

Zepto

Multimeter Power & Energy Meter Analyzer



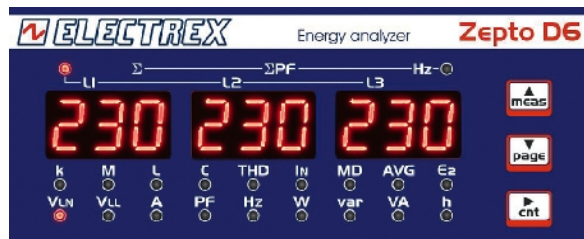
Zepto is a microprocessor based Multimeter, Power & Energy Meter and Analyzer with outstanding flexibility and accuracy designed to meet the most demanding applications of electrical parameters analyses and energy supply monitoring in the industrial and residential environment. The instrument combines the functions of multimeter, power&energy meter and analyzer

True-RMS

All the readings are "true-RMS" and they are obtained with a continuous sampling of the voltage and current waveforms in order to ensure the maximum metering accuracy of rapidly varying loads (e.g. spot welding). A sophisticated digital measurement method with a compensation system of the internal amplifiers' offsets ensures the maximum metering accuracy and stability irrespective of the signal level and the environmental working conditions.

Simple to use

The high brightness red led displays provide a superior reading visibility, up to 7 m. away, also in presence of intense light. Three displays of 3 digits each with floating point allow the simultaneous reading of 3 parameters (or a 9 digit reading of the energy counters).



3 keys on the instrument front panel, make the instrument use simple and rational.

Versatile in application

Zepto is suitable for virtually all type of electrical grid, 3- and 4-wire, symmetrical and asymmetrical, balanced or unbalanced, single- and bi-phase, Low Tension and High Tension, with 1, 2 or 3 CTs as well as for 2 quadrant measurement.

A simple keyboard programming allows the setting of all the operational parameters such as grid type, LT/HT, CT and VT ratios (free setting) integration time (1-60 min), digital output and alarms (thresholds, delays, hysteresis), digital input, RS485 serial communication.

The instrument set-up is password protected against undesired modifications.

Zepto types

All **Zepto** meters are available in 2 versions:

§ Without digital inputs and outputs.

§ With 1 digital input and 2 digital outputs.

Digital input

Zepto 1DI 2DO is equipped, as standard feature, with an optically insulated digital input complete with programmable filter for input glitches. The digital input is set to operate for external pulse count of, example, water meters, gas meters (insulation to meet the ATEX requirements), quantity count, etc. The input may be alternatively configured to operate as

ON/OFF input (example for reading the ON/OFF state of machines and switches). The digital input requires an external 10-30Vdc power supply.

Readings

Parameter	Type	L1	L2	L3	n	Σ	P	Range
Voltage	U _{L-N}	h	h	h	h			20,0V...400 kV
	U _{L-L}	h	h	h	h			
Current	I	h	h	h	h	h		10 mA...10,0 kA
	I _{AVG THERM} (1)	h	h	h				
	I _{MD THERM} (1)	h	h	h				
Power Factor	PF	h	h	h	h			0,00ind...1,00...0,00cap
Frequency	f	h	h	h	h			45 ... 65 Hz
Harmonic distortion	THD-U _{L-N}	h	h	h	h			0...199,9%
	THD-U _{L-L}	h	h	h	h			
	THD-I	h	h	h	h			
Active Power	P	h	h	h	h			± 0,00...1999 MW
	P _m (1)					h		
	P _{MD} (1)					h		
Reactive Power	Q _{IND}	h	h	h	h			± 0,00...1999 Mvar
	Q _{CAP}	h	h	h	h			
	Q _{m IND} (1)					h		
	Q _{m CAP} (1)					h		
	Q _{MD IND} (1)					h		
	Q _{MD CAP} (1)					h		
Apparent Power	S	h	h	h	h			± 0,00...1999 MVA
	S _m (1)					h		
	S _{MD} (1)					h		
Life Time	h, (1/1000 h)					h	h	0,01...99.999,99
Active Energy	E _a (2)					h	h	0,1 kWh...99.999,9 MWh
Reactive Energy	E _{r IND} (2)					h	h	0,1 kvarh...99.999,9 Mvarh
	E _{r CAP} (2)					h	h	
Apparent Energy	E _s (2)					h	h	0,1kVAh...99.999,9 MVAh

(1) Mean value (rolling average) over the integration time (1.. 60 min. programmable).

(2) Energies displayed as 9 digits in floating-point readings; internal energy metering performed with 0,1 Wh minimum resolution and 99.999.999,9999 kWh maximum energy count before rollover.

Digital outputs

Zepto 1DI 2DO is equipped, as standard feature, with two optical insulated transistor outputs rated 27 Vdc 27 mA per DIN 43864 standards. The two outputs are factory set to the transmission of pulses proportional to the Active energy and the Reactive energy (pulse weight and length are user programmable). The outputs may be alternatively configured as outputs of the internal alarms (see Alarms) or as remote output devices controlled via serial line and Modbus commands.

Electrical characteristics

Connection: single-, bi-phase & 3-phase, LT and HT grids, balanced, unbalanced, 3- and 4-wire

Voltage inputs:

Direct:..... up to 300 Vrms phase-neutral or 519 Vrms phase-phase

Via external VTs:

Primary:programmable (max. 400 kV)

Secondary:..... programmable (max. 300 V)

Frequency: 45÷65 Hz

Max voltage to ground:..... 300 Vrms

Input burden: < 0,3 VA

Input impedance > 2 MΩ

Overload:..... 900 Vrms phase-phase per 1 sec

Current Inputs:

with external CT:

Primary:programmable (max. 10 kA)

Secondary:..... 1 or 5 A

Max current:..... 1,2 or 6 Arms

Input burden: < 0,7 VA

Overload: 40 Arms, 1 sec.

Digital Inputs (depending on type):

Power supply (external):..... 10 to 30 Vdc

Absorbed current: 2 to 10mA

Max counting frequency: 10 or 100Hz (programmable)

Digital Outputs (depending on type):

Type (per DIN 43864):..... open collector (NPN)

Max voltage: 27 Vdc

Max current:..... 27mA

Power supply (separate from voltage inputs):

standard type:..... 230/240Vac +/- 10% 50/60Hz

Self consumption: < 3VA

Galvanic insulation:

Power supply (separate):..... 4 kV

RS485 serial port: 1,5 kV

Digital Input & Outputs: 1,5 kV

Accuracy

Voltage: 0,5% of reading +/- 1 digit from 40 to 300V, min. reading: 10V

Current:..... 0,5% of reading +/- 1 digit from 0,02 to 1,2A or from 1,2 to 6A, min. reading: 10mA

Frequency:..... 0,02Hz from 45 to 65 Hz

Power: 1% of reading +/- 1 digit

Active Energy:..... Class 1 complying with IEC EN 62053-21

Reactive Energy:..... Class 2 complying with IEC EN 62053-21

Standards

Safety: IEC EN 61010-1 CAT III-300V, class 2

E.M.C.:..... IEC EN 61326-1A

Accuracy:..... IEC EN 62053-21

Digital Output:..... DIN 43864

Environmental conditions

Working temperature range: -10/+50 °C

Storage temperature range:..... -15/+60 °C

Relative Humidity RH< 95% non-condensing

Mechanical characteristics

Enclosure Self-extinguishing plastic material class V0

Protection degree Front panel IP40)

Terminals side..... IP20

Size: Zepto D6 105 x 90 x 58 mm (6 DIN modules)

Mount DIN rail

Zepto 96..... 96 x 96 x 72 mm

Mount panel

Panel cut-out..... 92 x 92 mm

Terminals screw connector

Max cable size: 2,5 mm² (stranded cable) /

4 mm² (solid cable)

How to order

Type	Code
Zepto D6 RS485 230-240V	PFA8611-02
Zepto D6 RS485 230-240V 1DI 2DO	PFA8611-12
Zepto 96 RS485 230-240V	PFA8C11-02
Zepto 96 RS485 230-240V 1DI 2DO	PFA8C11-12

Subject to modification without prior notice

Data sheet Zepto 2008 02 20 -ENG

Your distributor