DrSense 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_{m}) and drop-out when the monitored voltage drops to a level below the preset value (U_{m}) .

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_{max}) 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	$\pm 50\%$ of nominal AC (50-60Hz, $\pm 5\%$) 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 fu	Il range as shown in the product selection table)					
Setting Accuracy		laximum setting (adjustable): +5%, -0% g (adjustable): +0%, -50% Fixed Voltage Setting	g: ±2%					
Repeatability		<1 %						
Sensing Accuracy		Constant conditions within specifications: $\pm 2\%$ Variable conditions within specifications: $\pm 5\%$ (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 Pick-up: 0.5 se Drop-out (t): 0.5 seconds Adjustable 0.1 - 10 second	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 (VMR-1C-x-240A): 5A@ 277 VAC, 5A@ 30 VDC		10A@240 VAC, 7A@30 VDC, 1/4HP@ 120/240 VAC, C300					
Life	Mechanical: 1	0,000,000 operations; Full Load: 100,000 opera	ations					
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)							

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DrSense[®] 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>	\$74.00	90-150 VAC	DPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-2C-A-120A</u>	\$74.00	90-150 VAC	DPDT	10A	overvoltage undervoltage adjustable drop-out	213	PDF	
VMR-2C-B-120A	\$74.00	90-150 VAC	DPDT	10A	voltage band		PDF	
VMR-1C-F-240A	\$86.00	180-300 VAC	SPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-1C-A-240A</u>	\$86.00	180-300 VAC	SPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-1C-B-240A	\$86.00	180-300 VAC	SPDT	10A	voltage band	150	PDF	
<u>VMR-1C-F-480A</u> *	\$86.00	360-600 VAC	SPDT	10A	overvoltage undervoltage fixed drop-out	150	PDF	
<u>VMR-1C-A-480A</u> *	\$86.00	360-600 VAC	SPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-1C-B-480A *	\$74.00	360-600 VAC	SPDT	10A	voltage band		PDF	
<u>VMR-2C-F-12D</u>	\$74.00	9-15 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-2C-A-12D</u>	\$74.00	9-15 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-2C-B-12D	\$74.00	9-15 VDC	DPDT	10A	voltage band		PDF	
<u>VMR-2C-F-24D</u>	\$74.00	18-30 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-2C-A-24D</u>	\$74.00	18-30 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-2C-B-24D	\$74.00	18-30 VDC	DPDT	10A	voltage band	- 214	PDF	
<u>VMR-2C-F-48D</u>	\$74.00	36-60 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-2C-A-48D</u>	\$74.00	36-60 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-2C-B-48D	\$74.00	36-60 VDC	DPDT	10A	voltage band		PDF	
<u>VMR-2C-F-110D</u>	\$74.00	83-138 VDC	DPDT	10A	overvoltage undervoltage fixed drop-out		PDF	
<u>VMR-2C-A-110D</u>	\$74.00	83-138 VDC	DPDT	10A	overvoltage undervoltage adjustable drop-out		PDF	
VMR-2C-B-110D	\$74.00	83-138 VDC	DPDT	10A	voltage band		PDF	

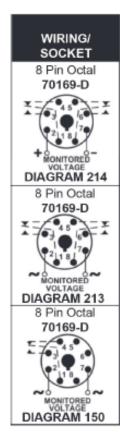
* VMR-1C-x-480A requires part number 70169-D, (purchase separately).

prosense Voltage Monitor Relays

Function Chart

Catalog Number	Operation	Function Chart				
VMR-2C-F-12D VMR-2C-F-24D VMR-2C-F-24D VMR-2C-F-110D VMR-2C-F-120A VMR-1C-F-240A VMR-1C-F-480A	Adjust the pick-up voltage setting (Umax) between the full range as shown on the product nameplate. The drop-out voltage setting (Umin) 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.	Pick-Up Voltage Monitored (U _{max})				
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 (Umax) between the full range as shown on the product nameplate. Then adjust the drop-out voltage setting (Umin) 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 setting to raperiod longer than the drop-out time delay (t), which is adjustable between 0.1-10 seconds.	Voltage (Umin) Relay On Output Off				
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 (Umax) between the full range as shown on the product nameplate. Adjust the under voltage setting (Umin) 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. The relay de-energizes (and the LED is Green) when the monitored voltage falls outside the over or under voltage settings for a period longer than the drop-out time delay (t), which is adjust- able from 0.1-10 seconds. The relay re-energizes when the monitored voltage settings for a period longer than the pick-up time delay, which is fixed at 0.5 seconds.	Monitored Umax) Voltage Under Voltage (Umin) Relay Off				

Wiring Diagram



DrSense[®] Octal Sockets

Features

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



70169-D



<u>70170-D</u>



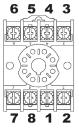
750-2C-SKT

Octal Sockets for Relays								
Part Number	Price	Qty	Wt (lb)	Drawing Links				
<u>70169-D</u>	\$5.50	Macromatic relay socket, 8-pin, 35mm DIN rail or panel mount. For use with ProSense octal relays.	1	0.1	<u>PDF</u>			
<u>70170-D</u>	\$6.50	Macromatic relay socket, 11-pin, 35mm DIN rail or panel mount. For use with ProSense octal relays.	1	0.1	<u>PDF</u>			
<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,	
<u>70170-D</u>	11	300V	10A	6-32	1 or 2, 12-20 AWG	12 in-lb	12 in-lb	ČSA, CE	
<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



<u>70169-D</u>

