Ziegler

Redefine Innovative Metering

Technical Datasheet

ZAR SVPR | SAPR | SPMR

BASIC PROTECTORS

ZAR SVPR | SAPR | SPMR

BASIC PROTECTORS

Basic protectors to be used for general electrical protections like Under / Over Voltage or Current, Incorrect phase sequence, Phase unbalance, Phase Failure.

Product Features

ZAR SVPR – Voltage Protectors

- Adjustable nominal voltage
- Onsite selection of V LL / V LN tripping
- Under voltage protection
- Over voltage protection
- Phase unbalance protection
- Phase failure protection
- Phase incorrect sequence protection
- Neutral failure protection
- Self powered
- 1CO+1CO relay configuration
- LED indication for faults
- Compact size 17.5mm

ZAR SAPR – Current Protectors

- Nominal current can be set from 1A - 5A
- Auto/Manual reset
- Over Current Protection
- Under Current Protection
- Current Unbalance Protection
- Adjustable trip point
- Adjustable hysteresis
- Adjustable Time delay
- LED Indication for faults
- Relay energize and de-energize on fault option available

ZAR SPMR – Phase Monitoring Protectors

- Phase Unbalance Protection
- Phase Failure Protection
- Phase Incorrect Sequence Protection
- Self Powered
- LED Indication for faults
- Auto reset

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BASIC PROTECTORS

Technical Specifications

Voltage Protector	
Nominal Input Voltage – Programmable onsite	3 Phase - 110-240V LL (63-138V LN) / 381-388-415V LL (220-230-240V LN) / 415-440-480V LL (240-254-277V LN) 1 Phase – 58-63-110-120-127-138V LN / 220-230-240-254V LN
Voltage Range	70...125% of nominal value
Nominal Frequency	50 or 60 Hz
Nominal input Voltage burden	< 4 VA approx. 3 Phase / < 2 VA approx. 1 phase
Max Continuous Input Voltage	127% of nominal value
Current Protector	
Nominal Input Current	1 A to 5 A Programmable onsite (1Phase or 3Phase)
Current Range	5...140% of nominal value
Nominal Frequency	50 or 60 Hz
Nominal input Voltage burden	< 0.25 VA approx. per phase
Over Load capacity	145% of Maximum Nominal input current 20 x Nominal input current for 1 second, repeated 5 times at 5 minute intervals
Phase Monitoring Protector	
Nominal Input Voltage – Programmable onsite	110 VLL (85 to 137VLL) / 240 VLL (204 to 300VLL) / 415VLL (330 to 518VLL) / 440VLL(350 to 550VLL) (To be specified while ordering)
Nominal Frequency	50 or 60 Hz (To be specified while ordering)
Nominal input Voltage burden	< 11 VA
Max Continuous Input Voltage	127% of nominal value

Relay Contacts	**ZAR SVPR**	**ZAR SAPR**	**ZAR SPMR**
Outputs	1CO , 1CO+1CO	1CO , 1CO+1CO	1CO
Contact Ratings (Resistive Load)	5A/250VAC/30VDC		
Mechanical Endurance	1x10^7 Operations		
Electrical Endurance	1x10^5 Operations		

Power Supply	
Auxiliary Supply	ZAR SVPR, SPMR – Self Powered ZAR SAPR - 60 V – 300V AC/DC (50/60Hz) < 3 VA approx

Voltage Protector	
Over voltage trip point	105 - 125% (variable)
Under voltage trip point	75 - 95% (variable)
Voltage unbalance trip point	20% (fixed)
Phase failure trip point	70% (fixed)
Hysteresis	3% (fixed)
Trip delay	0 - 10 sec (variable) for UV, OV, UB. Instant tripping for PR, NF, PF
Reset Delay	1 second (fixed)
Power On delay	approx. 3 seconds (fixed)
Response time	less than 200 msec
Current Protector	
Over current trip point	30 - 140% (variable)
Under current trip point	10 - 95% (variable)
Current unbalance setting (not applicable in single phase)	Trip point : 20% (fixed) Trip delay : 5 sec (fixed) Hysteresis : 5% (fixed)
Hysteresis	5 - 50 % (variable) of trip point
Trip delay	0 - 10 sec (variable) for UC, OC
Reset Delay	1 second (fixed)
Power On delay	approx. 3 seconds (fixed)
Auxiliary supply	Required
Response time	less than 140msec
Phase Monitoring Protector	
Phase failure trip point	70 % of Vn (fixed)
Voltage unbalance trip point	20 % of Vn (fixed)
Hysteresis	1 % of Vn (fixed)
Reset Delay	1 second
Power On delay	1 second
Trip delay	3.5 seconds for unbalance, phase failure. Instantaneous tripping for incorrect phase sequence
Response time	less than 200 msec

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Voltage Protector		
LED Indication	**Continuous ON**	**Blinking LED**
P-ON	Power ON	Incorrect phase sequence
UV/PF	Under voltage	Phase Fail
OV	Over voltage	--
UB/NF (Applicable for 3Phase 4Wire Only	Unbalance	Neutral Fail

Phase Monitoring Protector		
LED Indication	**Continuous ON**	**Blinking LED**
P-ON	Power ON	Incorrect phase sequence
PF	Phase Fail	---
UB	Unbalance	---

Current Protector	
LED Indication	**Continuous ON**
P-ON	Yes
Under current (UC)	Yes (till the fault is remains)
Over current (OC)	Yes (till the fault is remains)
Unbalance (UB) (Not applicable in single phase model)	Yes (till the fault is remains)

Accuracy	**ZAR SVPR**	**ZAR SAPR**	**ZAR SPMR**
Tripping / Setting Accuracy	± 3% of Nominal Value ± 0.8 sec for Trip delay	± 6% of Nominal value ± 0.8 sec for trip delay	± 3% of Nominal Voltage
Reference conditions for Accuracy			
Ambient temperature	23°C +/- 2°C		
Input signal frequency	50 or 60Hz		
Input waveform	Sinusoidal		
Auxiliary supply voltage	Rated Value ±1%		
Auxiliary supply frequency	Rated Value ±1%		

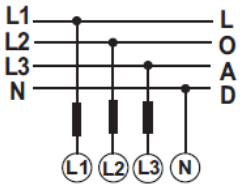
Applicable Standards	
Safety	IEC 61010-1-2010 , Permanently connected use
IP for water & dust	IEC60529
Pollution degree	2
Installation category	III
High Voltage Test	2.2 kV AC, 50Hz for 1 minute between all electrical circuits

BASIC PROTECTORS

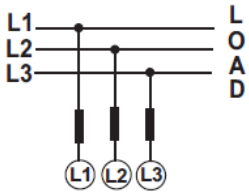
Environmental	
Nominal range of use	-10 to +55°C
Storage temperature	-25 to +70°C
Relative humidity of annual mean	0... 90% non condensing
Enclosure	IP20 (Front Fascia)

Electrical Connections

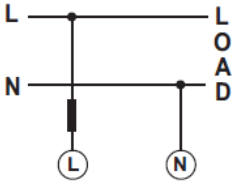
1. ZAR SVPR



3 Phase 4 wire

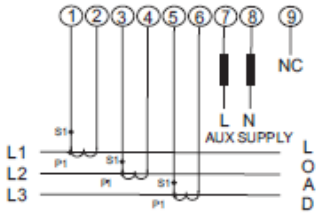


3 Phase 3 wire

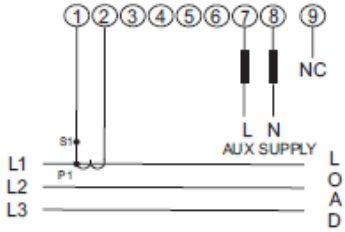


1 Phase 2 wire

2. ZAR SAPR



3 Phase

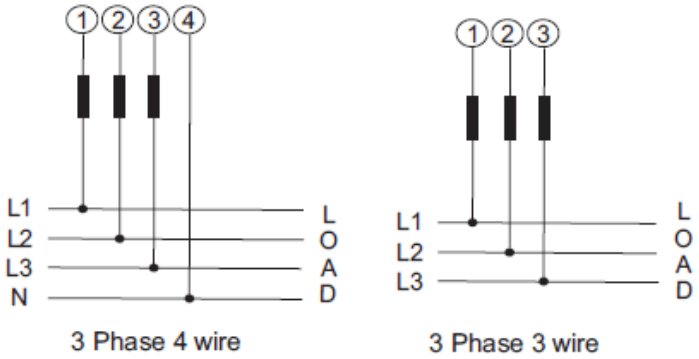


1 Phase

BASIC PROTECTORS

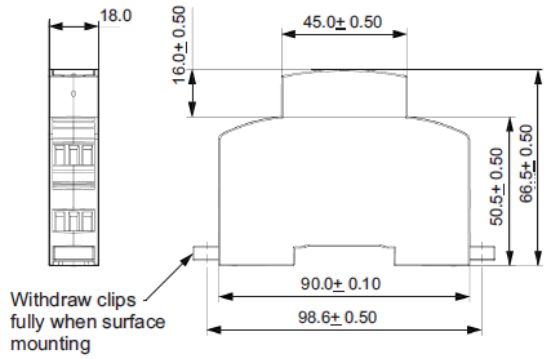
Electrical Connections

3. ZAR SPMR

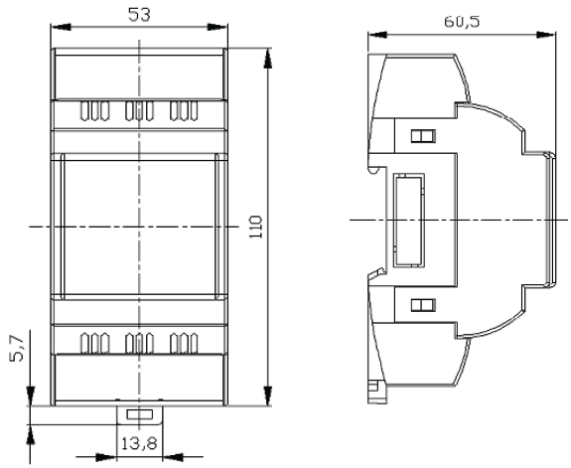


Dimensions (In mm)

1. ZAR SVPR



2. ZAR SAPR / SPMR



BASIC PROTECTORS

Ordering Information – ZAR SVPR	**(√)**
System	
1 Phase	
3Phase	
Input Voltage	
110-240VLL	
381-415VLL	
415-480VLL	
58-138VLN	
220-254VLN	
Number of relay contacts	
1 Relay	
2 Relay	
Ordering Information – ZAR SAPR	**(√)**
System	
1 Phase	
3Phase	
Number of relay contacts	
1 Relay	
2 Relay	
Relay Configuration	
Normally Energized	
Normally De-Energized	
Ordering Information – ZAR SPMR	**(√)**
System	
3 Phase 3Wire	
3Phase 4Wire	
Input Voltage	
110V	
240V	
415V	
440V	
System Frequency	
50Hz	
60Hz	
Relay Configuration	
Normally Energized	
Normally De-Energized	

Note:

1. Energized configuration : Relay is normally energized (ON) condition and become de-energized (OFF) upon fault.
2. De-Energized configuration:- Relay is normally de-energized (OFF) condition and become energized (ON) upon fault.
3. Normally de-energised relay configuration can be manufactured on request. (For ZAR SVPR)

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