

proSense® Voltage Monitor Relays

Overview

Voltage monitor relays monitor AC single-phase (50-60 Hz) or DC voltages to protect equipment from fault conditions. No separate supply is required since each unit is powered by monitored voltage.

ProSense® offers two styles of Voltage Monitor Relays:

Over/Under Voltage Relays - provides protection to equipment where either an over or under voltage condition is potentially damaging. They are designed to energize when monitored voltage reaches a preset value (U_{max}) and drop-out when the monitored voltage drops to a level below the preset value (U_{min}).

Voltage Band Relays - provides protection to equipment that is required to operate within an upper and lower voltage limit. As long as the monitored voltage remains within an OVER (U_{max}) and UNDER voltage (U_{min}) range, the internal relay stays energized. If the monitored voltage falls outside this range, the relay will drop-out.

Features

- Monitors AC single-phase and DC voltages
- True RMS voltage measurement ensures more accurate sensing
- Wide range of user adjustable pick-up voltages
- 8-pin socket mount
- LED indicates output relay status



VMR-2C-F-120A



VMR-2C-A-120A



VMR-2C-B-120A

Technical Specifications

Part Number	VMR-xC-F-xxx	VMR-xC-A-xxx	VMR-xC-B-xxx
Input Voltage Range	See selection table on the following page		
Voltage Tolerance	±50% of nominal AC (50-60Hz, ±5%) or DC voltage No separate input voltage required since unit is powered by monitored voltage.		
Load Burden	Less than 2VA (12-120V); 30VA (240V & 480V)		
Undervoltage	Fixed at 95% of pick-up setting	Adjustable from 75-95% of pick-up setting	75-95% of over/under voltage setting
Overvoltage	Across full range as shown in the product selection table		
Setting Accuracy	Maximum setting (adjustable): +5%, -0% Minimum setting (adjustable): +0%, -50% Fixed Voltage Setting: ±2%		
Repeatability	<1 %		
Sensing Accuracy	Constant conditions within specifications: ±2% Variable conditions within specifications: ±5% (percent base on nominal voltage)		
Temperature	Operating: -28 to 65°C [-18 to 149°F] Storage: -40 to 85°C [-40 to 185°F]		
Indicator LED	Red when relay is energized Green when relay is off		
Response Times	Restart: 1 second (240 & 480V only) Pick-up: 0.5 seconds Drop-out (t): 0.5 seconds (VMR-xC-F-xxx); Adjustable 0.1 - 10 seconds (VMR-xC-A-xxx)		Restart: 1 second (240 & 480V only) Pick-up: 0.5 seconds Drop-out (t): Adjustable 0.1 - 10 seconds
Output Contacts	(All except VMR-1C-x-240A): 10A @ 240 VAC, 7A @ 30 VDC, 1/4HP @ 120/240 VAC, C300 (VMR-1C-x-240A): 5A @ 277 VAC, 5A @ 30 VDC, 1/3HP @ 120/240 VAC, B300 Pilot Duty		10A @ 240 VAC, 7A @ 30 VDC, 1/4HP @ 120/240 VAC, C300
Life	Mechanical: 10,000,000 operations; Full Load: 100,000 operations		
Wire Size	12-22 AWG		
Tightening Torque	12 in•lbs		
Protection Rating	IP20		
Reset	Automatic		
Transient Protection	2000V per IEC 61000-4-5 Level 3 (±2kV)		
Weight (lb)	0.2	0.2	0.2
Agency Approvals	cURus, CE, (cULus when used with socket 70169-D)		

prosense® Voltage Monitor Relays

1-phase Voltage Monitor Relays Selection Table							
Part Number	Price	Input Voltage	Relay Configuration	Contact Rating	Protection Type	Diagram	Drawing Link
<u>VMR-2C-F-120A</u>	\$68.00	90-150 VAC	DPDT	10A	overvoltage undervoltage fixed drop-out	213	<u>PDF</u>
<u>VMR-2C-A-120A</u>	\$68.00	90-150 VAC	DPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-2C-B-120A</u>	\$68.00	90-150 VAC	DPDT	10A	voltage band		<u>PDF</u>
<u>VMR-1C-F-240A</u>	\$79.00	180-300 VAC	SPDT	10A	overvoltage undervoltage fixed drop-out	150	<u>PDF</u>
<u>VMR-1C-A-240A</u>	\$79.00	180-300 VAC	SPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-1C-B-240A</u>	\$79.00	180-300 VAC	SPDT	10A	voltage band		<u>PDF</u>
<u>VMR-1C-F-480A *</u>	\$79.00	360-600 VAC	SPDT	10A	overvoltage undervoltage fixed drop-out		<u>PDF</u>
<u>VMR-1C-A-480A *</u>	\$79.00	360-600 VAC	SPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-1C-B-480A *</u>	\$68.00	360-600 VAC	SPDT	10A	voltage band		<u>PDF</u>
<u>VMR-2C-F-12D</u>	\$68.00	9-15 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out	214	<u>PDF</u>
<u>VMR-2C-A-12D</u>	\$68.00	9-15 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-2C-B-12D</u>	\$68.00	9-15 VDC	DPDT	10A	voltage band		<u>PDF</u>
<u>VMR-2C-F-24D</u>	\$68.00	18-30 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		<u>PDF</u>
<u>VMR-2C-A-24D</u>	\$68.00	18-30 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-2C-B-24D</u>	\$68.00	18-30 VDC	DPDT	10A	voltage band		<u>PDF</u>
<u>VMR-2C-F-48D</u>	\$68.00	36-60 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		<u>PDF</u>
<u>VMR-2C-A-48D</u>	\$68.00	36-60 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-2C-B-48D</u>	\$68.00	36-60 VDC	DPDT	10A	voltage band		<u>PDF</u>
<u>VMR-2C-F-110D</u>	\$68.00	83-138 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		<u>PDF</u>
<u>VMR-2C-A-110D</u>	\$68.00	83-138 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		<u>PDF</u>
<u>VMR-2C-B-110D</u>	\$68.00	83-138 VDC	DPDT	10A	voltage band		<u>PDF</u>

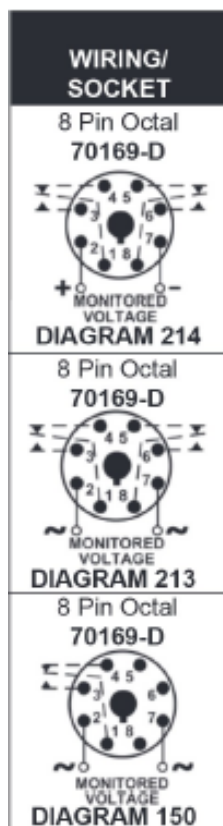
* VMR-1C-x-480A requires part number [70169-D](#), (purchase separately).

prosense® Voltage Monitor Relays

Function Chart

Catalog Number	Operation	Function Chart
VMR-2C-F-12D VMR-2C-F-24D VMR-2C-F-48D VMR-2C-F-110D VMR-2C-F-120A VMR-1C-F-240A VMR-1C-F-480A	Adjust the pick-up voltage setting (U_{max}) between the full range as shown on the product nameplate. The drop-out voltage setting (U_{min}) is fixed at 95% of the pick-up setting. The relay energizes (and the LED is Red) when the monitored voltage is above the pick-up setting for a period longer than the fixed pick-up time delay of 0.5 seconds. The relay de-energizes (and the LED is Green) when the monitored voltage is below the drop-out setting for a period longer than the drop-out time delay (t) of 0.5 seconds.	<p>Monitored Voltage</p> <p>Pick-Up Voltage (U_{max})</p> <p>Drop-out Voltage (U_{min})</p> <p>Relay Output</p> <p>On</p> <p>Off</p> <p>t</p>
VMR-2C-A-12D VMR-2C-A-24S VMR-2C-A-48D VMR-2C-A-110D VMR-2C-A-120A VMR-1C-A-240A VMR-1C-A-480A	Adjust the pick-up voltage setting (U_{max}) between the full range as shown on the product nameplate. Then adjust the drop-out voltage setting (U_{min}) between 75% and 95% of the pick-up setting. The relay energizes (and the LED is Red) when the monitored voltage is above the pick-up setting for a period longer than the fixed pick-up time delay of 0.5 seconds. The relay de-energizes (and the LED is Green) when the monitored voltage is below the drop-out setting for a period longer than the drop-out time delay (t), which is adjustable between 0.1-10 seconds.	<p>Monitored Voltage</p> <p>Pick-Up Voltage (U_{max})</p> <p>Drop-out Voltage (U_{min})</p> <p>Relay Output</p> <p>On</p> <p>Off</p> <p>t</p>
VMR-2C-B-12D VMR-2C-B-24D VMR-2C-B-48D VMR-2C-B-110D VMR-2C-B-120A VMR-1C-B-240A VMR-1C-B-480A	Adjust the over voltage setting (U_{max}) between the full range as shown on the product nameplate. Adjust the under voltage setting (U_{min}) between 75% and 95% of the over voltage setting. The relay energizes (and the LED is Red) when the monitored voltage is between the over and under voltage settings for a period longer than the drop-out time delay (t), which is adjustable from 0.1-10 seconds. The relay re-energizes when the monitored voltage returns to a value between the over and under voltage settings for a period longer than the pick-up time delay, which is fixed at 0.5 seconds.	<p>Monitored Voltage</p> <p>Over Voltage (U_{max})</p> <p>Under Voltage (U_{min})</p> <p>Relay Output</p> <p>On</p> <p>Off</p> <p>t</p> <p>Hysteresis</p>

Wiring Diagram



prosense® Octal Sockets

Features

- Mounts on 35mm DIN rail
- Screw clamp wire termination



70169-D



70170-D



750-2C-SKT

Octal Sockets for Relays

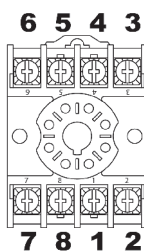
Part Number	Price	Description	Qty	Wt (lb)	Drawing Links
<u>70169-D</u>	\$5.25	Macromatic relay socket, 8-pin, 35mm DIN rail or panel mount. For use with ProSense octal relays.	1	0.1	PDF
<u>70170-D</u>	\$6.25	Macromatic relay socket, 11-pin, 35mm DIN rail or panel mount. For use with ProSense octal relays.	1	0.1	PDF
<u>750-2C-SKT</u>	\$4.75	AutomationDirect relay socket, 8-pin, 35mm DIN rail or panel mount. For use with 750-2C and H750-2C series octal relays.	1	0.1	PDF

Octal Sockets Specifications

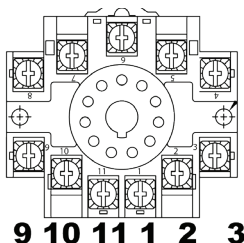
Part Number	Number of Pins	Voltage	Current	Screw Size	Wire Size (capacity)	Screw Torque	Screw Chassis Mounting Torque	Agency Approval *
<u>70169-D</u>	8	600V	10A	6-32	1 or 2, 12-20 AWG	12 in-lb	7 in-lb	UL Recognized E169693, CSA, CE
<u>70170-D</u>	11	300V	10A	6-32	1 or 2, 12-20 AWG	12 in-lb	12 in-lb	
<u>750-2C-SKT</u>	8	600V	5A	M3.5	1-12 AWG / 1-14 AWG	9 in-lb	7 in-lb	UL Recognized E225080, CSA, CE

* To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

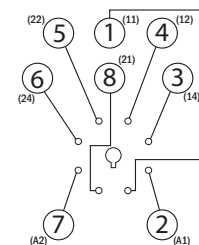
Socket Pinouts



70169-D



70170-D



750-2C-SKT