

# Universal 3 Phase Voltage Monitor HLMU Series (DPDT) Universal Voltage Motor Protector



ANSI Device #27/47/59



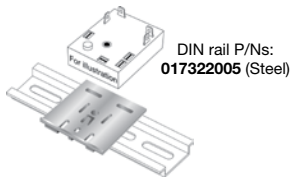
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- Protects Against: Phase Loss, Phase Reversal, Over, Under & Unbalanced Voltages, Over/Under Frequency
- Encapsulated Circuitry
- DPDT Isolated 10 A Contacts
- LED Indicates Relay Status, Faults, & Time Delays
- Universal Line Voltage 200 ... 480 V AC in One Unit
- Compact, Encapsulated Design
- Finger-Safe Terminal Blocks, up to 12 AWG
- ASME A17.1 rule 210.6
- NEMA MG1 14:30, 14:35
- IEEE C62.41-1991 Level B

Complete Product Details:  
<http://www.ssac.com/pp1.htm>



## Mounting and Connection Accessories

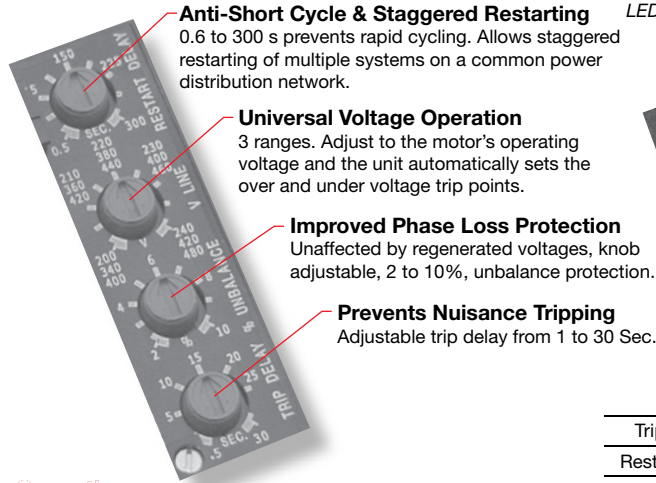


DIN rail adaptor  
P/N: P1023-20



3-Pole Fuse Block  
Mounts on 35mm  
DIN Rail  
P/N: FH3P  
2 Amp Midget Fuse  
P/N: P0600-11

See accessory pages



### Anti-Short Cycle & Staggered Restarting

0.6 to 300 s prevents rapid cycling. Allows staggered restarting of multiple systems on a common power distribution network.

### Universal Voltage Operation

3 ranges. Adjust to the motor's operating voltage and the unit automatically sets the over and under voltage trip points.

### Improved Phase Loss Protection

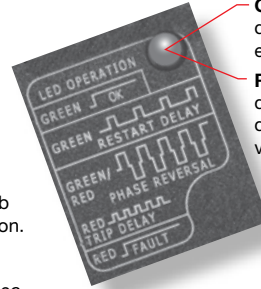
Unaffected by regenerated voltages, knob adjustable, 2 to 10%, unbalance protection.

### Prevents Nuisance Tripping

Adjustable trip delay from 1 to 30 Sec.

### New: LED Indicates Phase Reversal

LED status indicator blinks red/green on phase reversal.



Green indicates restart delay or output relay energized

Red indicates trip delay or output energized due to a voltage fault

## Operation

Upon application of line voltage, the output is de-energized and the restart delay begins. If all the three phase voltages are within the acceptable range, the output energizes at the end of the restart delay. The microcontroller circuitry automatically senses the voltage range, and selects the correct operating frequency (50 or 60Hz). The over and under voltage trip points are set at approximately +/- 10% of the adjusted line voltage. When the measured value of any phase voltage exceeds the acceptable range limits (lower or upper) the trip delay begins. At the end of the trip delay the output relay de-energizes. Under, over, and unbalanced voltages plus over or under frequency must be sensed for the complete trip delay before the unit trips. The unit trips in 200 ms when phase loss or reversal are sensed. The unit will not energize if a fault is sensed as the line voltage is applied. Both Delta and Wye systems can be monitored; no connection to neutral is required.

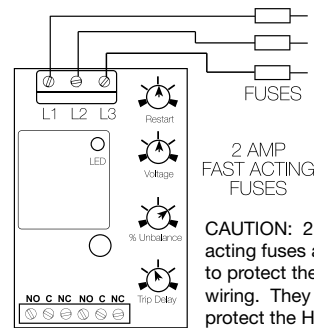
Reset: Reset is automatic upon correction of the voltage or frequency fault or phase sequence.

R= Restart Delay on fault correction. The restart delay begins when line voltage is reapplied or when a voltage fault is corrected. This option is normally selected when staggered restarting of multiple motors on a power system is required.

Trip Delay	Red	ON/OFF	120 FPM
Restart Delay	Green		60 FPM
Phase Reversal	Red/Green	Alternate	120 FPM

FPM = Flashes per minute

## Connection



CAUTION: 2 amp max. fast acting fuses are recommended to protect the equipment's wiring. They are not required to protect the HLMU.

L1, L2, L3 = Line Voltage Input  
NO = Normally Open Contact NC = Normally Closed Contact  
C = Common, Transfer Contact  
Note: Relay contacts are isolated, 277 V AC max.

## Technical Data

<b>Sensing/Protection</b>		
Phase Loss Response Time		≥ 25% Unbalance
Over/Under Frequency Protection		≤200ms
		Trip ±4%; Reset ±3%; 50 or 60 Hz
<b>Output</b>		
Rating		10 A resistive at 240 V AC; 8 A resistive at 277 V AC; N.O-1/4 hp at 120 V AC; 1/3 hp at 240 V AC;
<b>Mechanical</b>		
Mounting		Surface mount with one #10 (M5 x 0.7) screw
Package		3 x 2 x 1.5 in. (76.7 x 51.3 x 41.7 mm)
Termination		Screw terminal connection for up to 12 AWG (3.3 mm <sup>2</sup> ) wire
Degree of Protection		Terminals IP20

## Ordering Table

Part Number	Line Voltage	Output Form	Adj. Unbalance	Adj. Trip Delay	Adj. Restart
HLMUDRAAA	200 to 480 V AC	DPDT	2 to 10%	1 to 30 S	0.6 to 300 S