



## HIGH PERFORMANCE POWER QUALITY ANALYZER

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



**ENEL EA 0500  
IEC61000-4-30 Class A Ed. 3**

### Applications

LV/MV/HV 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 Class A Ed. 3 and IEC62053-22-30 Class 0.1

### Safety

CAT IV 600V, class 2 (double insulation) for voltage and direct current measuring circuits

### Certification

IEC61000-4-30 Class A Ed. 3

### Approval

Approved according to ENEL EA 0500 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

- 4 voltage channels 0÷400Vac
- 3 current channels 0÷5Aac
- 4 channels for current transducers with voltage output 0÷3Vac/dc
- 4 input channels for flexible Rogowski coils
- Internal storage memory 2GB (expandable to 16GB)
- 1 mini USB 2.0 (device) port
- 1 USB 1.1 (host) port
- 1 Ethernet 100baseT port
- 1 GPS receiver port (optional)
- 1 insulated digital I/O port (2IN + 1OUT)
- Auxiliary supply ranges: 40-130Vac or 80-260Vac/dc (100/√3 Vac with external optional adapter)
- Internal UPS for more than 40 minutes backup supply
- HMI with graphic WQVGA color display, functional keys and signalling leds
- Internal GSM/GPRS modem
- Pulse emitting leds for active and reactive energy accuracy test
- Size: 250 x 150 x 70 mm
- Weight: Kg 1.5

# Technical Specifications

## Power Supply

Voltage: 40÷130Vac – 80÷260 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: 4  
Single range up to 600 Vac/dc  
Permanent overload: +100%  
Type: resistor network  
Impedance: 1 Mohm  
Pluggable terminal blocks pitch 7,62 mm

## Direct input Current channels

Channels: 3  
Range: 0÷5 Aac  
Permanent overload: +100%  
Type: internal current transformer  
Pluggable terminal blocks pitch 7,62 mm

## Current channels from transducers

Channels: 4  
Range: 0÷3 Vac/dc (0÷7 Vac/dc on request)  
Permanent overload: +50%  
Type: resistor network  
Impedance: 1 Mohm  
Pluggable terminal blocks pitch 3.81 mm

## Current channels from Rogowski transducers

Channels: 4  
Range: 0÷300 Iac and 0÷3000 Iac  
Rogowski coil length: 500mm (Ø 159mm)  
600mm (Ø 191mm)

## 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  
(test methods according to 0.2S IEC 62053-22)

## Digital Input/Output

2 insulated digital inputs  
1 insulated optomos digital output

## User interface

Display: color graphic display WQVGA  
Keyboard: n. 6 functional keys  
Led: On, Battery status, Modem status  
Battery charge indication (5 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

Size: 250 x 150 x 70 mm  
Enclosure: ABS  
Weight: 1,5 Kg  
Sealable terminal compartments

## Safety

Meets EN61010-1  
Double insulated power supply  
Voltage and current inputs: CAT IV / 600V 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 ÷ +60 °C  
Humidity: 85% non-condensing

## Transport case

Hard case IP65 black color, with compartments for accessories.  
Size: 465 x 365 x 180 mm

## GSM/GPRS Modem (option)

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)

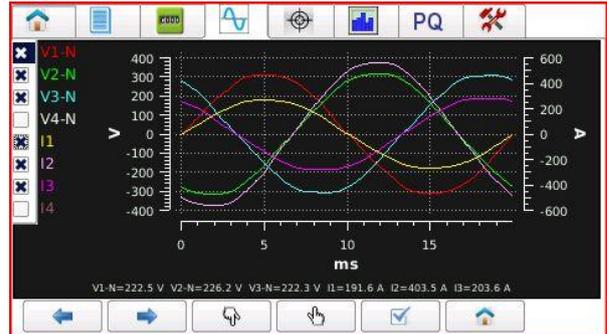
GPS receiver for time synchronization (antenna must be placed outside)

## Clamps current transducers (option)

Wide choice of clamp current transducers with current output (/5A) or voltage output (/3V) or Rogowski coils ranging from 10 A to 3000 A



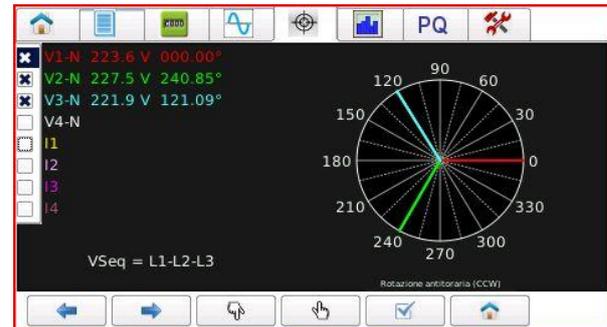
Instantaneous measures



Waveform Scope



Energy counters



Phasors diagram



Kit contents



Current transducers

**TW-TeamWare Srl**  
Via Pindaro, 19  
20128 Milano - Italy  
Tel. +39 02 27003261  
Fax +39 02 27007753  
email tw@teamware.it  
web www.teamware.it