ReCon T Energy Logger

THD GPRS and USB version

Compact, robust and versatile electrical energy monitoring with 3G communication capabilities.

Today's increasing energy costs and environmental concerns demand more sophisticated energy recording tools. Knowing precisely where and when energy is used is the first steps in any energy management program. CESINEL ReCon series of high-performance electrical energy loggers set a new standard in functionality, versatility, compactness, and simplicity of use.
Preinstalled with built-in flexible coils, installing the logger is a matter of minutes. After installation the logger will automatically record all your energy parameters for later retrieval via the local USB port. Other communication options are also available.
The ReCon T three-phase Energy Logger is the perfect solution for occasional, large-scale, distributed energy monitoring solutions.

Summary of main capabilities

Recorded phenomena

- Voltage and current RMS max, average and minimum values
- Voltage interruptions, dips and swells: time and duration of event
- Voltage and current harmonic distortion (UTHD and ITHD)
- Low order voltage and current harmonics (up to 7th order)
- Network frequency max, average and minimum values
- Active, reactive and apparent power (kW, kvar and kVA)
- Active, reactive and apparent energy (kWh, kvarh and kVAh)
- Total Power factor. In wye mode also per-phase is available
- Voltage and current unbalance

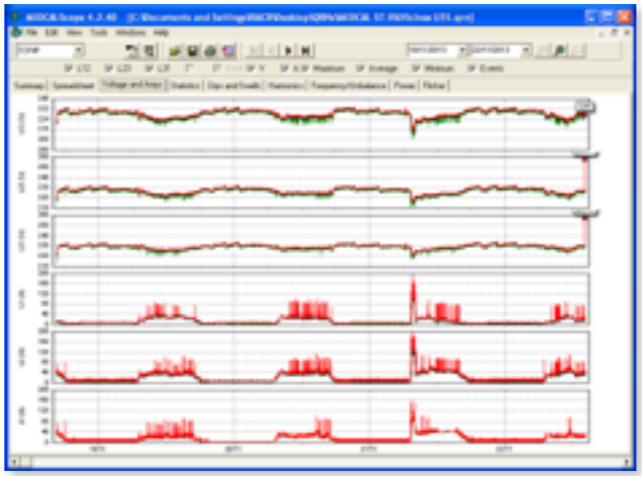
Main features

- Built-in backlit display
- Powers directly from the measurement signals.
- Single and polyphase connection topologies
- Can also be powered directly from USB for easier use on a desk
- Different sizes of flexible current sensors available
- Magnetic back plate for instantaneous attachment to an electric panel
- Very large memory available for mode than 3 months of non-stop recording
- Storage interval from 1s to 60 minutes
- 100 V CAT IV / 600 V CAT III overvoltage rating, double insulation for maximum safety.

Complete included software

The included MEDCALScope software allows a complete and exhaustive analysis of recorded data. It is possible to save the recorded data for later use and export the data to other computer applications such as spreadsheets and word processors, as well as check compliance with EN50160, NV, PRODIST and other power quality standards and produce automated reports. MEDCALScope is freely available for download or update at the internet address: http://www.cesinel.com/

Voltage and current view



Harmonics view

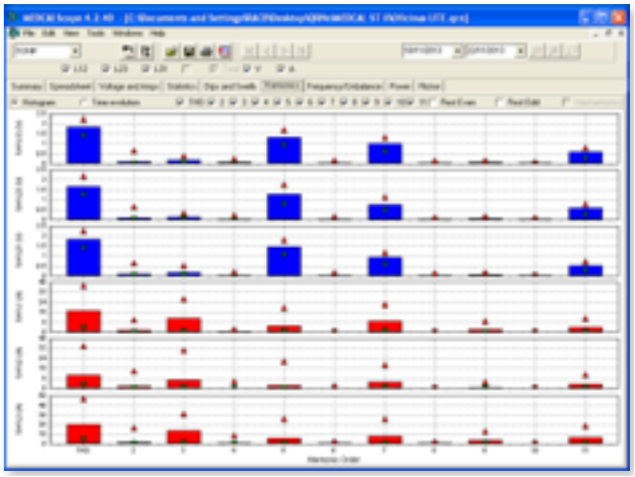
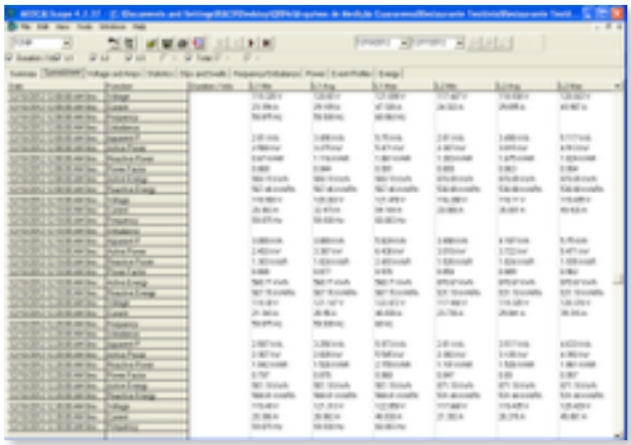
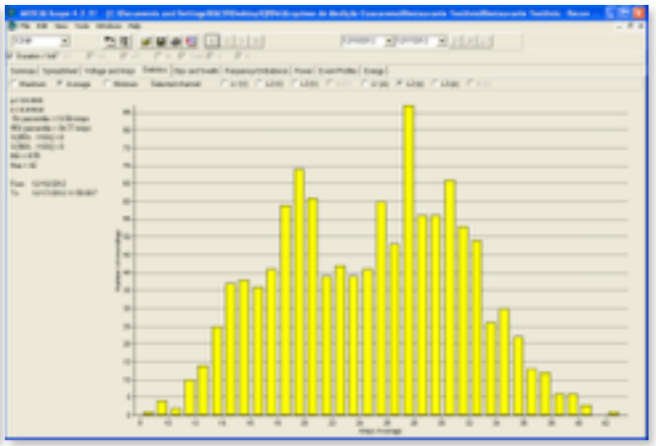


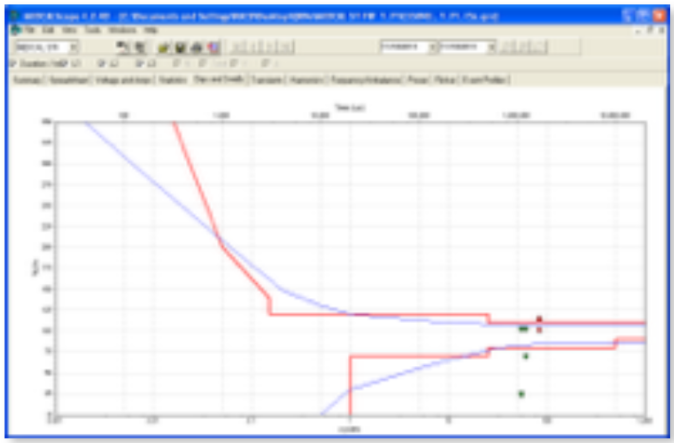
Table view



Statistics and compliance checking



ITIC / CBEMA events curves



Instrument setup

Detailed Technical specifications

User interface characteristics

Display type	Graphical LCD Display with backlight. Auto-power off function for longer life
User interface	Flat buttons for display and local configuration of the instrument. It is possible to operate the instrument with electric safety gloves
Enclosure IP rating	IP54 according to IEC 60529. IP65 available with larger enclosure.

Voltage measurement

Input Voltage (Phase-Neutral) (Un)	Max. 1000 V_{RMS}
Input Voltage (Phase-Phase) (Un)	Max. 1750 V_{RMS}
User-selectable nominal voltages	50/100 V, 64/110 V, 65/115 V, 69/120 V, 72/125 V, 73/127 V, 100/173 V, 110/190 V, 120/208 V, 125/217 V, 127/220 V, 133/230 V, 139/240 V, 220/380 V, 230/400 V, 250/415 V, 277/480 V, 347/600 V, 400/690 V, 480/831 V, 690/1200 V, 831/1440 V
User-selectable electric topology	Wye three-phase 4 wires: L1-N, L2-N, L3-N voltages and L1, L2, L3, N currents Delta three-phase 3 wires: L1-L2, L2-L3 and L3-L1 voltages and L1, L2, L3 currents Split-Phase: L1-N and L2-N Single-Phase: L1-N
User-selectable voltage transformer primary	1 kV, 2.4 kV, 3.3 kV, 6.9 kV, 10.0 kV, 11.0 kV, 13.8 kV, 15.0 kV, 23.0 kV, 25.0 kV, 30.0 kV, 33.0 kV, 34.5 kV, 45.0 kV, 69.0 kV, 88.0 kV, 138.0 kV, 230.0 kV, 345.0 kV, 440.0 kV, 500.0 kV, 750.0 kV
User-selectable voltage transformer secondary	100 V, 110 V, 115 V, 220 V, 230 V, 400 V, 1000V
Input Impedance	800 kΩ per channel, 1.6 MΩ Phase-Neutral
Maximum error for RMS voltage	0.1% of range

Voltage quality parameters

RMS voltage	Maximum, Average and Minimum for every interval
Dips and Swells	Duration and depth recording. Possibility of recording the RMS voltage profile of the recorded events.
RMS voltage profiles	Triggered by Dips and Swells. Cycle-by-cycle recording, maximum duration: 4 seconds
Voltage and current harmonics	Up to order 7th order
UTHD	Measured according to EN61000-4-7 and EN 50160:2001
Frequency	Measured according to EN61000-4-30 Ed 2 and EN 50160:2001
Unbalance	Measured according to EN61000-4-30 Ed 2 and EN 50160:2001

Current measurement common specifications

Input connector	IP-68 waterproof
RMS current	Maximum, Average and Minimum for every interval
Intrinsic error for RMS current	0.1% of range + sensor error
Current harmonics (S version only)	Up to order 7th
ITHD	Calculated as UTHD for consistency

Flexible current sensors. 3 sensors: L1, L2, L3, N

Nominal current (In)	50 A / 180 A / 600 A / 2.000 A / 5.000 A
Current measuring range	2 x In: 100 A / 360 A / 1.200 A / 4.000A / 10.000 A

Power and Energy.

Active, Apparent and Reactive/Non-Active Power. Maximum, Average and Minimum for every interval.
Intrinsic error for Active and Apparent power and energy: 0,5 %
Intrinsic error for reactive power and energy: 1%.
Power Factor, In delta mode only the total power factor is available.
Active, Apparent and Reactive/Non-Active Energy with daily load curve.

Sampling, recording, memory and storage

Sampling frequency	6.400 / 7.680 Hz
Sampling resolution	16 bits with adjustable amplification stage

Automatic storage of recordings after 10 seconds of losing supply power.
Automatic power-on and resuming of recording after return of supply voltage.
Optional external battery provides power for 60 mimnutes.

Averaging intervals	1 s, 2 s, 5 s, 10 s, 30 s, 1 m, 2 m, 5 m, 10 m, 15 m, 30 m, 60 m
Number of records and events	Over 12.000.000 records. Duration depends on selected topology and number of disturbances Under normal circumstances the instrument can store over 150 days of measurements with 10 minutes averaging interval
Type of memory	Internal Flash-type memory, 16 GB

RTC precision	5 ppm (error below 0.5 seconds per day)

Communications

USB 2.0 as standard	Certified drivers for Windows XP, 7, 8, 8.1 and 10. Both 32-bit and 64-bit versions
USB effective data transmission speed	1 Mbps

Dimensions and weight

External dimensions	145 mm x 90 mm x 45 mm
Weight	900 g
Voltage cables length	200 cm, other lengths upon request

Mains Power supply

Power supply level	85 to 600 V_{RMS} nominal (600V_{RMS} max. / 1000V_{RMS} over-voltage protected) 100 to 600 Vdc nominal (850Vdc max. / 1500Vdc over-voltage protected)
Power supply frequency	DC or AC 50-60 Hz
Power consumption	3.1 W max.

USB Power supply

Power supply level	5 Vdc (USB standard voltage)
Power consumption	2.8 W max.
USB cable length	1.5 meters max.
Isolation	5000 V_{RMS} / 8 mm creepage distance

Safety

Installation category	1000V CAT III / 600V CAT IV
Pollution degree	2
Isolation level	Double isolation
Safety standard	IEC/EN 61010-1

Compliance

EMC	Compliant with EU EMC directive 2014/30/EU
Safety	Compliant with EU LVD directive 2014/35/EU
Manufacturing process	Compliant with ISO 9001-2015