



MEDCAL ST Network Analyzer MEDCAL NT Voltage Quality Monitor

Advanced Voltage and Power Quality recording solutions Long-term or permanent recording with remote access

The MEDCAL ST and MEDCAL NT family of three-phase recorders is the optimal solution for large-scale, distributed voltage quality recording solutions. Covering all the requirements of EN 50160, it is the first three-phase monitor able to fully implement the recommendations of EN 50160 standard for Rapid Voltage changes (RVCs).

Both instruments are capable of storing more than three-months of data under normal conditions using the recommended default 10 minutes averaging period.



Main characteristics

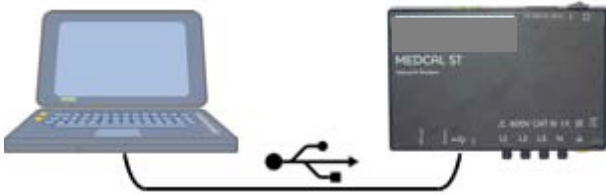
- Wide input range; from 57V to 690 V Phase-to-Neutral nominal voltage
- Star (Wye), Delta, Single-phase and Split-phase connection topologies
- Programmable averaging intervals from 200 milliseconds to 30 minutes
- Fast event capture with 1/4 cycle time resolution and RMS voltage profiles
- Records sample-by-sample waveforms
- All power quality parameters are recorded; no need to guess what you will find on site
- Plug and play: Very simple setup from a single screen
- Installs inside any electrical cabinet: Compact and fully-insulated enclosure that fits easily in tight spaces, next to live power
- Included full-featured MEDCALScope analysis software. Quickly analyzes trends, creates statistical summaries, and generates detailed reports
- Quickly validate voltage quality: Assess supply quality according to EN50160, NVE, PRODIST and other power quality standards, with single-page report including statistical overview.
- Designed for maximum robustness and reliability without moving parts and a very rigid insulated case.
- Optional IP-65 outdoors enclosure
- Lifetime, no-cost firmware and software updates
- Complete operator safety with double insulation and 600 V CAT III protection class
- 2 years warranty

Versatile communications

Both instruments are available with a wide variety of communication options:

Direct USB connection

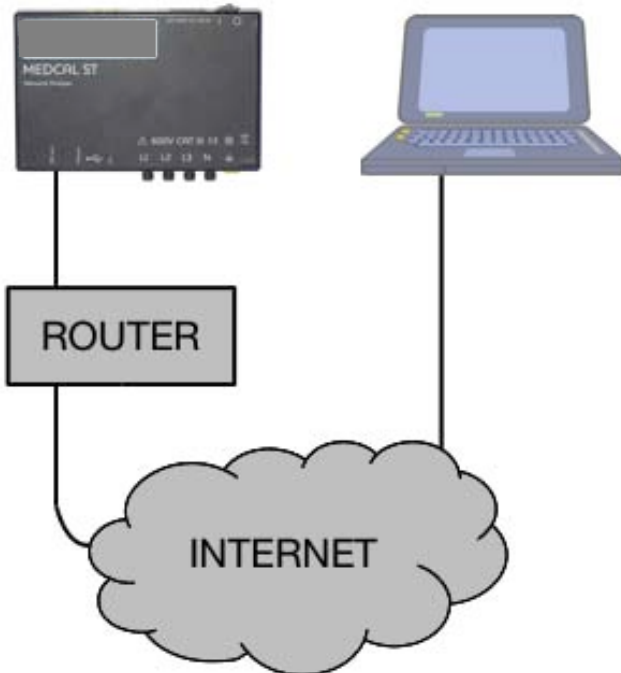
This is the default option for all instruments, and the fastest and more convenient for local situations.



The instrument is automatically detected and its name is displayed in MEDCALScope. Downloading or setting up the instrument is done with a simple click:

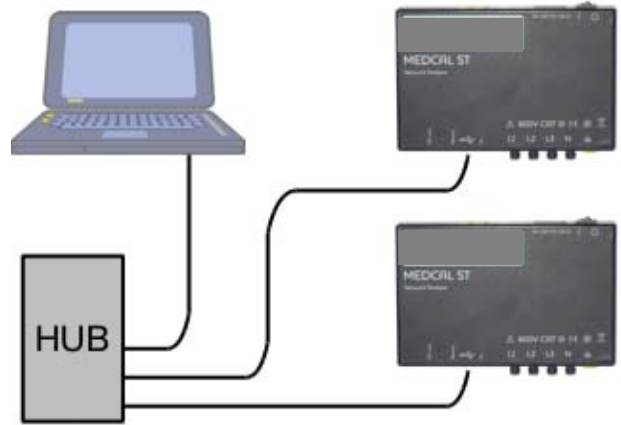
TCP/IP Ethernet using a DHCP server

This is the optimum arrangement when several instruments are installed in remote areas with TCP/IP connectivity. A router with built-in DHCP is required and must be properly configured so the address assigned to the instruments is available.



TCP/IP Ethernet with fixed IP Address

Best suited when several instruments must be managed from a single computer, this method does not require the presence of a DHCP server. Instead, each instrument must be manually assigned with an IP address.



GSM Modem

The only solution for remote and isolated locations. The instrument can be supplied with an internal GSM Modem. A second GSM modem is needed at the monitoring computer.



Versions for every situation

MEDCAL ST and MEDCAL NT are available in several different configurations: the standard version is suitable for laboratory use or indoor installation. Both instruments are also available on a IP-65 rated version recommended whenever the instrument must be used outdoors or in extreme climatic conditions.

Also available is the MEDCAL ST direct current variant with internal 5A or 1A precision CTs

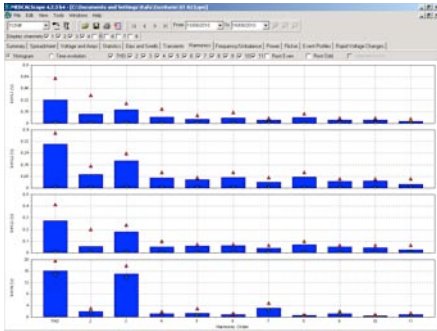


MEDCAL ST with internal CTs

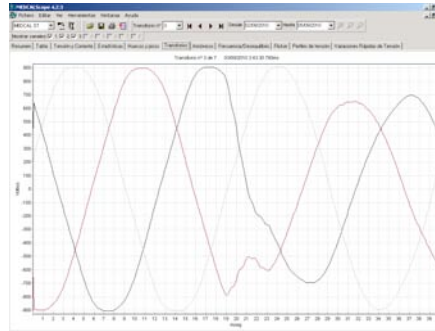
Complete included software

With every MEDCAL ST and MEDCAL NT a copy of MEDCALScope PC software is included at no additional cost. MEDCALScope 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, as well as check compliance with EN50160 NV, PRDIST and other power quality standards and produce automated reports.

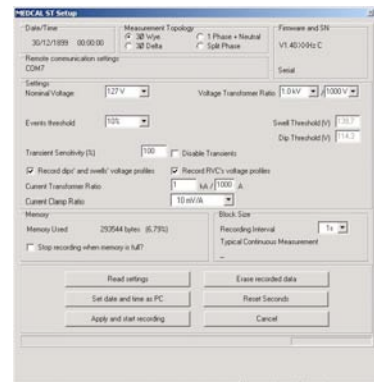
Harmonics



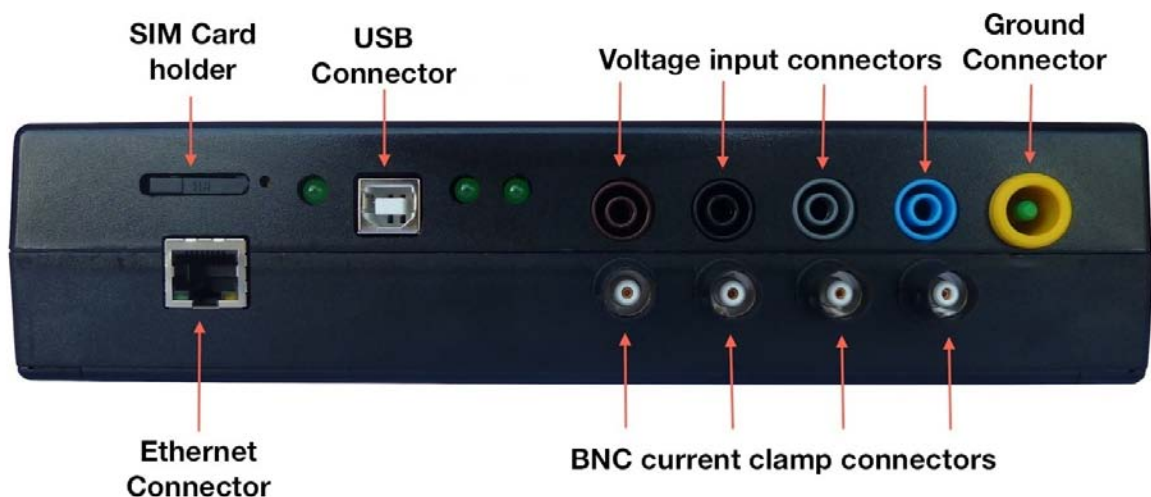
Transient capture



Instrument setup



Front view



Options and accessories

Carrying Case



Wide range of current probes



Technical specifications

Voltage Measurement

Input Voltage (Phase-Phase)	max. 480 V ac
Input Voltage (Phase-Neutral)	max. 690 V ac
User-selectable nominal voltages	57 V, 66 V, 69 V, 100V, 110 V, 115V, 120V, 127 V, 208V, 220 V, 230V, 240V, 254 V, 380 V, 400 V, 440V, 480 V, 690 V
User-selectable electric topology	Delta, Wye, Split-Phase and Single-Phase
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	100V, 110 V, 115 V, 230 V, 1000 V
Input Impedance	600 k Ω per channel, 1.2 M Ω Phase-Neutral
Maximum error	Worst case: 1/8 V + 0.5% of reading.

Voltage quality parameters

Dips and Swells	Duration and depth measured according to EN 61000-4-30 Ed 2.
RMS voltage profiles	Triggered by Dips, Swells and RVCs. Maximum duration 4 seconds.
Transient waveforms	2 cycles.
Harmonics	Up to order 50th according to EN 61000-4-7.
VTHD	Measured according to EN 61000-4-7
Flicker	Measured according to EN 61000-4-15
Frequency	Measured according to EN 61000-4-30 Ed 2.
Unbalance	Measured according to EN 61000-4-30 Ed 2.

Current Measurement. MEDCAL ST with external CT

Input connector	BNC
Input impedance	33 k Ω
Measurement range	1A to 3000 A depending on selected current probe
Current probe type	Voltage-output, maximum voltage 3 V ac
Current probe ratios	From 0.1 mV/A to 600 mV/A
Maximum error	0.5% of reading + current probe error

Current Measurement. MEDCAL ST with internal CT

Input connector	Paired screw terminals
Input impedance	< 1 m Ω
Measurement range	1A or 5A nominal available
Maximum error	0.5% of reading + 2 mA

Power measurements. MEDCAL ST only

Active, Apparent and Non-Active Power, Current THD

Memory and storage

Averaging intervals	0.2 s, 0.5 s, 1 s, 2 s, 5 s, 10 s, 30 s, 1 m, 2 m, 5 m, 10 m, 15 m, 30 m
Number of records and events	Over 600.000 records. Duration depends on selected topology. On most cases the instrument can store over 3 months of measurements with 10 minute averaging interval

Safety

Installation category	600V CAT III / 300 V CAT IV
Pollution degree	2
Isolation level	Double isolation
Safety standard	IEC/EN 61010-1

Physical and environmental data

Interface	Optoisolated USB (1.1 and 2.0 compatible)
Dimensions	220 x 145 x 50 mm. IP 65 version: 220 x 145 x 80 mm
Weight	500 gr (700 gr with internal CTs and GSm Modem)
Working temperature	-10° C to 65°C. Nominal temperature 20°C
Relative humidity	10% to 90 % N.C.
Communication interfaces	Optoisolated USB, 1.0 and 2.0 compatible Optional RJ-45 Ethernet with TCP/IP