



These relays are suitable for monitoring incoming 3-phase supply from Mains (Electricity distribution line). Being independent of load, they can be used for any HP/KW rating of load.

MODELS

**VSP D1, VSP D2, VPG D1, USP D1
P1 PFS1, P1 PFS2, P2 PFS1
S2 VMR1, S2 VMR2, S2 VMR3, S2 VMR6, S2 VMR8
D1 HLS1, HLV D2, ALV D2, VMR D2, VST D1,
D1 VMR1, D2 VMR1, D2 VMR2,
S1 VMR7, F3 VSR4**

FEATURES

- Fixed/adjustable unbalance settings
- Fixed/adjustable under-voltage/over-voltage settings
- Fixed/adjustable trip delays
- Built-in or external power supply
- Resetting Auto / Manual / Remote
- Output contacts: 1 CO or 2 CO
- Choice of enclosures (DIN-Rail, Plug-in)
- Models with Micro-Controller based design
- 2 Line Alpha-Numeric LCD display (For F3 VSR4 model)
- Serial Communication (RS 232) Port (for F3 VSR4 model)
- Use of SMD Technology
- User-friendly LED indications

PROTECTIONS / FUNCTIONS

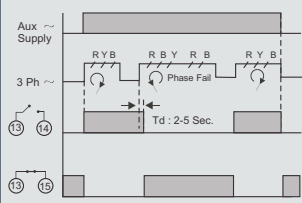
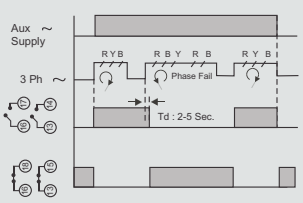
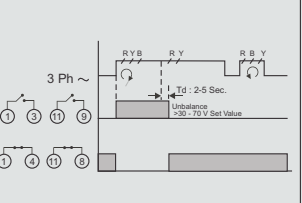
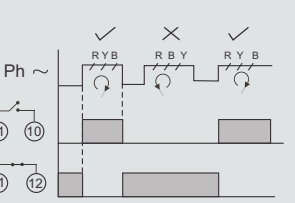
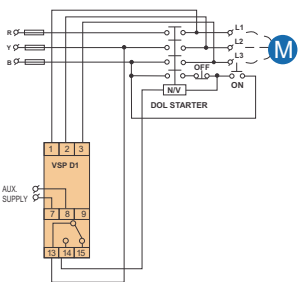
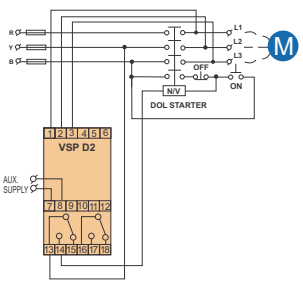
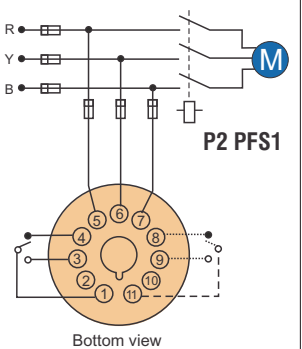
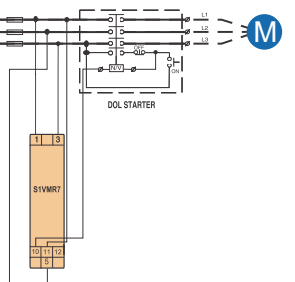
- Phase Failure (Phase Loss / Single Phasing),
- Phase sequence reversal,
- Voltage Unbalance,
- Under Voltage,
- Over Voltage
- Dry Run



Ordering Instructions

- ✓ Product Family Name
- ✓ Model Name
- ✓ System Supply Voltage & Frequency
- ✓ Aux. Supply / Control supply voltage

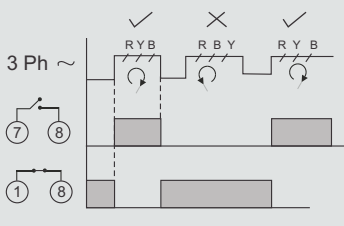
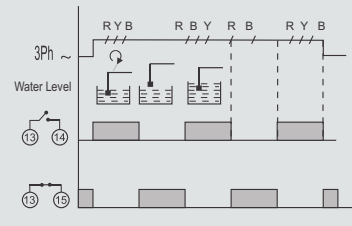
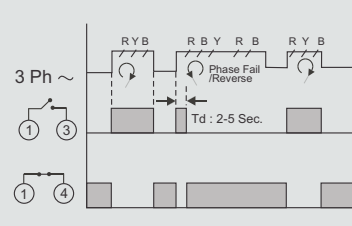
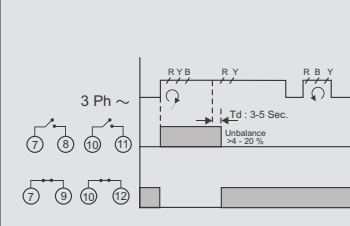
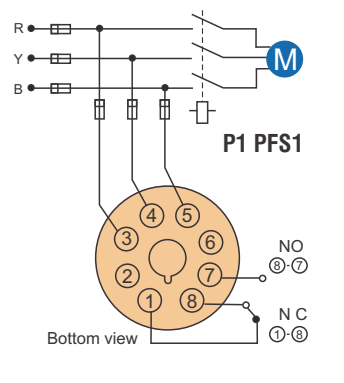
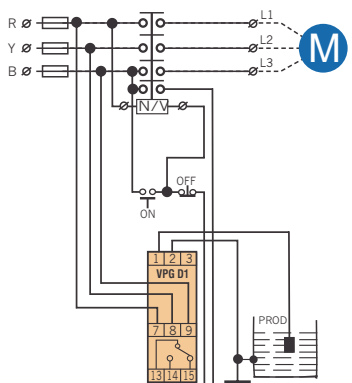
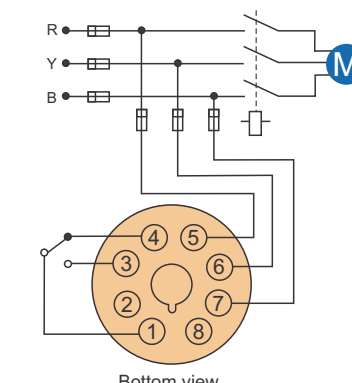
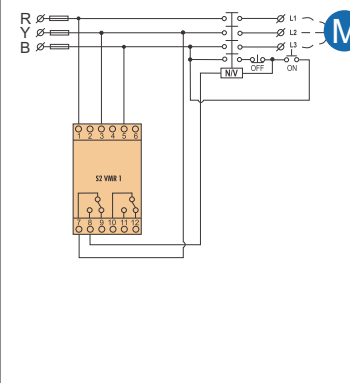
PHASE FAILURE RELAYS

	VSP D1 Phase Failure Relay	VSP D2 Phase Failure Relay	P2 PFS1 Phase Failure Relay	S1 VMR7 Phase Sequence Relay
				
	Phase Failure, Unbalance, Phase Sequence, Auto Reset, Fixed Unbalance Setting, 1 CO output Relay	Phase Failure, Unbalance, Phase Sequence, Auto/Manual/Remote Reset, Adjustable Unbalance setting, 2 CO output relay	Phase Failure, Unbalance, Phase Sequence, Auto Reset, Adjustable Unbalance Trip Settings, Adjustable Trip Delay, 2 CO output relay	Phase Sequence, Auto Reset, 1 CO output relay
Supply Voltage System	100-120/220-240/380-440 V AC $\pm 20\%$ 50 / 60 Hz	100-120/220-240/380-440 V AC $\pm 20\%$ 50 / 60 Hz	110/ 220/ 380/ 415 VAC $\pm 10\%$, 50/ 60 Hz	380 – 440 VAC, $\pm 20\%$, 3PH-3 Wire
Auxiliary	100-120/220-240/380-440 V AC $\pm 20\%$	100-120/220-240/380-440V AC $\pm 20\%$	Built-In	Built-In from 3-Phase
Output Contacts	1 CO	2 CO	2 CO	1 CO
Trip Setting (Volts)				
Phase Sequence	Yes	Yes	Yes	Yes
Phase Unbalance	40 V ± 6 V (fixed)	30 V to 70 V ± 6 V (adjustable)	30 V to 70 V ± 6 V (adjustable)	-
Trip Time Delay				
On Phase Failure/Unbalance	3.5 sec. ± 1.5 sec.	3.5 sec. ± 1.5 sec.	1 - 5 secs. (variable)	Instant
For level sensing	N.A.	N.A.	N.A.	N.A.
Resetting Mode	Auto	Auto / Manual / Remote	Auto	Auto Reset
Weight	320 gms.	400 gms.	250 gms.	90 gms. (Approx.)
Dimensions (mm)				
Overall (L x W x D)	76 x 30.5 x 117.5	76 x 56.5 x 117.5	80 x 35 x 95	90 x 18 x 60 (Approx.)
Mounting (L x W)	68 centre to centre / 35 mm rail Mounting	67 x 46  / 35 mm rail Mounting	11 Pin Plug- In	35 mm rail Mounting
- Wherever not specified Contact Rating : 5A @ 230 V AC (resistive) * Available on request.				
			 Bottom view	

Relay contact position shown in 'Power off' condition

PHASE FAILURE RELAYS

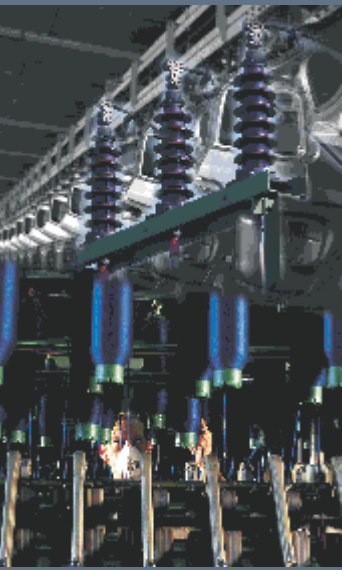
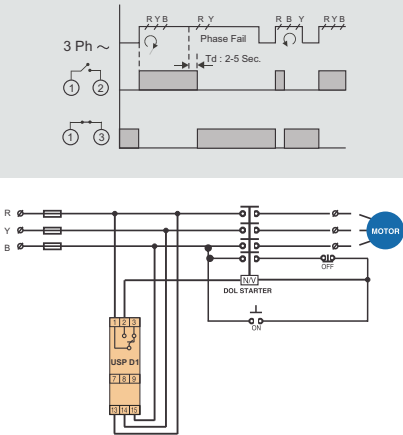
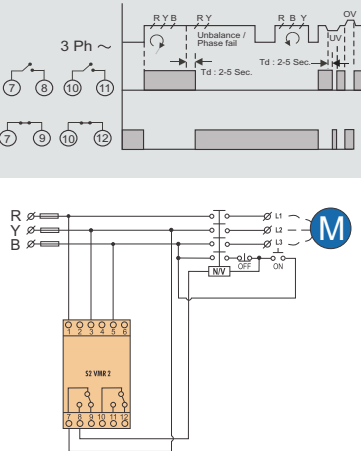
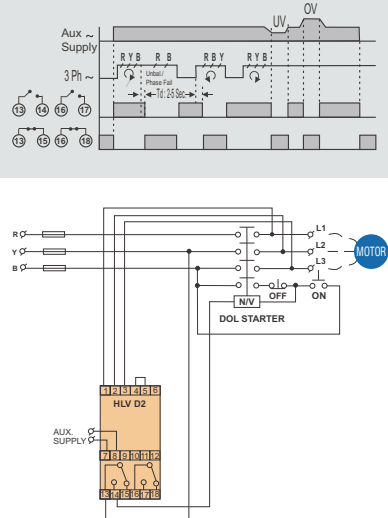
minilec®

P1 PFS1 Phase Failure Relay	VPG D1	P1 PFS2 Phase Failure Relay	S2 VMR1 Phase Failure Relay
			
Phase Sequence, Auto Reset, 1 CO output relay	Single phasing, reverse phasing, unbalanced supply, Auto reset, 1 CO output contact Suitable for any HP/kW rating submersible pumps Low water level guard for dry running protection	Phase Failure, Unbalance, Phase Sequence, Auto Reset, fixed unbalance setting, 1 CO output relay	Microcontroller design, SMD Technology, Phase Failure, Unbalance, Phase Sequence Auto/Manual Reset, Adjustable Unbalance setting, 2 CO output relay
110/ 220/ 380/ 415 VAC $\pm 10\%$, 50 / 60 Hz	415VAC $\pm 20\%$, 50 Hz $\pm 3\%$	110 / 240 / 380 / 415 V AC $\pm 10\%$, 50 / 60 Hz	100-120 / 220-240 / 380-440V AC, -25+20%, 48-63 Hz
Built-in 1 CO	Built-in 1 CO	Built-in 1 CO	Built In 2 CO
Yes -	Yes 40 V ± 6 V (fixed)	Yes 40V ± 6 V (fixed)	Yes 4 % TO 20 % (Variable) $\pm 5\%$ of full scale.
Instant N.A.	3.5 Sec ± 1.5 Sec 3.5 Sec ± 1.5 Sec	3.5 sec. ± 1.5 sec. N.A.	4 Sec ± 1 Sec / RP-Instant N.A.
Auto Reset 90 gms.	Auto Reset 300 gms.	Auto 175 gms.	Auto/ Manual Reset (Selectable by Front Push Button) 100 gms (Approx.)
50 x 40 x 80 8 Pin Plug - In	76 x 30.5 x 117.5 68 centre to centre / Panel Mounting & 35 mm rail Mounting	50 x 40 x 80 8 - Pin Plug-in	90 X 35 X 60 35 mm Rail Mounting
			
			

Relay contact position shown in 'Power off' condition

Note: S2 Series - RoHS Product available on request.
CE marked VSP D1, VSP D2 available on request.

PHASE FAILURE RELAYS

	USP D1 Phase Failure Relay	S2 VMR2 Phase Failure Relay	HLV D2 Phase Failure with UV / OV Relay
			
	Phase Failure, Unbalance, Phase Sequence, Auto Reset, Fixed Unbalance Setting, 1 CO output relay contacts	Microcontroller design, SMD Technology, Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Auto reset, Fixed Unbalance setting, Fixed UV/OV settings, 2 CO output relay	Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Manual reset, Fixed Unbalance setting, Adjustable UV/OV settings, 2 CO output relay
Supply Voltage			
System	415 VAC $\pm$ 20%, 50 Hz $\pm$ 3%	100-110-120 / 220-230-240 / 380-415-440V AC -25+20%, 48-63 Hz, Selectable by Front Knob	110 / 240 / 380 / 415 / 440 V AC $\pm$ 20% 50 / 60 Hz
Auxiliary	Built In	Built In (from 3 Phase)	110 V (Fixed) or (220-230-240) or (380-415-440) VAC
Output Contacts	1 CO	2 CO	2 CO
Trip Setting (Volts)			
Phase Sequence	Yes	Yes	Yes
Phase Unbalance	60 V $\pm$ 6 V (fixed)	10% (Fixed) $\pm$ 10%	40 V $\pm$ 6 V (fixed)
Under Voltage	For 380-440V AC For 220-240V AC For 100-120V AC	$\pm$ 20% (Fixed)	80% to 95% (adjustable)
Over Voltage	For 380-440V AC For 220-240V AC For 100-120V AC		105% to 120% (adjustable)
Trip Time Delay			
On Phase Failure	3.5 sec. $\pm$ 1.5 sec.	2 - 5 Sec. (Fixed) / RP-Instant	3.5 secs. $\pm$ 1.5 sec
On UV/OV			Less than 2 secs. for OV & 2 - 5 secs for UV
Resetting Mode	Auto Reset	Auto Reset	Manual / Remote
Weight	100 gms (Approx.)	100 gms (Approx.)	430 gms.
Dimensions (mm)			
Overall (L x W x D)	76 x 30.5 x 117.5	90 X 35 X 60	76 x 56.5 x 117.5
Mounting (L x W)	68 centre to centre / 35 mm rail Mounting	35 mm Rail Mounting	67 x 46  / 35 mm rail Mounting
- Wherever not specified Contact Rating : 5A @ 230 V AC (resistive) * CE marked products available on request.			

Relay contact position shown in 'Power off' condition

Note: S2 Series - RoHS Product available on request.
CE marked HLV D2, ALV D2, VMR D2 available on request.

ALV D2

Phase Failure with UV / OV Relay



Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage Auto Reset, Fixed Unbalance setting, Adjustable UV/OV settings, 2 CO output relay

VMR D2

Phase Failure with UV / OV Relay



Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Auto Reset, Fixed Unbalance setting, Adjustable UV/OV settings, 2 CO output relay

S2 VMR6

Phase Failure with UV / OV Relay



Phase Failure, Unbalance, Phase Sequence, Under Voltage, Over Voltage, Auto Reset, Fixed Unbalance Settings, Adjustable UV/ OV Settings, Neutral Fail, 2 CO

110 / 240 / 380 / 415 / 440 V AC $\pm 20\%$ 50 / 60 Hz

110 V (Fixed) or (220-230-240) or (380-415-440) VAC $\pm 20\%$ selectable
2 CO

Yes

40 V ± 6 V (fixed)

80% to 95% (adjustable)

105% to 120% (adjustable)

3.5 secs. ± 1.5 sec

Less than 2 secs.

Auto Reset

400 gms.

76x 56.5 x 117.5

67 x 46 / 35 mm rail Mounting

110/220/230/240/380/415/440 V AC $\pm 20\%$ 50/60 Hz

110/220/230/240/380/415/440 V AC $\pm 20\%$ 50/60 Hz
2 CO

Yes

94 V ± 6 V (fixed)

80% to 95% (adjustable)

105% to 120% (adjustable)

3.5 secs. ± 1.5 sec

Less than 2 secs.

Auto Reset

400 gms.

76x 56.5 x 117.5

67 x 46 / 35 mm rail Mounting

415 V AC $\pm 20\%$

Built-In

2 CO

Yes

94 V ± 6 V ph- ph (fixed)

75% to 95% of 415 VAC

105% to 125% of 415 VAC

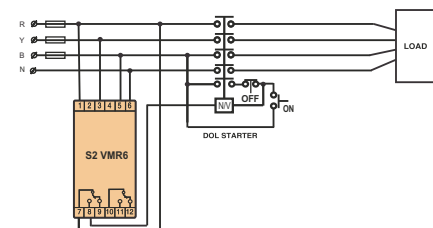
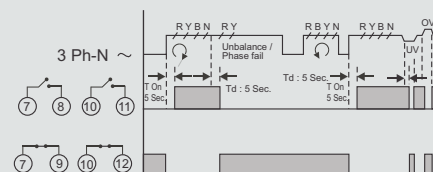
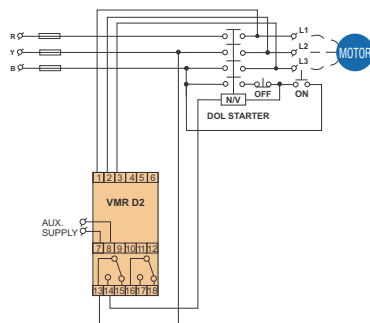
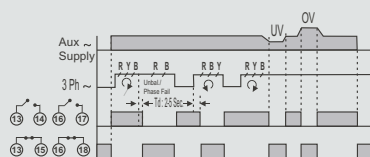
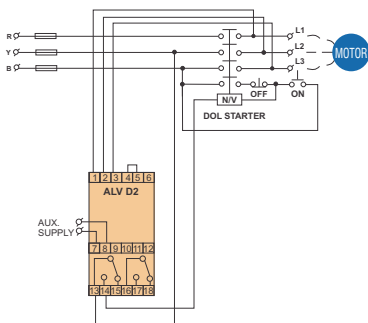
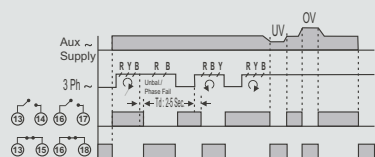
5 sec. ± 1 sec for UB/SP/UV/OV, Instant for RP,
Less than 2 secs. for NF.

Auto Reset

110 gms.

90 x 35 x 60

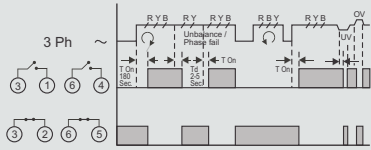
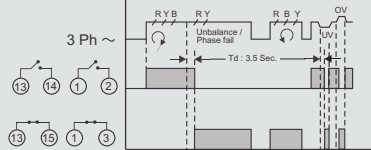
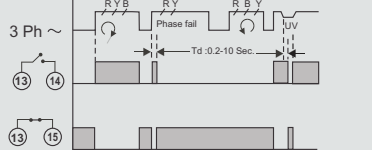
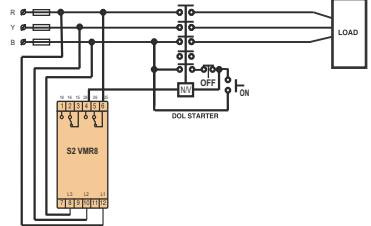
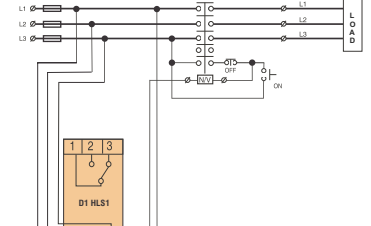
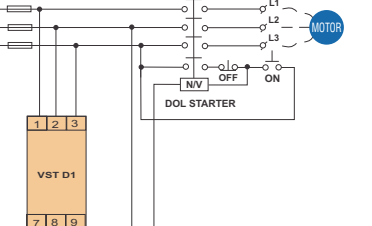
35 mm rail mounting



Relay contact position shown in 'Power off' condition

Note: Product available on request - P2 PFV1, P2 SMV1

PHASE FAILURE RELAYS

	S2 VMR8 Phase Failure Relay	D1 HL S1 Phase Failure with UV / OV Relay	VST D1 Phase Failure with Under Voltage
			
	Phase Failure, Unbalance, Phase Sequence, Under Voltage, Over Voltage, Auto Reset, Fixed Unbalance Settings, Fixed UV/ OV Settings, 2 CO	Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Auto reset, Fixed Unbalance setting, Fixed UV/OV settings, 2 CO output relay	Phase Failure, Phase Sequence, under voltage, Auto Reset, Adjustable trip delay, Adjustable UV setting, 1 CO output relay Selectable range of supply voltage
Supply Voltage			
System	415 V AC $\pm$ 20%	100-110-120/220-230-240/380-415-440V AC +20,-25%, 48-63 Hz,	240 / 415 / 575 V AC 3 Phase ($\pm$ 15% selectable)
Auxiliary	Built-In	Built-in Selectable by Front Knob	Built-in
Output Contacts	2 CO	2 CO	1 CO
Trip Setting (Volts)			
Phase Sequence	Yes	Yes	Yes
Phase Unbalance	40 V $\pm$ 4 V (10 % $\pm$ 10% of set value-fixed)	10% (Fixed)	N.A.
Under Voltage	For 380-440V AC For 220-240V AC For 100-120V AC	85% of 415 V AC (fixed)	75% of system supply (Fixed)
Over Voltage	For 380-440V AC For 220-240V AC For 100-120V AC	110 % of 415 V AC (fixed)	120% of system supply (Fixed)
Trip Time Delay			
On Phase Sequence	2 - 5 sec. fixed for UB/SP/UV	3.5 $\pm$ 1.5 secs. [Fixed]	
On SP/UV/OV	Instant for RP/OV	Less than 2 secs.	0.2 - 10 secs. (same for UV & SP)
Resetting Mode	Auto Reset	Auto	Auto
Weight	150 gms.	200 gms.	300 gms.
Dimensions (mm)			
Overall (L x W x D)	110 x 35 x 60	76 x 30.5 x 117.5	76 x 30.5 x 117.5
Mounting (L x W)	Screw Mounting	68 centre to centre / 35 mm rail Mounting	68 centre to centre / 35 mm rail Mounting
• Wherever not specified Contact Rating : 5A @ 230 V AC (resistive)			
			

Relay contact position shown in 'Power off' condition

Note: S2 Series - RoHS Product available on request.

D1 VMR1

Phase Failure with UV / OV Relay



Phase Failure, Unbalance, Phase sequence, Under & Over voltage, Auto Reset, fixed unbalance setting, Adjustable UV/OV settings, fixed trip delay, 2 CO output relay

D2 VMR 1

Phase Failure with UV / OV (3Ø-3W)



Suitable for 3 Ph-3W system, Microcontroller design, Absolute values of UV/OV settings, Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Auto/Manual reset, Adjustable settings for Unbalance, UV/OV and trip delays, 2 CO output relay

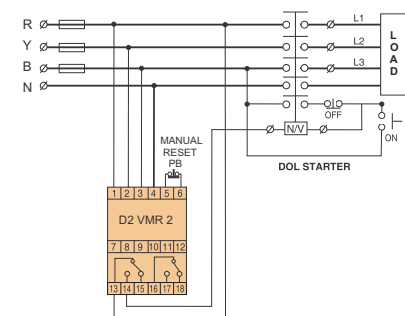
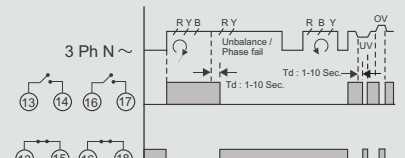
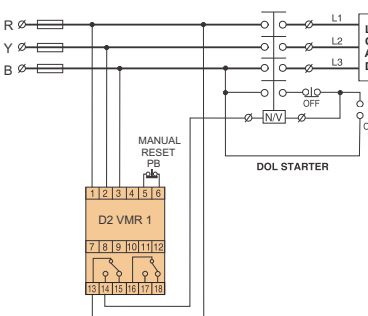
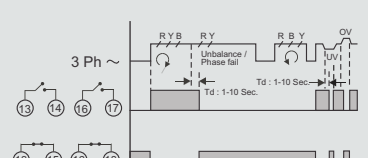
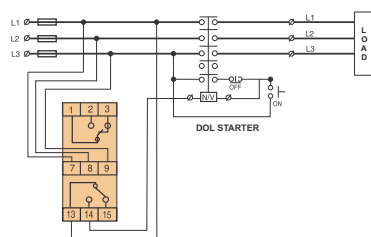
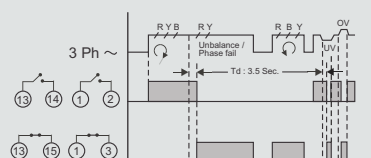
D2 VMR 2

Phase Failure with UV / OV (3Ø-4W)



Suitable for 3 Ph-4W system, Microcontroller design, Absolute values of UV/OV settings, Phase Failure, Unbalance, Phase Sequence, under voltage, Over Voltage, Auto/Manual reset, Adjustable settings for Unbalance, UV/OV and trip delays, 2 CO output relay

100-120/220-240/380-440 VAC±20%, 3Ph-3Wire	100-120 / 220-240 / 380-440V AC -25%+20%, 48-63 Hz	100-120 / 220-240 / 380-440V AC -25%+20%, 48-63 Hz
Built-in	Built In (from 3 Phases)	Built In (from 3 Phases)
2 CO	2 CO	2 CO
Yes	Yes	Yes
10% (fixed)	4 % - 20 % [Variable]	4 % - 20 % [Variable]
285-425V AC [Variable] 165-225V AC [Variable] 75-115V AC [Variable]	285-425V AC [Variable] 165-225V AC [Variable] 75-115V AC [Variable]	165-245V AC [Variable] 95-135V AC [Variable] 45-65V AC [Variable]
400-520V AC [Variable] 230-290V AC [Variable] 105-140V AC [Variable]	400-520V AC [Variable] 230-290V AC [Variable] 105-145V AC [Variable]	230-310V AC [Variable] 130-170V AC [Variable] 60-80V AC [Variable]
3.5 secs ± 1.5 sec.	Instant	Instant
3.5 secs ± 1.5 sec.	1 To 10 Sec [Variable]	1 To 10 Sec [Variable]
Auto	Auto/ Manual Reset (External NC Push Buttons)	Auto/ External Manual Reset (External NC Push Buttons)
430 gms.	300 gms.	300 gms.
76 x 30.5 x 117.5	76 X 56.5 X 117.5	76 X 56.5 X 117.5
68 centre to centre / 35 mm rail Mounting	67 x 46 / 35 mm rail Mounting	67 x 46 / 35 mm rail Mounting



Relay contact position shown in 'Power off' condition

Note: Product available on request - P2 PFV1, P2 SMV1

PHASE FAILURE RELAYS

S2 VMR 3

Phase Failure with UV / OV Relay



Microcontroller design,
SMD Technology,
Absolute values of UV/OV settings,
Phase Failure, Unbalance, Phase
Sequence, under voltage, Over Voltage
Auto/Manual reset, Adjustable settings
for Unbalance, UV/OV and trip delays,
2 CO output relay

F3 VSR4

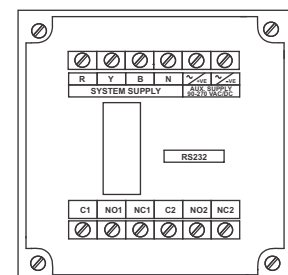
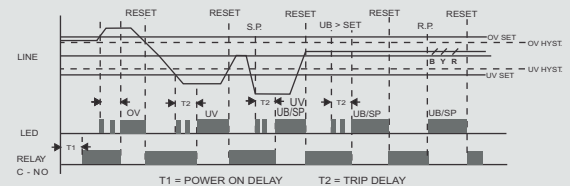
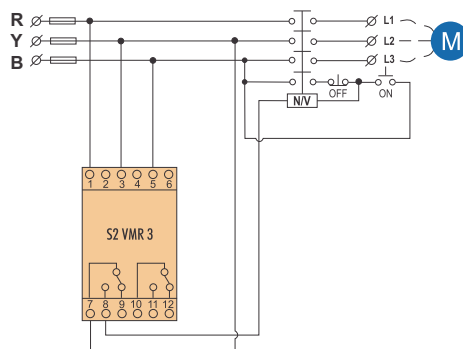
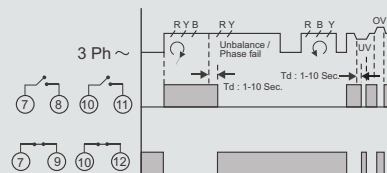
Voltage Scanner [3 Ph - 3 W/ 4 W]



3-Phase 3-Wire or 3-Phase 4-Wire voltage
monitoring & display, Phase Failure, Unbalance,
Phase Sequence, under voltage, Over Voltage,
Auto / Manual Reset, Adjustable unbalance trip
setting, Adjustable under/over voltage settings,
adjustable trip delay, RS232 communication port,
2 CO output relay, True RMS Values

Supply Voltage		
System	100-120 / 220-240 / 380-440V AC -25%+20%, 48-63 Hz	415 V AC + 20%,-30% (3 Ph-3 W or 3 Ph-4 W selectable)
Auxiliary	Built In (from 3 Phases)	90-270 V AC/DC, 50 Hz/ (60 Hz) $\pm$ 3%
Output Contacts	2 CO	2 CO & RS 232 (optional)
Trip Setting (Volts)		
Phase Sequence	Yes	Yes
Phase Unbalance	4 % - 20 % [Variable]	1 - 20 % (Adjustable)
Under Voltage	For 380-440V AC For 220-240V AC For 100-120V AC	1 - 80V below nominal voltage (for 3 Ph. 3 W) 1 - 50V below nominal voltage (for 3 Ph. 4 W)
Over Voltage	For 380-440V AC For 220-240V AC For 100-120V AC	1 - 60V above nominal voltage (for 3 Ph. 3 W) 1 - 25V below nominal voltage (for 3 Ph. 4 W)
Trip Time Delay		
On Phase Sequence	Instant	3.5 $\pm$ 1.5 sec.
On SP/UV/OV	1 To 10 Sec [Variable]	1 - 59 secs. or 1-5 mins Selectable
Resetting Mode	Auto/ Manual Reset [Selectable]	Auto/ Manual Reset [Selectable]
Weight	110 gms (Approx.)	800 gms
Dimensions (mm)		
Overall (L x W x D)	90 X 35 X 60	96 x 96 x 130
Mounting (L x W)	35 mm Rail Mounting	92 x 92 mm

• Wherever not specified
Contact Rating :
5A @ 230 V AC
(resistive)



Relay position shown in 'Power off' condition

Note: S2 Series - RoHS Product available on request.