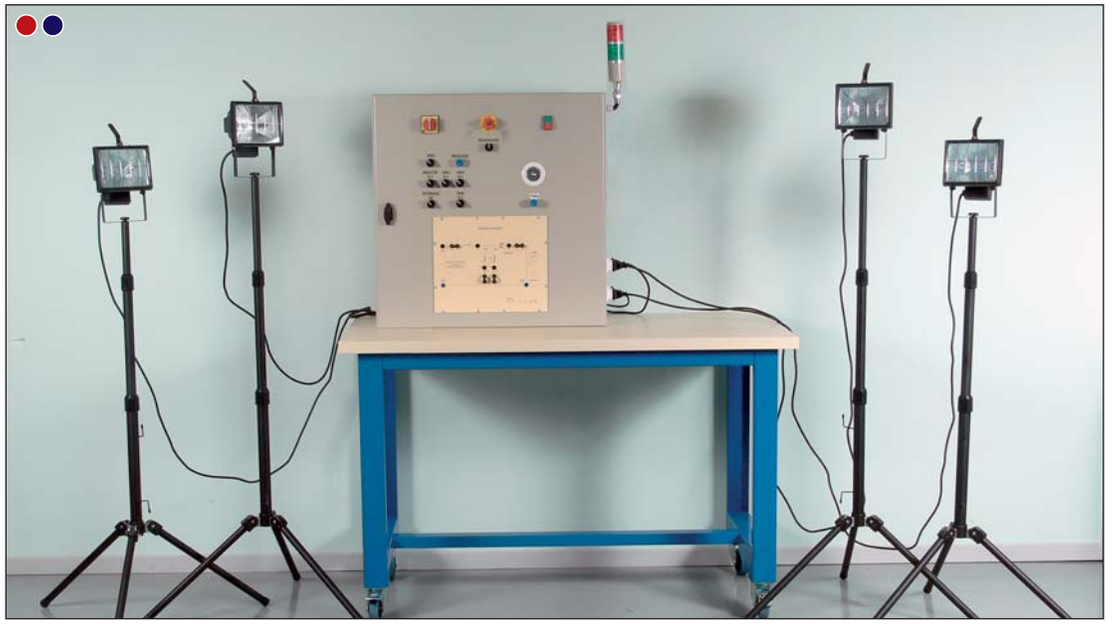
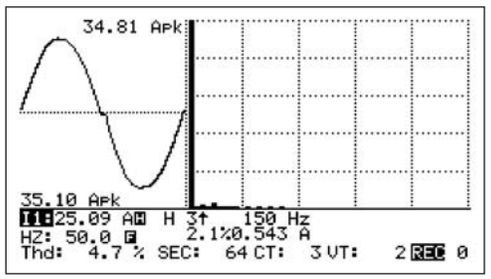
Power quality control



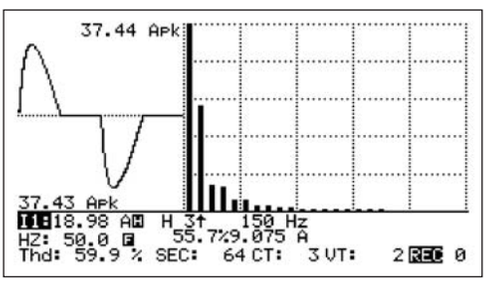
Internal view of the cabinet

ref. HARMO-35

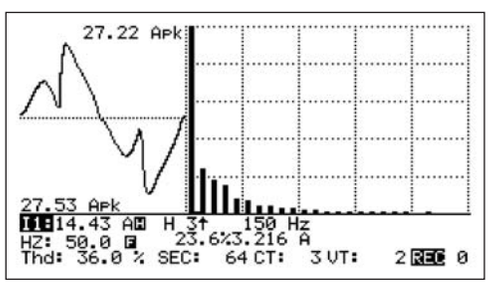


Lighting supplied 100% (no harmonics)

MEASUREMENTS TAKEN IN MANUAL MODE WITH ONE NETWORK ANALYSER REF.: 6830 OPTIONAL
SEE PAGE 233



Lighting supplied 50% (high third order harmonic)



Lighting supplied 50% with passive filter (reduction of the third order harmonic)

OPTION

NETWORK ANALYSER
SEE PAGE 233

HARMO35 can be used for studying and improving the quality of the power consumption of an industrial lighting system for advertising.
Four 500W halogen lamps on a tripod are powered by a SCR power regulator which creates harmonic pollution and reactive power degrading the power factor.
A passive filter with an LC circuit is used for:
- minimising the third order harmonic pollution
- measuring the power factor by decreasing the reactive power
- observing the resonance phenomenon.

It is also possible to study the operation of the phase-shift of the SCR regulator.

Principle : the industrial lighting of the panel – simulated by the four halogen lamps on a tripod – varies depending on the ambient sunlight, simulated by one low-voltage spotlight placed in the cabinet. When the current in the halogen lamps is significantly degraded, the filtering components are activated, either manually via the switches on the front or automatically by a PLC.
Auto mode: 3 sunlight levels are programmed. For weak sunlight the 3rd order current harmonic is high. The PLC activates a passive filter which tends to decrease this harmonic.
Manual Mode: a potentiometer is used for continually adjusting the sunlight level. Varying it makes it possible to:
- VIEW, with the help of the network analyser (ref. 6830), the effect of the dimmer on the level of the current harmonics;
- MEASURE THE power factor by inserting a capacitor induction coil. The network analyser reveals that the solution can be found in the induction coil.
- FILTER HARMONIC 3 by using a resonant filter which will reduce noticeably its current.

THE FRONT FACE COMPRISES
- Safety terminals for the measurements
- voltages and currents supplied by the network
- voltages and currents in the halogen lamps
- voltages and currents in the filter components
- Switches for activating or deactivating the filter components
- An Automatic/Manual mode switch
- A lighting potentiometer

OTHER FEATURES:
- Light column indicating that the mains power is on
- PLC Software, tutorial and instructions for use are supplied.
- Power supply: 220V 50Hz
- Cabinet: 820 x 400mm Height: 930mm
- Base with wheels, with laminated bench-top: 1200 x 750 x 970mm
- Overall dimensions: 1200 x 750mm Height: 1900mm