

Voltage Monitoring Relays

VM110 Series

Phase Sequence, Under-voltage, Over-voltage Monitoring Relay



VM110-00-00

VM110-00-21

VM110-00-22

Description

The VM110 Voltage Monitoring Relay series are used in electrical systems to ensure safe and reliable operation. It monitors the sequence of phase voltages to prevent incorrect rotation of three-phase motors, detects under-voltage conditions that could lead to equipment damage, and identifies over-voltage situations that can cause insulation failure or equipment malfunction. The relay features adjustable setpoints for under-voltage and over-voltage thresholds, along with phase sequence detection, providing a comprehensive solution for voltage protection in industrial applications.

Features

Compact, 17.5 mm wide

Multi-Voltage: Three Phase Three Wire at 208-480 Vac

Selectable Under-voltage and Over-voltage levels (specific models only)

Adjustable time delay- Operate time and Release time (specific models only)

1 C/O Configuration

Protects against Phase Loss, Phase Reversal and Phase Asymmetry

LED Indication for all faults, Indication for change in settings during run time for better security

Improved accuracy and high reliability

Quick visual indicator for cause of trip and relay status

Ordering Information

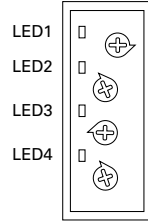
PART NUMBER	DESCRIPTION
VM110-00-00	208-480 Vac, Phase Loss, Phase Sequence Monitoring, 1 C/O
VM110-00-21	208-480 Vac, UV/OV and SPP with Selectable Operate Time, 1 C/O
VM110-00-22	208-480 Vac, UV/OV and SPP with Selectable Release Time, 1 C/O

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Specifications

Part No.	VM110-00-00	VM110-00-21	VM110-00-22			
Supply Voltage (≡)	208 to 480 Vac, (3 Phase 3 Wire)					
Supply Variation	-12% to +10% of supply					
Frequency	47 to 63 Hz					
Power Consumption (Max.)	4.5 VA (Max.)					
Settable Nominal Voltage	N/A	208-220-380-400-415-440-480 V AC				
Trip Levels:						
Phase Loss	Yes	Yes				
Phase Sequence	Yes	Yes				
Phase Asymmetry	N/A	10% Fixed				
Under Voltage	N/A	-5% to -25% of supply				
Over Voltage	N/A	+5% to +25% of supply				
Time Delay:						
Operate Time	< 750 ms	0.5 to 100 s (Selectable)	5 s			
Release Time (UV, OV and Asymmetry)	~550 ms (UV / OV)	5 s	0.5 to 100 s (Selectable)			
Output:	1 C/O					
Relay Output	5 A at 250 Vac / 30 Vdc (Resistive)					
Contact Rating	1x10 ⁶ operations					
Electrical Life	3x10 ⁶ operations					
Mechanical Life						
Utilization Category:	Rated Voltage (Ue): 120 / 240 V, Rated Current (Ie): 3.0 / 1.5 A					
AC - 15	Rated Voltage (Ue): 24 / 125 / 250 V, Rated Current (Ie): 2.0 / 0.22 / 0.1 A					
DC - 13						
LED Indication:	R/RV LED (GREEN)	LED1 (GREEN)	LED2 (RED)	LED3 (RED)	LED4 (RED)	
Supply Healthy	ON	ON	OFF	OFF	OFF	
Phase Reverse (R/RV)	Flash	Flash	OFF	OFF	OFF	
Under-Voltage (UV)	N/A	ON	ON	OFF	OFF	
Over-Voltage (OV)	N/A	ON	OFF	ON	OFF	
Asymmetry (AS)	N/A	ON	OFF	OFF	ON	
Phase Fail	OFF	OFF	OFF	OFF	OFF	
Higher cut off (>560 Vac)	OFF	OFF	OFF	OFF	OFF	
Lower cut off (<138 Vac)	OFF	N/A	N/A	N/A	N/A	
Lower cut off (<175 Vac)	N/A	OFF	OFF	OFF	OFF	
All LED status when setting changed during running condition	N/A	Flash	Flash	Flash	Flash	
Operating Temperature	-15 °C to +60 °C					
Storage Temperature	-20 °C to +80 °C					
Humidity (Non-Condensing)	5 to 95% (Rh)					
Enclosure	Flame Retardant UL94-V0					
Dimension (WxHxD) (in mm)	17.5 x 58.5 x 90					
Weight (unpacked) Approx.	70 g					
Mounting	Base / DIN-rail					
Degree of Protection	IP20 for Terminals, IP40 for Housing and IP50 for front facia					



Certification & Standards

UL	UL508
CE	Low Voltage Directive 2014 / 35 / EU EMC Directive 2014/30/EU
RoHS	RoHS Directive 2011 / 65 / EU, Delegated Directive 2015 / 863 / EU

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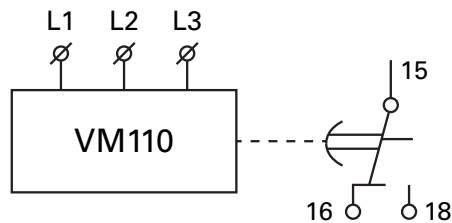
EMI/EMC

Harmonic Current Emissions	IEC 61000-3-2
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

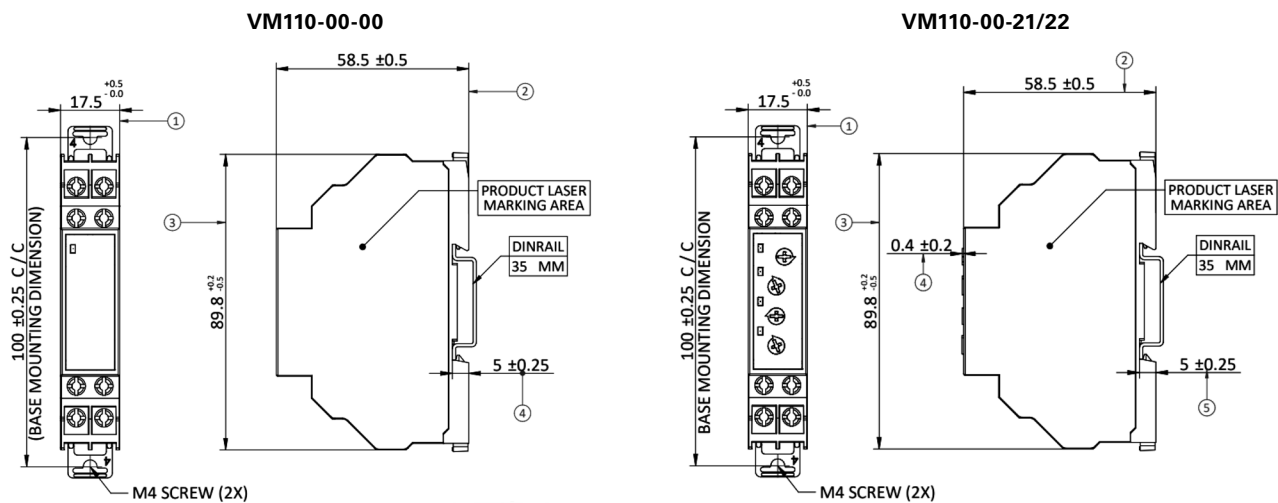
Environmental

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

Wiring diagram



Dimensions (Millimeters)



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