

**PRODUCT PROFILE**

**144 x 144 x 50 mm**
**SPECIFICATIONS**

Display	: Liquid crystal display with backlight (4 digits)
Auxiliary supply	: 90 - 550V Ac
Wiring input	: 2 phases, 2 wires (L2L3)
Rated input voltage	: 50 - 520V AC (L2-L3)
Rated input current	: 5A AC (min 50mA, max 6A)
Burden	: 20mΩ
Frequency range	: 45 - 65Hz
Power consumption	: Max. 15VA
Over temp. indication	:  Symbol turns ON
Controlling range	: target PF: 0.800 (ind.) to -0.800 (cap.) Switching program: Automatic
Alarm	: Over temperature error E01: phase current error
Environmental conditions	: Outdoor use Temperature-operating: 0 – 60°C Temperature-storage: -20 – 60°C Humidity: 0 – 95%
Mounting	: Panel mounting

**ACCURACY**

Measurement	Accuracy
Power factor	±0.01
Temperature	±3°

**SAFETY PRECAUTIONS**

All safety related codification, 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 handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

- CAUTION:** Read complete instruction prior to installation and operation of the unit.
- WARNING:** Risk of electric shock.

**EMC GUIDELINES**

1. Use proper input power cables with shortest connections and twisted type.
2. Layout of connecting cables shall be away from any internal EMI source.

**MAINTENANCE**

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use Isopropyl alcohol or any other cleaning agent.

**WIRING GUIDELINES**

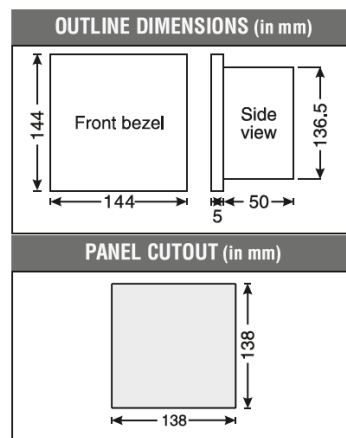
1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
3. Use pin type lugged terminals.
4. To eliminate electromagnetic interference, use wires with adequate ratings and twists of the same in equal size shall be made.
5. Cables used for connection to power source, must have a cross section of 1.5mm<sup>2</sup>. These wires shall have current carrying capacity of 5A.

**INSTALLATION GUIDELINES**
**CAUTION**

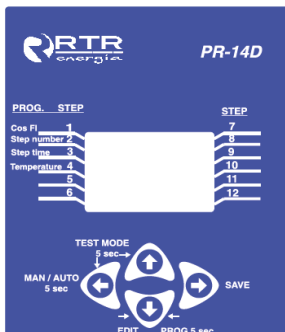
1. This equipment, being built-in type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the user end after installation and internal wiring.
2. Conductors must not come in contact with the internal circuitry of the equipment or else it may lead to a safety hazard that may in turn ensanger life or cause electrical shock to the operator.
3. Before disconnecting the secondary of the external current transformer from the equipment, make sure that the current transformer is short circuited to avoid risk of electrical shock and injury.
4. The equipment shall not be installed in environmental condition other than those mentioned in this manual.
5. Thermal dissipation of equipment is met through ventilation holes provided on chasis of equipment. Such ventilation holes shall not be obstructed else it can lead to a safety hazard.
6. Connector screw must be tightened after installation.

**MECHANICAL INSTALLATION / DIMENSIONS**

1. Prepare panel cut out with proper dimensions as shown in the figure.
2. Push the meter into the panel cutout. Secure the meter in its place by pushing the clamp on the rear side. The screw of the panel clamp must be in the farthest forward slot.
3. For proper sealing tighten the screw evenly with required torque.


**CAUTION**

The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam or other unwanted process by product.

**PANEL FRONTAL**


KEY DESCRIPTION	
Press	For 5 sec. to enter into setup mode.
Press	For increment.
Press	To move cursor right by one digit each time after last digit of display cursor shift at 1 <sup>st</sup> digit of display.
Press	To save the setting and move on to next page.
Press	To go back in setup mode. Long press for 5 sec. to toggle from AUTO/MAN mode.
Press	For 5 sec. to enter in TEST mode.

**Note:** test mode checks all the relays present in product sequentially.

**Note:** the settings should be done by professional after going through this operating manual.

**SERIAL NUMBER DESCRIPTION**

Press key for 5 sec. to display 8 digits serial number.

**AUTO / MAN MODE DESCRIPTION**


- Press key for 5 sec. to change mode (Auto/Man). Relays Will turn OFF when mode is set to manual.
- Press key to turn ON relay one by one.

## SETUP MODE


There are 4 dedicated keys . Use these 4 keys to enter into setup mode / change setting.

**NOTE:** the settings should be done by a professional after going through this operating manual.



### ONLINE PAGE DESCRIPTION

Key press	Parameter key	Description
Press key (1st time)		Display power factor Display temperature

**NOTE:** temperature page will be displayed only if temperature sensor is connected.

Press  key for 5 sec. to enter into setup mode.

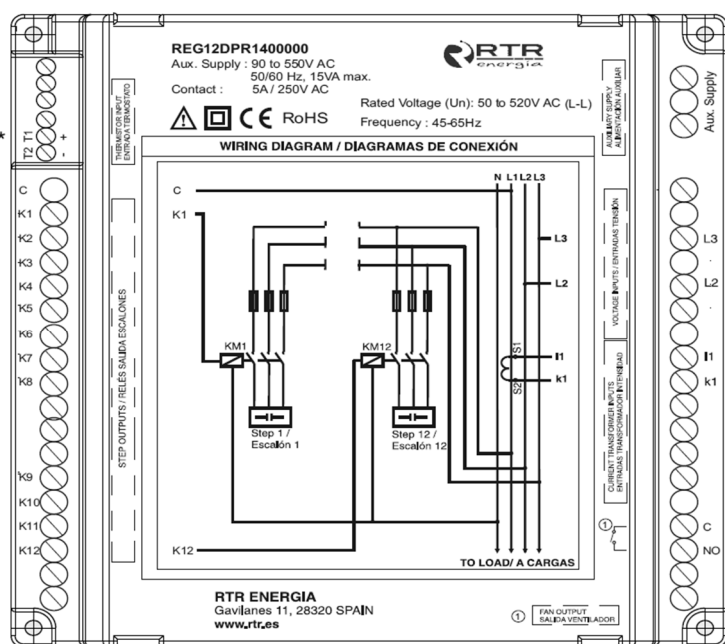
## SETUP MODE

Setup mode settings	PROG.			
Basic settings	COS $\Phi$ 1.000	Step Number 12	Step Time 15	Temperature 55
*To scroll through prog. step  press  or key.				

## SETUP MODE TABLE

Parameter	Range	Default Value
Cos FI	0.800 (ind) a 0.800 (cap)	1.000
Step number	1-12	12
Step time	1s-999s	15s
Temperature	10°C a 70°C	55°C

## WIRING DIAGRAM



\*T1 and T2 are thermistor inputs and use for temperature monitoring.

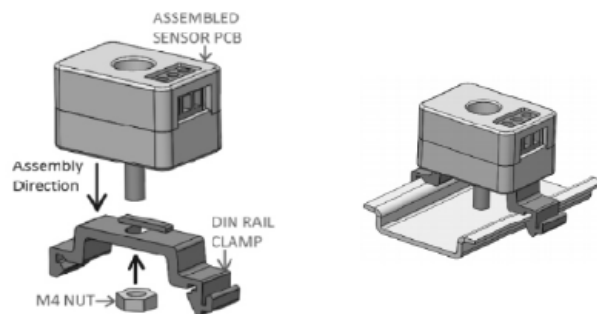
\*\*"Aux. Supply" input is general supply and it must be connected.

## USER GUIDE

- Manual switching (MAN): when this switching program is selected, the capacitor steps are controlled manually by the user.
- Automatic switching (AUTO): this automatic switching program uses intelligent switching sequence. The step switching sequence is not fixed and the program automatically selects the most appropriate steps to switch in or out in order to achieve.

## SENSOR CLIP ASSEMBLY

Assemble sensor on the DIN rail clamp by using center screw provision and M4 nut as shown in below diagram.



Connect sensor's positive terminal with positive terminal of "Thermistor Input" in regulator. The same with negative terminal.

## TROUBLESHOOTING

<b>E01</b>	Phase current error. Load current below measuring threshold or CT not connected.
<b>Incorrect measurement (for example, cos phi: 0.20, -0.50...)</b>	Voltage input phases and CT connection is not correct. CT must be connected in a different phase of voltage input phases.

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

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For any inquiry about the regulator operation or in case of malfunction, contact with technical service.

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