● VOLTAGE PROTECTION RELAY

VPM-06-P3-4

DIGITAL VOLTAGE PROTECTION RELAY

PRIMUS

TECHNICAL SPECIFICATION

Power Supply		220VAC ±15% 50/60Hz
Input Voltage		380VAC 50/60Hz (3P/4W)
Power Consumption		3 VA
Display		7-Segment, Size 0.39 Inch, 3 Digit, 1 Row
Input	Voltage Range	300 - 500 VAC(3Ø)
	Over Voltage	400 - 500 VAC(3Ø)
	Under Voltage	300 - 400 VAC(3Ø)
	Phase Loss	< 20 VAC(3Ø)
	Phase Sequence	Yes
	% Unbalance	2 - 20%
	Hysteresis (OV,UV)	1%
	Hysteresis (UB)	-1%
	Hysteresis (PL)	+2V
	Accuracy	±0.25 f.s. +1dgt
	Resolution	1V
Output	Relay Output	2 Relay SPDT Output 5A 250VAC (2 Output)
	Time Delay Off	0 - 10 Sec
	Time Delay On	0 - 900 Sec
Ambient Operation	Temperature	-10 ˚C to 60 ˚C
	Humidity	< 85 % RH Non-Condensing
Ambient Storage	Temperature	-20 ˚C to 80 ˚C
	Humidity	< 85 % RH Non-Condensing
Protection Degree		IP20
Installation		DIN RAIL Mounting
Material		ABS-V0
Size (mm.)		55 x 72 x 100
Weight		270g.

DESCRIPTION

- VPM-06 is Relay for protect Over-Under voltage, Unbalance Phase, Phase loss and Phase Sequence.
- Accurate measurement True RMS.
- Display voltage by 7-Sagment LED 3 Digit 0.39 inches.
- Easy process for usage.
- Output Relay 5A, 250VAC, SPDT 2 CH.
- DIN Rail Installation.
- LED show relay output status and voltage status.
- Check irregular condition of voltage to view historical data and record time of incident.
- Hold Alarm for checking the time of trip to hold until reset.
- Relay operation system isolated 2 Channels.

GENERAL DESCRIPTION

VPM-06 is Digital Voltage Protection Relay 2 Output that display and measure voltage in Digital which made device display the accurate results by separate measuring to 2 channel.

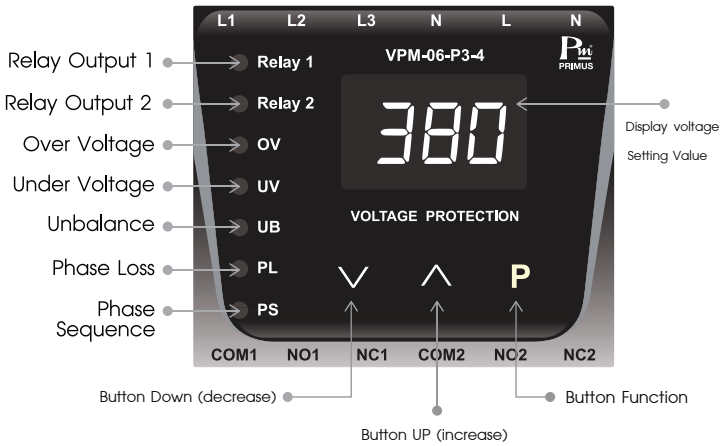
When supply voltage to VPM-06 will check and measure that voltage be normal or not. The voltage must do not over or less than setting. Phase Unbalance is not over than setting percentage (Range 2-20%), Phase loss and Phase sequence. If everything is correct VPM-06 will start to delay follow T-ON from setting (Range 0-900 Sec.) when the time is up Relay Output will operate.

After that if VPM-06 is detect the voltage have Over or Under voltage , Phase Unbalance from setting or Phase Loss, Phase Sequence are not correct. VPM-06 will start delay time follow T-OFF (Range 0-10 Sec) when time has finished Relay Output will stop operate.

By setting ON-OFF the function that detect Over-Under voltage, Phase Unbalance or Phase sequence both 2 Channels. And set real time clock to browse history and saving the time of incident.

%Unbalance or voltage percent of voltage in each phase that difference from each other. It can set 2-20 %.

DISPLAY



%Unbalance Calculation

Unbalance Voltage Function Detection

Unbalance Voltage Function detection will check that voltage in each Phase compare with the average of 3 phase has value more than % Unbalance from setting or not. If the value more than setting Relay will stop operate and when voltage less than %Unbalance plus with Hysteresis will delay time and Relay will back to operate.

%Unbalance Calculation as follow

$$\% \text{ UBL} = 100 \times \frac{V_{MD}}{V_{avg}} \quad (1)$$

$$V_{avg} = \frac{V_a + V_b + V_c}{3} \quad (2)$$

V_{MD} is Absolute value maximum of the difference value eachphase with average voltage.

$$V_{MD} = \text{Max}\,(|V_a - V_{avg}|,\ |V_b - V_{avg}|,\ |V_c - V_{avg}|) \quad (3)$$

Example

V_{avg} = 183 V, V_a = 110 V, V_b = 220 V, V_c = 220 V

$|V_a - V_{avg}|$ = 73 V, $|V_b - V_{avg}|$ = 37 V, $|V_c - V_{avg}|$ = 37 V

$$\% \text{ UBL} = \frac{73}{183} \times 100 = 39.89\ \%$$

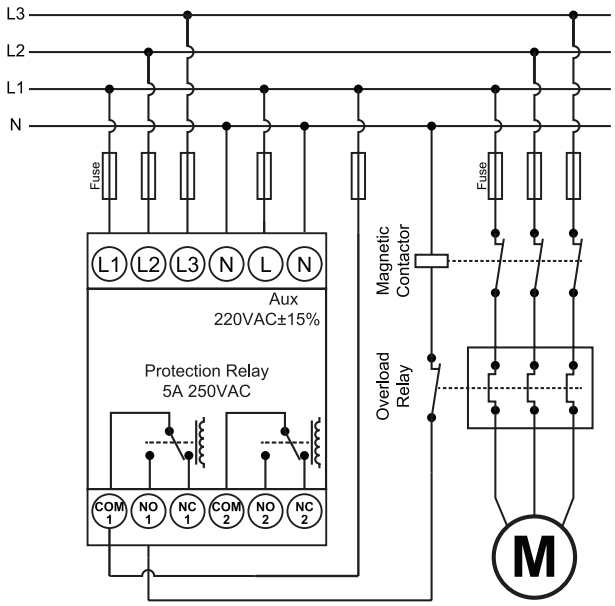
ORDERING CODE

VPM-06-P3-4

- หมายถึง Electrical System : 3 Phase / 4 Wires
- หมายถึง Input Signal : 3 Phase + Phase Sequence
- หมายถึง Output Type : Relay 2 Out (2 SPDT)

WIRING DIAGRAM

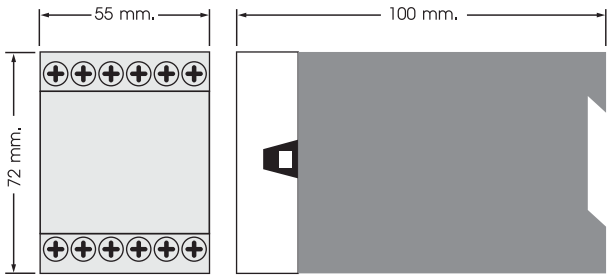
Input 3Phase / 4Wires (VPM-06-P3-4)



WARNING

More than one power source.
Relay outputs maybe at mains potential.
Disconnect power from all source before install or servicing.

DIMENSION



INSTALLTION