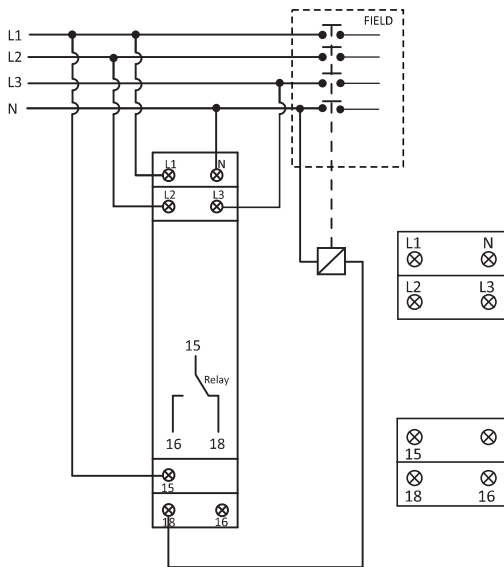


Protection Relays

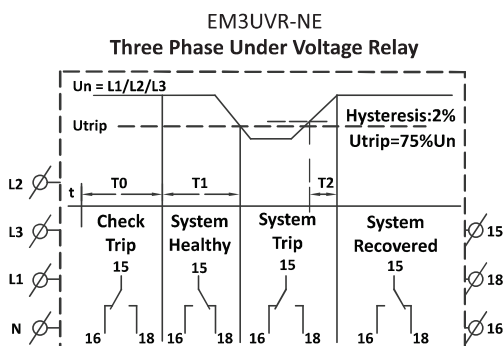
Three Phase Under Voltage Relay (EM3UVR-NE)



Connection Diagram



Functional Diagram



Application

'elmex' UVR is used for highly fluctuating inductive load such as Air Conditioning system in Industrial and commercial establishments. It protects the system equipment and load from sudden over voltage fluctuations.

Salient Features

- 17.5 mm DIN Rail Housing.
- Slim, Space Saving Design.
- Green LED for Power ON.
- Red LED for Healthy Sensing Indication.
- 12 bit Sensing.
- Sealable Front Cover for Tamper Proofing.

Technical Specification

Input Specifications

Supply / Monitoring Voltage (Un) L1 / L2 / L3 - N	220 / 230 / 240*
Frequency Range	48 / 63 Hz
Power Consumption	15 VA (max)
Monitoring Mode	Under Voltage
Trip Level (U trip)	75% of Un (Factory Set)
Hysteresis	2% (Factory Set)
Setting Accuracy	+ 4%

Delays

Power On Delay (t)	5 Mins (Min) to 15 mins (Max)
From Trip to recovery Time Delay (T2) (Settable by linear potentiometer)	5 Mins (Min) to 15 mins (Max)

Output Specifications

Output Contact	SPDT(1C/O)
Contact Rating	5A@240V AC/ 28V DC (Resistive)

LED Indications

Power ON	3mm Green LED
Healthy Indications	3mm Red LED

Environmental Specifications

Temperature	Operating: 0 to 50 °C(32 to 122 °F) Storage: -20 to 75 °C(-4 to 167 °F)
Humidity(non-condensing)	95% RH
Protection Level	IP40 for Casing IP20 for Terminals

Housing

Material	Polycarbonate
Colour	White
Dimension (H x D x W)	85 X 70.05 X 17.5
Mounting	TS 35 DIN Rail

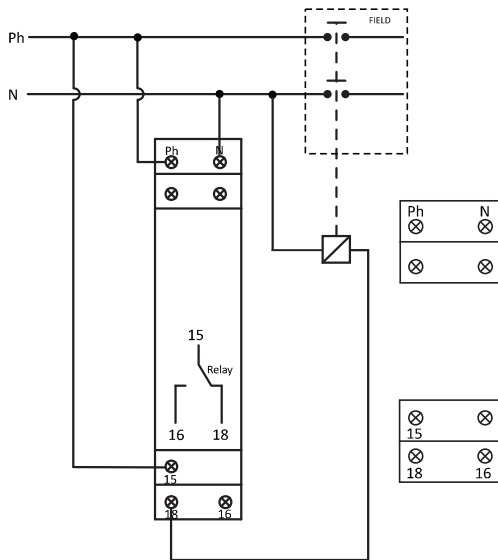
*Supply / Monitoring Voltage (Un) refers to the phase to neutral nominal voltage for product and its variants. Product needs 3Ø,4 wire connection system hence for reference purpose phase to phase voltage can be calculated by multiplying stated values by $\sqrt{3}$

Protection Relays

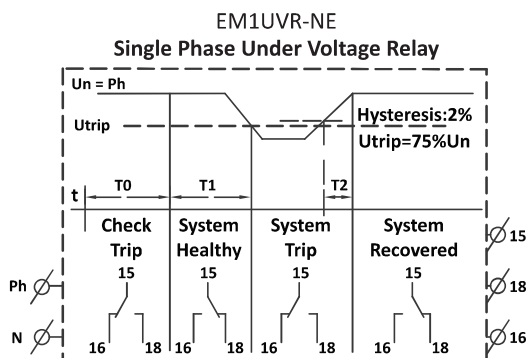
Single Phase Under Voltage Relay (EM1UVR-NE)



Connection Diagram



Functional Diagram



Application

'elmex' UVR is used for highly fluctuating inductive load such as Air Conditioning system in Industrial and commercial establishments. It protects the system equipment and load from sudden over voltage fluctuations.

Salient Features

- 17.5 mm DIN Rail Housing.
- Slim, Space Saving Design.
- Green LED for Power ON.
- Red LED for Healthy Sensing Indication.
- 12 bit Sensing.
- Sealable Front Cover for Tamper Proofing.

Technical Specification

Input Specifications

Supply / Monitoring Voltage (Un) Ph- N	220 / 230 / 240*
Frequency Range	48 - 63 Hz
Power Consumption	15 VA (max)
Monitoring Mode	Under Voltage
Trip Level (U trip)	75% of Un (Factory Set)
Hysteresis	2% (Factory Set)
Setting Accuracy	+ 4%

Delays

Power On Delay (t)	5 Mins (Min) to 15 mins (Max)
From Trip to recovery Time Delay (T2) (Settable by linear potentiometer)	5 Mins (Min) to 15 mins (Max)

Output Specifications

Output Contact	SPDT(1C/O)
Contact Rating	5A@240V AC/ 28V DC (Resistive)

LED Indications

Power ON	3mm Green LED
Healthy Indications	3mm Red LED

Environmental Specifications

Temperature	Operating: 0 to 50 °C(32 to 122 °F) Storage: -20 to 75 °C(-4 to 167 °F)
Humidity(non-condensing)	95% RH
Protection Level	IP40 for Casing IP20 for Terminals

Housing

Material	Polycarbonate
Colour	White
Dimension (H x D x W)	85 X 70.05 X 17.5
Weight	62 gms
Mounting	TS 35 DIN Rail

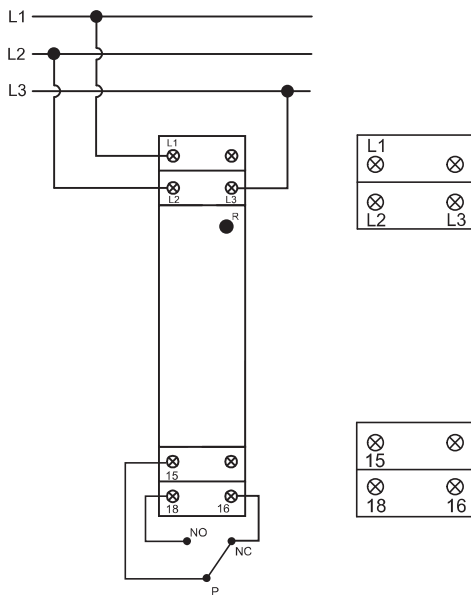
*Supply / Monitoring Voltage (Un) refers to the phase to neutral nominal voltage for product and its variants. Product needs 1Ø, 2 wire connection system.

Protection Relays

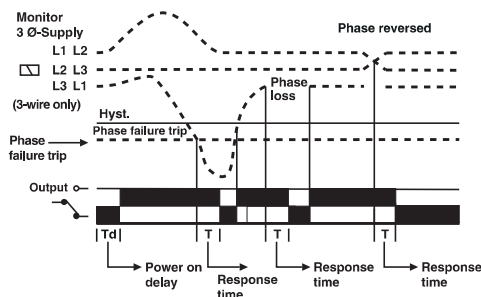
Phase Sequence Relay (EM3PSR)



Connection Diagram



Functional Diagram



Application

'elmex' PSR is a protective relay. It protects 3 phase device against any potential damage due to change in phase sequence / phase asymmetries / fuse failure in 3 phase, 3 wire system.

Salient Features

- 17.5 mm DIN Rail Housing.
- 3Ø - 3 Wire System.
- Monitors (Phase Sequence (PS), Phase Asymmetry (PA) & Phase Failure (PF)).
- 1 x SPDT Relay Output.
- Green LED for Relay on indication.
- Sealable Front Cover for Tamper Proofing.
- Provision of Multi-meter probe for parameters measurement.

Technical Specification

Input Specifications

Operating Voltage (L-L)	154 to 500V AC
Frequency	50/60Hz
Power Consumption	20 VA Maximum
Accuracy	±3% of Full Scale
Reset	Auto reset on removal of fault condition

Functional Specifications

Phase Failure Trip	Phase Voltage <154V AC (L-L)
Phase Sequence, Phase Failure	Yes
Phase Asymmetry	35V
Hysteresis	9V AC
Trip Accuracy	±10V
Response Time	PS, PA: <200 ms, PF <2 sec.

Delays

Power On Delay	<200 msec.
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Output Specifications

Output Contact	SPDT Relays (1 C/O)
Contact Rating	5A@240V AC/ 28V DC (Resistive)

LED Indications

Relay ON	3mm Green LED
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Environmental Specifications

Temperature	Operating: 0 to 50 °C(32 to 122 °F) Storage: -20 to 75 °C(-4 to 167 °F)
Humidity(non-condensing)	95% RH
Protection Level	IP40 for Casing IP20 for Terminals

Housing

Material	Polycarbonate
Colour	White
Dimension (H x D x W)	85 X 70.05 X 17.5
Weight	62 gms
Mounting	TS 35 DIN Rail



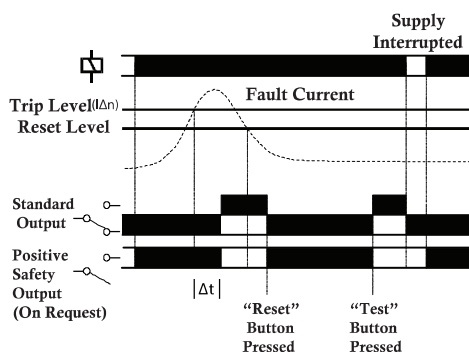
Connection Diagram

A	N.U			NC	P	NO
7	8	9	10	11	12	
90-275 VAC/DC		T	R	CBCT		
A1	A2			S1	S2	
1	2	3	4	5	6	

— T A — → TEST

— R A — → RESET

Functional Diagram



Application

'elmex' make Earth Leakage monitoring Relay facilitates measuring of Earth Leakage Current and used with 'elmex' make Core Balance Current Transformers.

Salient Features

- Universal power supply.
- 35 mm wide DIN Rail Housing.
- Designed to monitor & detect true RMS earth fault currents in conjunction with separate toroid.
- LED bar-graph provides constant indication of any leakage current.
- Microprocessor controlled with internal monitoring(Self - checking).
- Adjustable sensitivity ($I_{\Delta n}$) and Time Delay (Δt) - 0 (Instantaneous) to 10 seconds.
- Separate "Test" and "Reset" push buttons.
- Connection facility for remote "Test" and "Reset" push buttons or N.O contacts.
- 1 Relay Output - Standard output (S.O) & Positive safety output relay on request.
- LED indication of supply status and fault condition after unit has tripped.

Technical Specification

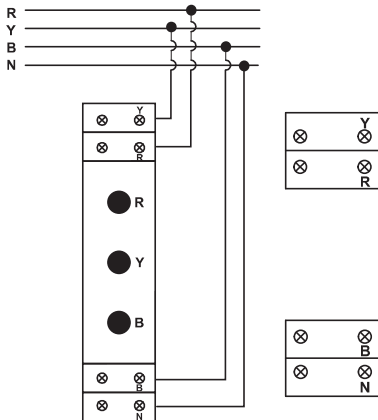
Supply voltage - A1 - A2	90-275Vac/dc
Frequency Range	50/60Hz
Power Consumption	< 5VA
Monitoring Mode	Leakage current
Monitored leakage current	Up to 30A
Trip Level limits	80 - 90% of $I_{\Delta n}$
Reset Value	= 85 % of tripped level
Delays	
Time delay Δt	0, 60, 150, 250, 500, 800mS, 1, 2.5, 5, 10 sec. (user selectable)
Output Specifications	
Output	1 x SPDT relay (1 FORM C)
Output rating	S.O. (NO: 10A@277VAC/ 28VDC) (NC: 5A@250VAC)
LED Indications	
Power ON	3mm Green LED
Bargraph	3x3mm Green LED (25, 50 and 75% of actual trip level)
Tripped	3mm Red LED
ELMU healthy	3mm Red LED (Blinking)
Housing	
Material	ABS UL - 94 V0
Colour	Light Gray
Dimension (L X W X H)	59 X 35X 91mm
Din rail enclosure component	Poly carbonate
Mounting	TS 35 DIN Rail

TYPE: EM1NR/ EM1NY/ EM1NB/ EM1N3

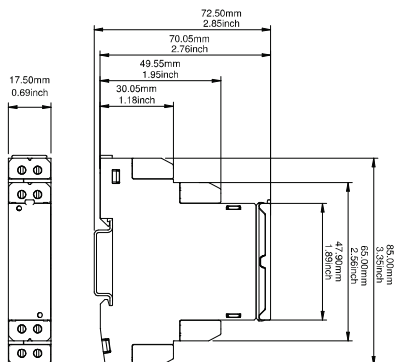
PHASE INDICATOR (Optic Signalling of AC Voltage Presence in 1Ph /3Ph Network)



Connection Diagram



Dimension



Application

'elmex' make Earth Leakage monitoring Relay facilitates measuring of Earth Leakage Current and used with 'elmex' make Core Balance Current Transformers.

Salient Features

- 17.5 mm DIN Rail Housing.
- Available for Single Phase and Three Phase Indication.
- LED technology for long life.
- Provision of Multi-meter probe for parameters measurement.

Technical Specification

Supply voltage	230V AC
Frequency Range	50/60Hz
Power Consumption (Max.)	1.8 Watt.
Supply Variation	-25 to +10% of Supply Voltage

LED Indications

Part Code	EM1NR	EM1NY	EM1NB	EM1N3
Number of Indication	1	1	1	3
LED Colour	Red			R Phase
	Yellow	Y Phase		Y Phase
	Blue		B Phase	B Phase

LED Type	Through Hole
LED Size (Diameter)	5 mm

Environmental Specifications

Temperature	Operating: -15 to 60°C (5 to 140°F) Storage: -25 to 80°C (-13 to 176°F)
Humidity(non-condensing)	95% RH
Protection Level	IP40 for Casing, IP20 for Terminals

Housing

Material	Polycarbonate
Colour	White
Dimension (H X D X W)	85 mm x 70.05 mm x 17.5 mm
Mounting	TS 35 DIN Rail