA)

Environmental

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

Simplified Circuit diagram



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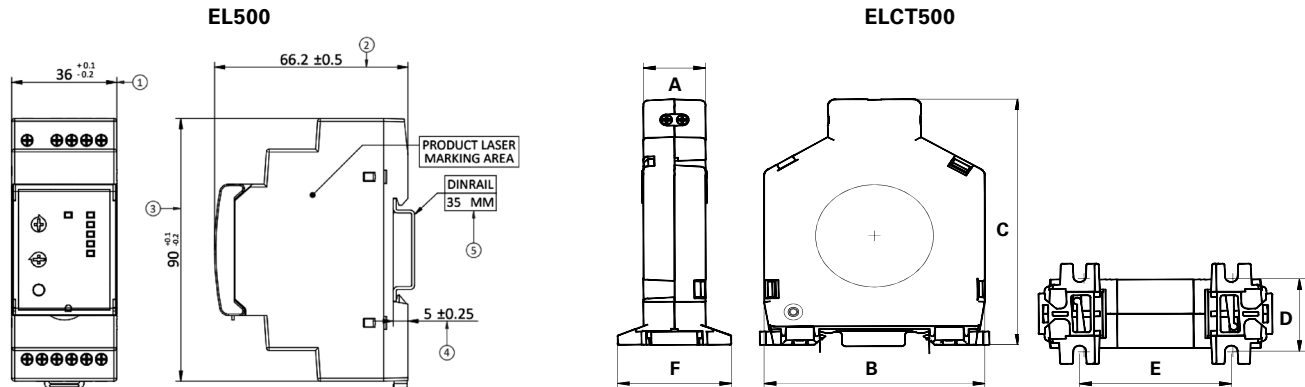
Accessories

ELCT500 Series Core-Balance Current Transformer



SPECIFICATIONS	
Turns Ratio	1500:1
Insulation level	1 kV
Certification	CE

Mounting Dimensions (Millimeters)



CORE BALANCE CURRENT TRANSFORMER	WINDOW SIZE (ID)	WEIGHT (g)	A	B	C	D	E	F
ELCT500-38	38	110	20	71	91	27.4	48	36.5
ELCT500-57	57	185	20	97.3	117	27.4	55	36.7
ELCT500-70	70	240	20	109	133	27.4	60	36.7
ELCT500-92	92	250	20	132	155	27.4	73	36.7
ELCT500-120	120	255	20	153	179	27.4	73	36.7
ELCT500-210	210	280	20	250	282	27.4	128	45

Terminal Torque & Capacity

Ø 3.5	0.54 N.m (5 lb.in)
	1 x 2.5 mm ² Solid Wire/Stranded
AWG	1 x 24 to 12

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