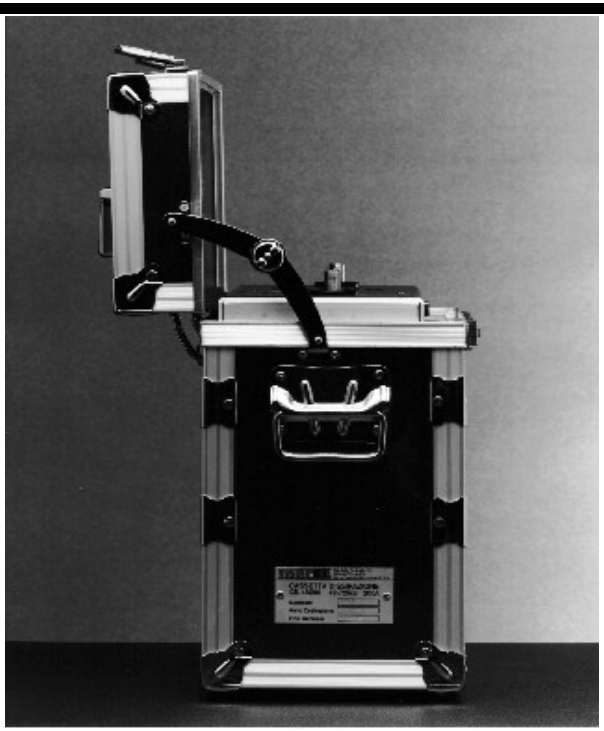


RESISTIVE LOAD
XP80CA

Via della Torricella, 22
50012 Antella (FI) Italy
Tel. +39055620508 +39055620338
Fax +39055620338
sito: www.marelweb.it
e-mail: marelita@tin.it

GENERAL

the XP80CA resistive load is the answer to the request of providing suitable equipment to check power devices such as generators and UPS. The equipments in use in the past for such purpose were mostly produced using heavy air cooled resistors which, for high power rates, were of big dimensions, heavy and difficult to transport. The solution in use for our resistive load includes Nickel-Chrome resistor featuring high powers and light weight, forced ventilation cooled. All this has allowed the manufacturing of devices having low weight and reduced dimensions maintaining high dissipation rates. A CPU control board is also combined with the equipment suitable for preset by touch screen, which allows you to set all the commands needed for testing. This tab also provides the measurement and display of current and voltage, as well as control of all the protections and alarms. All these functions will be described later in specific paragraphs.

OPERATION AND USE

WARNINGS

Considering the high power involved with the use of the resistive load caution is requested.

- Avoid having your test done inside small rooms where the temperature may reach easily high values.

- Avoid dusty places which could reduce the ventilation efficiency.
- Don’t dispose the equipment and particularly the display to direct sunlight in order to avoid the display to come totally black. Just in case move it away from sunlight and wait it to move back to original conditions.
- If in use with generators or not stabilized power supplies, make sure not to exceed the maximum voltage allowed by the equipment. As it’s possible such equipments have wide excursions between no load and full load conditions, avoid to increase output voltage while performing tests and particularly with high currents. In fact in this case if the test should be interrupted, the voltage could increase sharply and exceed the maximum voltage allowed by the resistive load.
- Keep input and output air grill always clean and free from outside objects. Don’t limit the fans operation covering the grill or turning the air flow opposite the wind flow or towards walls or too close obstacles. Don’t turn the inspiration grill in front of air blow coming from other resistive load or heating sources.

CONNECTION

To connect the resistive load to use the cables provided. Do not use the cables rolled, but lay them out completely to encourage better heat dissipation. Connect the input cables to the generator making sure that the connection points are not under tension. Connect then the female connectors of the cables supplied on the corresponding male connectors of the resistive load, placing them at the bottom. Connect the wire to the terminal "N" and the phases to terminals "R",

"S", "T" ("R" if single phase). **WARNING: Do not loosen or disconnect cables during the download!**
Supply then closing the connection board any switches output of the generator. Once all the connections you can feed the resistive load using the following procedure:

- Check that the push-button for the emergency stop on the resistive load is not pressed, the pushbutton has a mechanical lock and, when pressed, you must unlock it by turning it in the direction of the arrows printed on it.
- Check that the circuit breaker is in a position to be armed, because if it is taken before the intervention of protection you need reset it by pressing the plunger down.

If the connection is correct, and if voltage is present, the fans of the resistive load into use immediately. On the resistive load there is a mushroom button with the inscription "EMERGENCY STOP". Pressing this button has the immediate fall of the switch and, consequently, the resistive load is disconnected.

MAIN MENU

The initial screen shows all the readings of voltage and current in all phases, reading power dissipation, the power setting and a numeric keypad for use with touch-screen. The resistive load XP80CA has the opportunity to work with three-phase + neutral systems at 400 V ac, that systems with single-phase 230 V ac.

SINGLE PHASE THREE-PHASE

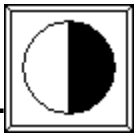
The display shows the main menu of operation:
VRS xxx IR x.x
VST xxx IS x.x
VRT xxx IT x.x
Pot P.Mis. x.x
In the field, you must enter the value of power expressed in kW, that you want to have, using the numeric keypad and then confirm with "ENTER". To insert the load actually press the "CONSENT". At this point the control decides that load insert in function of the voltage and current read. The adjustment is automatic, but please note that the minimum load used is about 1 kW and therefore it is possible that there is a difference between the power set and read (the power that you're actually dissipating is indicated by "P. Mis. "). In case you want to tweak the power to take it to another value, we should act on the arrow keys (〈 ®), the power set so increases or decreases by a KW for each keypress. Note that, always to the load characteristics of minimum usable, for small displacements may not correspond to a variation of the effective power. If you want to change the set value more quickly should rewrite it and confirm with "ENTER", then re-enabling the calculation procedure according to the voltage and current. The maximum power of 80 KW set is for single unit. To remove the load press the button "CONSENT".

SETUP 

By pressing the "SET" key you enter the setup menu of the resistive load.

RADAR 

Clicking on this icon will activate or deactivate the control function of the radar. A message on the display indicates the status of protection on or off.

CONTRAST 

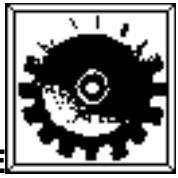
You will enter the screen for adjusting the display contrast. Using the arrow keys you can choose between three levels, high, medium or low. Check which of these levels is more suitable, then press the OK button.

LANGUAGE 

You can choose the language in which the information will be shown on the display. Select the desired language by pressing its icon and it will automatically be updated.

FIRMWARE UPDATE 

The firmware which is the program's internal heat sink can be updated from the outside through the use of the serial port and a PC with a special program. This allows you to change the program if corrections are necessary, or in the case of release of newer versions. This operation must be carried out only when really necessary and always according to the procedures of the manufacturer, using only the programs and files shown. Some instructions are shown on the display. Additional information is provided in case of release of updates.

SERVICE 

This feature is reserved for technical assistance and is not accessible to the end user.

ALARMS AND SIGNALS

For a proper and safe operation of the resistive load are many controls and protections. They are constantly monitored parameters related to the applied voltage, the rotation speed of the fans, internal temperature and environment and to function properly. There is also a radar control to report any presence in front of the sink in the

danger zone for heat ejected. The intervention of one of the above protections that causes an alarm is signaled on the display visually and acoustically with the buzzer sound, then it is automatically disconnected and removed the consent loads, except for internal ambient temperature that is only marked by a lamp placed on the panel, without excluding the load. Almost all alarms provide two conditions, the current alarm in the event that this is actually present at the time of reporting, and the alarm returned, which nevertheless continues to be reported until it is acquired. In this way it is possible to realize what happened, even if the alarm when the heatsink was not manned. The consensus is excluded for all, and therefore also the load. You can press the button "CONSENT", and then Reinsert the loads, only if you are in the alarm condition returned. Below are the various messages that can appear on the display with their descriptions:

WARNING! VOLTAGE
ABOVE THE LIMIT
MAXIMUM (250 V)

It is supplying the resistive load with voltage too high (relative to single-phase systems). Decrease or disconnect.

MAXIMUM VOLTAGE
ALARM RECOVERED
PRESS ANY KEY

It is the condition of previous alarm back. Press any key to return to the menu currently active alarm.

WARNING! VOLTAGE
UNDER THE LIMIT
MINIMUM (200 V)

It is supplying the resistive load with low voltage. Increase or disconnect.

MINIMUM VOLTAGE
ALARM RECOVERED
PRESS ANY KEY
It is the condition of previous alarm back. Press any key to return to the menu currently active alarm.
WARNING!
ALARM FAN
IN PROGRESS
WAIT FOR THE RETURN
The fans are not working properly or the air intake grille is blocked or expulsion of air is prevented from headwind or objects placed in front of the sink. Check or off.
FANS ALARM
RECOVERED
PRESS ANY KEY
It is the condition of previous alarm back. Press any key to return to the menu currently active alarm.
WARNING!
THERMAL ALARM
IN PROGRESS
WAIT FOR THE RETURN
The temperature inside the resistive load is too high. It may be due to an abnormality of ventilation (see alarm fans) or the fact that you are using the resistive load in a small room and the ambient temperature is increased greatly. If the alarm does not fit you can just turn off the resistive load.
THERMAL ALARM
RECOVERED
PRESS ANY KEY
It is the condition of previous alarm back. Press any key to return to the menu currently active alarm.

WARNING!
RADAR ALARM
IN PROGRESS
WAIT FOR THE RETURN

This alarm indicates the intervention of the radar on the side air outlet of the resistive load. Someone or something has entered within the range. In this case the loads are excluded and there is also an acoustic signal. This alarm is in operation only if the load is applied. You can exclude the radar control from the SET UP menu.

CAUTION: The radar sensor is very sensitive to movement, so you need to avoid false alarms, the sink does not receive shock during operation or is not positioned precariously balanced or there are no people or objects moving in front.

RADAR ALARM
RECOVERED
PRESS ANY KEY

It is the condition of previous alarm back. Press any key to return to the menu currently active alarm.

MAINTENANCE

The resistive load doesn't require special maintenance operation. Check periodically that the air grills are clean and not obstructed. Check also that fans and resistors are not covered with dust, wires or other objects. Check also that leaves or pollens don't cover internal parts. No user serviceable parts are inside the load. Protection fuse is located on front panel side identified by FUSE. The type is 5 x 20 mm 3,15 Amps fast. Just in case the fuse requires to be replaced, remove the fuse holder acting anticlockwise, replace the fuse and lock it clockwise.

WARRANTY CONDITIONS

XP80CA resistive load is covered by total warranty for a two year period. (The warranty covers manufacturing defects and is related to spares and workmanship) All damages due to improper or incorrect use of the load are excluded from the warranty. Damages due to everything else not directly connected to the proper use of the load as much as failures due to the presence of extraneous objects or misuse or not observing electrical parameters are determining the warranty to be void. The warranty will be void even in case of tampering by not authorized personal.

ELECTRICAL CHARACTERISTICS

Operating Voltage

400 Volt AC three-phase + neutral
230 Volt AC single-phase

Maximum Current

80 KW for three-phase + neutral systems
27 KW single-phase systems

Operating Temperature

0°C to 40°C ambient temperature

Current setting resolution

1 KW

Set/obtained Current precision

± 0,5 KW for three-phase + neutral systems

Voltmeter or Ampermeter Precision

1% ± 1 digit

Weight

Load bank Kg. 27

Dimensions

Max dimensions of closed load equipment 740×250×500 mm