WVM SERIES

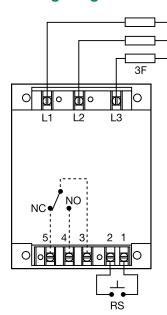








Wiring Diagram



F = Fuses

NO = Normally Open

NC = Normally Closed

RS = Optional Remote Reset Switch

Relay contacts are isolated.

CAUTION: 2 amp max fast acting fuses must be installed externally in series with each input. (3)

Description

The WVM Series provides protection against premature equipment (motor) failure caused by voltage faults on the 3-phase line. The WVM's microcontroller design provides reliable protection even if regenerated voltages are present. It combines dependable fault sensing with a 10 fault memory and a 6 LED status display. Part instrument, part control, the WVM protects your equipment when you're not there and displays what happened when you return. The WVM is fully adjustable and includes time delays to prevent nuisance tripping and improve system operation. Time delays include a 0.25 to 30s adjustable trip delay, an adjustable 0.25 to 64m (in 3 ranges) restart delay, plus a unique 3 to 15s true random start delay. The random start delay prevents voltage sags caused by simultaneous restarting of numerous motor loads after a power outage.

Features & Benefits

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FEATURES	BENEFITS			
Proprietary microcontroller based circuitry	Constant monitoring to protect against phase loss, phase reversal, over voltage, under voltage, unbalance, and short cycling			
Fault memory	Stores the 10 most recent faults, which provides diagnostics for troubleshooting			
LED indication	Provides visual indictation of existing relay/fault status or faults stored in memory.			
Switch selectable automatic restart, delayed automatic restart, and manual reset	Allows user adjustment to handle unique application requirements			
Random start delay	Prevents voltage sags caused by simultaneous restarting of multiple motor loads after a power outage			

Operation

The output relay is energized when all conditions are acceptable and the WVM is reset. A restart and/or random start delay may occur before the output relay is energized.

Field Adjustment: Select the line voltage listed on the motor's name plate. This automatically sets the over and undervoltage trip points. No further adjustment should be required to achieve maximum equipment protection.

Ordering Information

MODEL	LINE VOLTAGE	UNBALANCE	TRIP DELAY	SWITCH SELECTABLE RESET METHOD	RESTART DELAY
WVM011AL	500 to 600VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64s
WVM611AH	200 to 240VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64m
WVM611AL	200 to 240VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64s
WVM611RL	200 to 240VAC	2 - 10%	0.25 - 30s	Auto restart upon fault correction	0.25 - 64s
WVM811AH	355 to 425VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64m
WVM811RL	355 to 425VAC	2 - 10%	0.25 - 30s	Auto restart upon fault correction	0.25 - 64s
WVM911AH	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64m
WVM911AL	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64s
WVM911AL-60	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	0.25 - 64s, no random start delay
WVM911AN	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault trip	6 - 300s
WVM911RH	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault correction	0.25 - 64m
WVM911RL	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault correction	0.25 - 64s
WVM911RN-60	400 to 480VAC	2 - 10%	0.25 - 30s	Auto restart upon fault correction	6 - 300s, no random start delay

If you don't find the part you need, call us for a custom product 800-843-8848



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Read Memory: Fault(s) stored in the memory are indicated when the yellow LED is flashing, up to 10 faults are noted.

Memory Reset: To clear the memory of all faults stored, rotate selector to Clear Memory for 5 seconds. The yellow LED will turn off.

Memory Overload: Only the 10 most recent faults are retained.

Random Start Delay: A new 3 to 15s random start delay is selected by the microcontroller when a fault is corrected and when the operating voltage (L1, L2, L3) is applied to the WVM. A random start delay does not occur when the reset is manual.

Automatic Restart: Upon fault correction, the output will re-energize after a random start delay.

Automatic Restart Upon FaultTrip: When a fault is sensed for the full trip delay, the output de- energizes and a restart delay is initiated. This delay locks out the output for the delay period. Should the fault be corrected by the end of the restart delay, the output will re-energize after a random start delay. A restart delay will also occur when operating voltage (L1, L2, L3) is applied to the WVM

Manual Reset: After a fault condition is corrected, the WVM can be manually reset. There are two methods; a customer supplied remote switch, or the onboard selector switch.

Manual Reset (Onboard): Rotate selector switch from the Manual Reset position to Auto Restart w/Delay then back again to Manual Reset within 3 seconds. The output will immediately energize.

Remote Reset: Reset (Restart) is accomplished by a momentary contact closure across terminals 1 & 2. The output will immediately energize. Remote switch requirements are $\geq \! 10 \text{mA}$ @ 20VDC and the reset terminals are not isolated from line voltage. A resistance of $\leq \! 20 \text{K}\Omega$ across terminals 1 & 2 will cause immediate automatic restart.

Automatic Restart Upon Fault Correction: (P/N includes an R) When a fault is sensed for the full trip delay, the output relay de-energizes. Upon correction of the fault, a restart delay begins. At the end of this delay, the output will re-energize after a random start delay. If a fault occurs during restart timing, the restart time delay will be reset to zero, and the output will not energize until the restart delay is completed.

Accessories



LPSM003ZXID (Indicating), LPSM003Z (Non-indicating) Fuse Holders

Littelfuse POWR-SAFE Dead Front holders provide optimum protection to personnel for Class CC and Midget-Style fuses. 600 VAC/DC



0KLK002.T Midget Fuse (2 Amp)

 10×38 fast acting, high-interrupting capacity, current-limiting type fuse. $600 \, \text{Vac}/500 \, \text{Vdc}$



C103PM (AL) DIN Rail

35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.

Specifications

Line Voltage

Type 3-phase delta or wye with no connection

to neutral

 Operating Voltage
 Model
 Adj. Line Voltage Range

 240
 200-240VAC

 380
 355-425VAC

 480
 400-480VAC

 600
 500-600VAC

50/60 Hz

AC Line Frequency

Overvoltage, Undervoltage, & Voltage Unbalance

Overvoltage Trip Point 109-113% of adjusted voltage Reset Voltage -2% of trip point

Undervoltage Trip Point 88-92% of adjusted voltage Reset Voltage +2% of trip point Voltage Unbalance Adjustable from 2-10%*

Trip Delay Adjustable from 0.25 - 30s ±15%

Phase Loss ≥ 15% unbalance
Response Time ≤ 200 ms
Random Start Delay Range 3 - 15s
Reset (Restart) Delay

 Low Range
 0.25-64s ±15%

 Normal Range
 6-300s ±15%

 High Range
 0.25-64m ±15%

Fault Memory
Type Nonvolatile RAM
Capacity Stores last 10 faults

Status Indicators 6 LEDs provide existing status &

memory readout

Note: 50% of operating line voltage must be applied to L1 & L2 for operation of

status indicators

Output
Type Electromechanical relay
Form Isolated, SPDT

Rating 10A resistive @ 250VAC; 6A inductive

(0.4 PF) @ 250VAC Mechanical - 1 x 10⁷

Protection

Life

Phase Reversal/Failure
Motors and Generators
Surge
Isolation Voltage

ASME A17.1 Rule 210.6
NEMA MG1 14:30, 14:35
IEEE 62.41-1991 Level B
≥ 2500V RMS input to output

 Mechanical

 Mounting
 Surface with 2 or 4 #8 (M4 x 0.7) screws

 Dimensions
 H 175.3 mm (6.9"); W 111.8 mm (4.4");

D 61.0 mm (2.4")

Termination Screw terminals with captive wire clamps for

up to #12 AWG (3.2 mm2) wire

Environmental

Operating/Storage

Temperature -40° to 65°C / -40° to 85°C

Weight ≈ 25 oz (709 g)

^{*} Unbalance reset is 90% of the unbalance setting (i.e. VUB at 5% reset is 4.5%)