

## HIGH PERFORMANCE POWER QUALITY ANALYZER

**Class A according to IEC61000-4-30  
Class 0.1 for energy meter**



**ENEL EA 0530  
IEC61000-4-30 Class A  
Ed. 3**

### Applications

LV electric systems

### Functions

Three phase high-precision analyzer and recorder, PowerQuality, PowerMeter, Fault Recorder, Energy meter

### Measures

- Voltages and Currents
- Active, Reactive and Apparent power
- Active and Reactive (4 quadrants) Energy
- Power Factor
- Frequency
- Flicker (Pst e Plt)
- Voltages and Currents Harmonics and Interharmonics (up to 50° order)
- Voltage Unbalance
- Voltage Dips and Swells
- Voltage Interruptions (short and long)
- Rapid Voltage Changes
- Waveforms (window records with programmable Pre and Post-Triggers)

### Accuracy

According to IEC61000-4-30 Ed. 3 Class A and IEC62053-22-30 Class 0.1

### Safety

CAT IV 300V, class 2 (double insulation) for voltage and direct current measuring circuits

### Certification

IEC61000-4-30 Ed. 3 Class A

### Approval

Approved according to ENEL EA 0530 specification  
%Apparecchiature portatili per la registrazione delle grandezze elettriche nelle reti di distribuzione+

### The most compact analyzer on the market, with full equipment of integrated resources

- 3 voltage channels 0-400Vac
- 3 current channels 0-1Aac
- Current Clamps 1000A/1A (max Ø 50mm)
- Internal storage memory 2GB (expandable)
- 1 mini USB 2.0 (device) port
- 1 USB 1.1 (host) port
- 1 Ethernet 100baseT port
- 1 integrated GSM/GPRS Modem
- 1 GPS receiver port (optional)
- Power supply truth measures: 160-350Vac/dc
- Internal UPS for more than 40 minutes backup supply
- HMI with graphic WQVGA color display, functional keys and signalling leds
- Pulse emitting leds for active and reactive energy accuracy test
- Plastic carrying case 465 x 365 x 180 mm
- Weight: Kg 8 (including cables and clamps)



# Technical Specifications

## Power Supply

Voltage: 160÷350 Vac/dc - 50/60Hz  
Power consumptions: 20 VA  
Battery: 12 V 0.8Ah Pb sealed  
Battery operating time: 40 minutes, self-limited

## Voltage input channels

Channels: 3 (R-S-T-N)  
Single range up to 350 Vac/dc (phase-neutral)  
Permanent overload: +50%  
Type: resistor network  
Impedance: 1 Mohm  
Pluggable terminal blocks pitch 7,62 mm

## Direct input Current channels

Channels: 3  
Range: 0÷1 Aac  
Permanent overload: +100%  
Type: internal current transformer  
Pluggable terminal blocks pitch 7,62 mm

## Current Clamps

Model: C112  
Range: 0÷1000 Aac / 1Aac (output)  
Permanent overload: +120%  
Cable max. Ø=50mm

## Measurement method

Synchronous sampling with phase locking  
Bandwidth: -3dB @ 6,4 kHz  
A/D converter resolution: 16 bit  
Sample rate: 25,6 ksample/sec.  
Compliance: EN61000-4-30 Class A

## Accuracy (@25 °C, 45-65Hz)

Voltage:  $\pm 0.1\%$   $U_{din}$  from 10% to 150%  $U_{din}$   
Current:  $\pm 0.1\%$   $I_{din}$  from 10% to 150%  $I_{din}$   
Frequency:  $\pm 0.01\%$  reading  
Harmonics:  $\pm 0.5$  reading for THD > 0.5%  
Derived measures:  $\pm 0.2\%$  from 10% to 150% of  $U_{din} \times I_{din}$   
Energy: Active Class 0.1 - Reactive Class 0.5  
Active Energy:  $\pm 0.2\%$  1%  $I_n \leq I < 5\% I_n$ , PF=1  
 $\pm 0.1\%$  5%  $I_n \leq I \leq I_{max}$ , PF=1  
 $\pm 0.25\%$  2%  $I_n \leq I < 10\% I_n$ , PF=0.5 (IND/CAP)  
 $\pm 0.15\%$  10%  $I_n \leq I \leq I_{max}$ , PF=0.5 (IND/CAP)  
 $\pm 0.15\%$  10%  $I_n \leq I \leq I_{max}$ , PF=0.25 (IND)

Reactive Energy:  $\pm 0.5\%$  5%  $I_n \leq I \leq I_{max}$ , PF=0  
(test methods according to 0.2S IEC 62053-22)

## Led for Energy evaluation

IR Led (l = 850nm) pulses for active and reactive energy

## User interface

Display: color graphic display WQVGA  
Keyboard: n. 6 functional keys  
Led: On, Battery status, Modem status  
Battery charge indication leds

## Ethernet Port

Type: 100baseT  
Connector: RJ45

## USB 1 Port

Type: Host 1.1  
Interface for: external storage media, Wi-Fi communication adapter, external modem

## USB 2 Type

Type: Device 2.0  
Personal Computer data interface

## Clock-Calendar

Format: yyyy/mm/dd hh:mm:ss.msec  
Accuracy: better than 1 second/day without GPS  
better than 16.67 ms/day from UTC with GPS  
External time synchronization sources:  
GPS receiver mod GTS9000 (optional)

## Enclosure

Plastic carrying case: 465 x 365 x 180 mm  
Enclosure: ABS  
Weight: 8 Kg (cables and clamps included)  
Protection rate: IP 67

## Safety

Meets EN61010-1  
Double insulated power supply  
Voltage and current inputs: CAT IV / 300V class 2 (double insulation)  
Degree of protection: IP40 (connection compartment IP20)

## EMC

Emissions: EN61000-6-3 (residential)  
Immunity: EN61000-6-2 (industrial) and EN61236-1

## Environmental conditions

Operating temperature: -10 ÷ +50 °C  
Storage temperature: -25 ÷ +70 °C  
Humidity: 90% non-condensing

## GSM/GPRS Modem

Modem type: Internal, Quadband 850/900/1800/1900 MHz  
Networking: GSM and GPRS  
Internal antenna  
Optional external antenna  
Sealable SIM holder

## GTS 9000 GPS receiver (option)

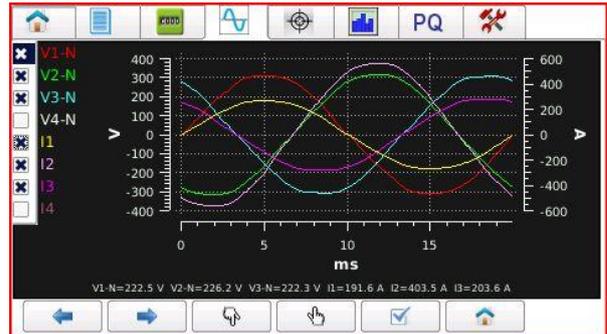
GPS receiver for time synchronization (antenna must be placed outside)

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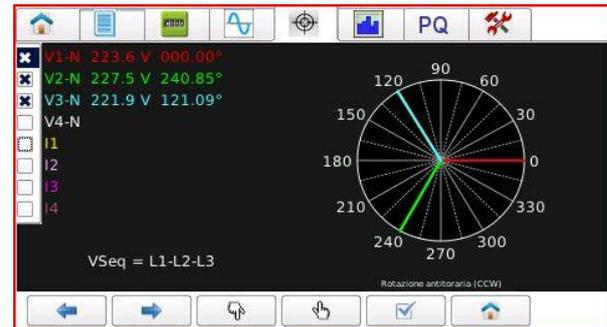
Instantaneous measures



Waveform Scope



Energy counters



Phasors diagram