selec

PPRA-4M-1-230V

Operating Instructions

OP725-V01



FEATURES

- Dry/Under Current, Over Current, Locked Current, Over Voltage, Under Voltage, Phase Failure and Overload Protection in 1Ø system
- Direct current measurement up to 32A
- Trip Time Delay, Recovery Time Delay
- 4 Knob for variable Settings
- Manual, Auto Reset
- DIN Rail Mount
- Settable rated current

SPECIFICATIONS

PRODUCT TYPE
Analog
ELECTRICAL CONNECTION
1Ø-2 wire
OPERATING RANGE
180 to 300 VAC (L-N)
FREQUENCY RANGE
50 - 60Hz
VA RATING
40VA max
RATED CURRENT (IR)
1 to 30A
*For rated current setting refer page 2.
VOLTAGE MEASURING RANGE
180 to 300 VAC (L-N)
TRIP PARAMETERS
Overload : NEMA Class : 5, 10, 15, 20, 30
Over Current : 10% to 70% of IR (Rated Current) Step size : 10%
Under Current : 20% to 80% of IR Step size : 10%
Locked Current : 300% of IR (Fixed)
Over Voltage : 280V (Fixed)
Under Voltage : 180V (Fixed)
Phase Loss : Yes (<160V)
ACCURACY

Voltage	: ±1% of 300V
Current	: ±5% of IR(rated current)
Time	: ±5% ± 100msec

TIME SETTINGS
Power ON Delay : 1 sec (Fixed)
Trip Time Delay : 0 - 10sec (Step size : 2sec)
(Applicable for Current & Voltage parameters)
Phase Failure : Instantaneous
Auto Reset Time : 15min
Manual Reset : On Reset key press
Response Time : <120ms
Auto Restart Attempts : 3 (Fixed)
Restart Attempt Time Frame : Over an interval of 60 min
Auto diagnostic : Present
Terminal reset : Present

HYSTERESIS
Voltage : 6V(Fixed)
(Not applicable for current parameters)
OUTPUT SPECIFICATIONS
1 Relay : 1N/O (SPST)
RELAY RATING
30A@277VAC
LED INDICATION
LED1 (Green) : Power ON (ON)
LED2 (Red) : Current (I)
LED3 (Red) : Voltage (VTG)
VARIABLE SETTING
NEMA : NEMA Class Selection
Δ T : Trip Time Setting
OC : Over Current Setting
DR : Dry Run Current/Under Current
TST/RST FUNCTION :
TST : Relay De-energized
RST : Relay Energized
AUTO MANUAL FUNCTION :
For Auto Mode : Short AUTO & COM
ENVIRONMENTAL SPECIFICATIONS
- Indoor use
- Altitude of up to 2000 meters
- Pollution degree : For PCB : 2
For Product : 3

Temperature : Operating : 0 to 55°C
Storage : -20 to 70°C
Humidity : Up to 95% RH, non-condensing
MECHANICAL SPECIFICATIONS
No. of Push Buttons : 2
Mounting : Din Rail Mount
Wire Size (max) : 4 sq.mm
Screw tightening torque : 0.5 N-M
WEIGHT
190gms (approx.)

SAFETY PRECAUTIONS

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment.

☛ Read complete instructions prior to installation and operation of the unit.

WIRING GUIDELINES

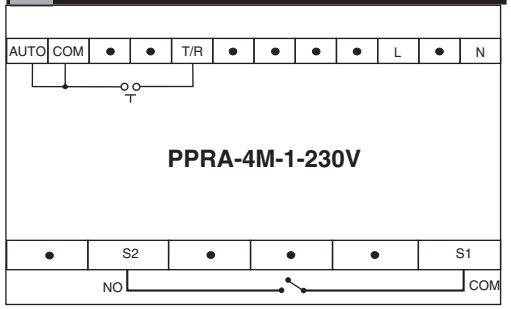
WARNING

1. To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement.
2. Wiring shall be done strictly according to the terminal layout with shortest connections. Confirm that all connections are correct.

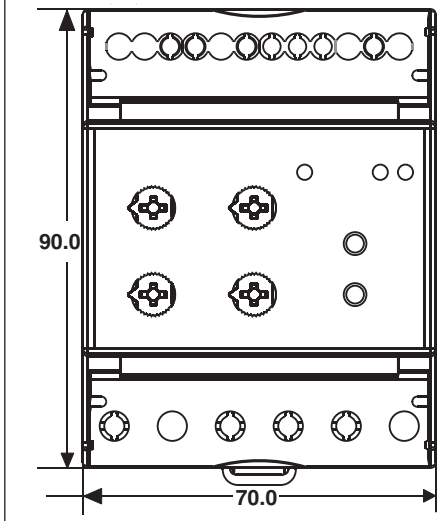
CAUTION

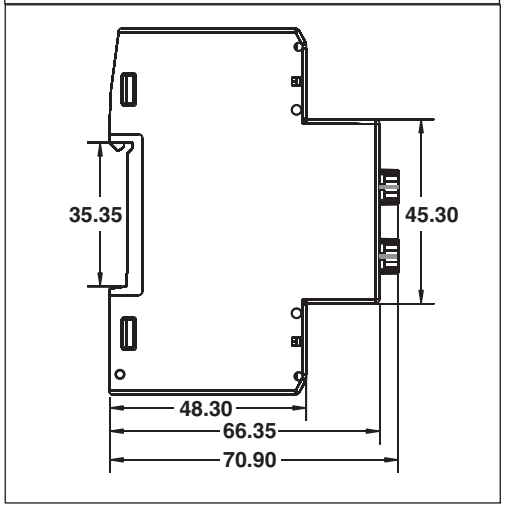
1. To ensure the safe operation of unit, check the wiring and connections.
2. It is recommended to test the unit periodically to satisfy the regulations.

TERMINAL CONNECTIONS

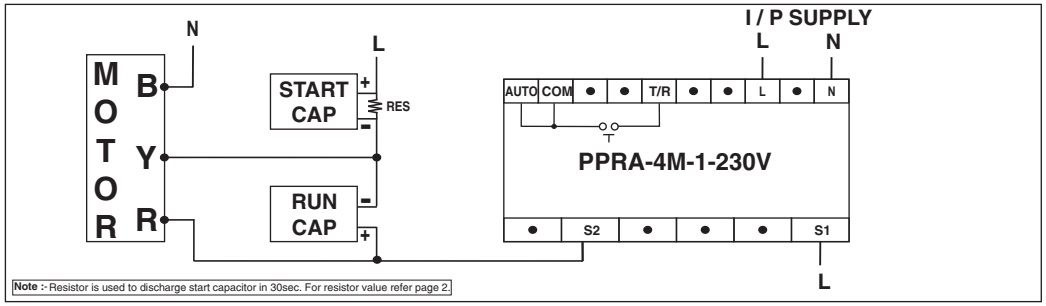


MECHANICAL INSTALLATION/DIMENSION (in mm)





CONNECTION DIAGRAM



LED INDICATION CHART

Various Conditions	Power ON	I	VTG
Healthy	ON	OFF	OFF
Over Voltage	ON	OFF	BLINKING
Under Voltage	ON	OFF	ON
Over Current	ON	BLINKING	OFF
Under Current	ON	ON	OFF
Phase Loss	ON	BLINKING	BLINKING
Locked Current	ON	BLINKING	ON
Overload	ON	ON	ON

Note - " * " :ON when respective fault parameter occurs.

MODES OF OPERATION

1. Test Mode

The unit can be verified by pressing the "TST" button or by shorting terminals T/R & COM

NOTE :

1. Applicable only when unit is in healthy Condition.

On Key press	Indication	Description
TST Press ○	● ●●	In test mode, all LEDs illuminate & trip relay de-energises, indicating proper operation of unit.

2. Normal Operating Mode

Ranges are set using respective knob.

Key press	Indication	Description
NONE	● ○○	Power ON LED Continuously Glows after P.ON delay time.

3. Reset Mode

Press the 'RST' button on the front of the unit or short terminals T/R & COM to reset the unit.

NOTE :

1.Applicable only when unit is in tripped condition or in Test Mode

Key press	Indication	Description
RST Press ○	● ○○	All LED's are switched off except Power ON indicating output relay's "non tripped state"

POT FUNCTION

POT	Description
NEMA	Overload tripping on the basis of the NEMA class selected
ΔT	Trip time when fault condition is detected
OC	Over Current Trip setting in % of Rated Current
DR	Under Current Trip setting in % of Rated Current

USER GUIDE

How to set Rated Current ?

- After Desired Stable Current value, User to Press RST key for 3 sec.
- This Current wil be set as Rated Current and after successfully setting the Rated current at the desired value acknowledgement will be received by Sequential blinking of LED I, VTG.
- Default value of Rated Current is 5A.

Significance of the Test button :

Test button is used to check the proper functioning of the unit.

On pressing TST button, all LEDs glow and trip relay de-energizes instantly showing that the unit is working properly.

Significance of the Reset button :

When there is leakage current above the set value of current unit trips, i.e all LEDs illuminate. At that time to reset the unit press reset button on removal of fault in manual mode.

Trip Relay (Protection Relay) :

When current exceeds the set value Trip relay de-energises.

Trip Time Delay :

The time taken by unit to trip when fault occurs is called trip time delay.

The time delay should be long enough to avoid nuisance tripping caused by harmless transients, yet fast enough to open the circuit when a hazard exists.

Trip time will be considered as per the setting in timer POT (0 – 10 sec) for both the voltage and current parameters.

Locked Current Function :

Tripping will be done at fixed 300% of set rated current.

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OVERLOAD FUNCTION:

- Curve : NEMA - Class 5, 10, 15, 20 & 30.
- At 6X current unit will trip as per curve selection.

OVER CURRENT FUNCTION :

The Settings in "OC" POT are *% of Set Rated Current* &Tripping will be done considering the % Value (10% - 70%).

Eg: Rated Current Set – 10A
OC POT Setting – 70 %
Trip Value – 17A

Dry Run / Under Current Function:

The Settings in "DR" POT are *% of Set Rated Current* & Tripping will be done considering the % Value (20% - 80%)

Eg: Rated Current Set –10A
DR POT Setting – 20 %
Trip Value – 8A

Reset / Healthy condition after Trip:

In auto mode, Unit resumes to healthy state after 15 mins.

In manual mode, when Reset key is pressed irrespective of Input current condition, Unit resumes healthy state.

Phase Loss :

UUT trips when phase loss is detected.

NOTE :

-In case if Peak current is greater than 32A when motors starts, increase Trip time to ensure unit does not remain in trip state.

-For peak current >32A unit will trip in locked current condition if not recovered at rated value within specified trip time.

Recommended resistor value as per different motor rating	
Start Capacitor Value	**Resistor Value**
Upto 200uF/300VAC	100kOhm/2W

(Minimum 30sec delay required between two consecutive starts.)

WARRANTY / LIMITATIONS OF LIABILITY

Selec warrants the products to be free from defects in the materials and workmanship for a period of one year (or other period specified, if any) from the date of sale by Selec.

The warranty does not apply to defects resulting from any action of the buyer, including but not limited to improper handling, operating the product outside the specification limits or unauthorized disassembling / altering of the product. The warranty shall be VOID if the product shows evidence of having been tampered or being damaged due to usage in corrosive environment ; or current, heat, moisture or vibration ; improper specification ; wrong usage in an application; misuse or other operating conditions outside of Selec's control.

Selec shall not be responsible for special, indirect or consequential damages, loss of profits or commercial loss in any way connected with the products, whether such claim is based on contract, warranty, negligence or strict liability.

In no event shall the responsibility of Selec for any act exceed the individual price of the product on which liability is asserted.

In no event shall Selec be responsible for warranty or other claims regarding the products unless Selec's analysis confirms that the products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification or repair.

ORDER CODE INFORMATION

Product	Supply	Certification	
		CE	c UL us LISTED
PPRA-4M-1-230V	180V to 300V	—	—

(Specifications are subject to change, since development is a continuous process.)

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