

Unilyzer 901 - Power Network Analyser



The Unilyzer 901 is a portable analyser made for Power Quality measurements in the power distribution network. The Unilyzer 901 platform consists of a stand-alone unit that is dust- and splash-proof (IP65) and has no moving parts. It measures all parameters in national and international norms, like the EN 50160, and captures disturbances like transients, sags and swells simultaneously! The rough environment enclosure allows the Unilyzer 901 to measure anywhere in the network, and the Unilyzer 901 platform is based on the latest technology available in order to give maximum performance and numerous applications.

Combining high performance with ease-of-use and ease-of-installation we offer you a complete package including measuring unit, transducers and all the necessary software in a specially designed carrying case. On site, the Unilyzer 901 is up and running in no time!

High Performance

Thanks to the powerful DSP-technology Unilyzer 901 measures all periods without any time gaps. To ensure highest possible accuracy the Unilyzer 901 also has a built-in hardware PLL (Phase-Locked-Loop) locking to the fundamental frequency. Unilyzer 901 measures simultaneously voltage, current, power, energy, all power quality parameters and disturbances like transients and sags and swells.

Disturbances

Four independent trig-channels capture sags, swells, fast transients, interruptions, frequency deviations and other events simultaneously. Waveforms and other parameters are recorded on all eight channels with every event.

Unique Real-Time Features

If connected to a (portable) PC, Unilyzer 901 offers powerful real-time capabilities including values display, an eight-channel oscilloscope, a harmonics spectrum analyser and a trend-graph showing the last 24 hours of all measured parameters and events without transferring any data to the host computer. The phasor (or vector) diagram helps to identify phase relationships and to check wiring connections.

- ◆ Power Quality analysis (e.g. EN 50160)
- ◆ Automatic transducer identification
- ◆ V, A, W, VA, VAr, kWh, kVArh, PF, cos phi, Hz, IFL, P_{ST} , P_{LT} , energy and more
- ◆ Harmonics analysis and interharmonics (IEC 61000-4-7)
- ◆ Direction of power harmonics
- ◆ Flicker, IEC 61000-4-15 (IEC 868)
- ◆ All parameters IEC 61000-4-30
- ◆ PQ Secure, Power Quality Management System
- ◆ Transients, sags and swells
- ◆ Automatic analysis according to recognised standards

Evaluation Software

Unipower offers powerful evaluation capabilities. In **PowerProfile** you see historical data and waveforms in graphical form that can easily be printed or copied into a word processor. **PQ Online** gives you real-time graphs and values.

Unipower Report gives you Power Quality Assurance according to recognised standards such as the EN 50160 and automatically produces a report. It is also easy to export the data to a standard spreadsheet such as Microsoft Excel.

Flexibility

The Unilyzer 901 can operate stand-alone or be connected to a PC for real-time operation. As a stand-alone unit it is robust and easy to use - only one button to bother with. On site, when connecting the unit and checking the status in the network, the real-time module is invaluable.

The Unilyzer 901 has an internal modem (optional) and Ethernet interface (optional) that enable remote access to the unit. For the really remote site a GSM-modem can be connected to the unit. If it is integrated into the PQ Secure Power Quality Management System measure data can even be downloaded automatically.



The Unilyzer 901 is dust and splash-proof. It can thus be used in all environments.

Unilyzer 901 - Technical Specification

Voltage inputs

Voltage channels	4 differential inputs (including 4 voltage transient inputs). For maximum accuracy, automatic synchronisation to the power frequency is performed by a phase-locked loop (PLL).
Channel input level	0 - 700 V RMS
Resolution	14 bits (84 dB)
Sampling rate	Up to 6.4 / 7.7 kHz @ 50 / 60 Hz. No time gaps.
Transient detection	>0.16 / 0.13 ms duration (@ 50 / 60 Hz)
Transient capture input	+/- 4 kV peak
Transient resolution	14 bits (84 dB)
Detectable transients	Fast transients (>0.16 / 0.13 ms), sags, swells and interruptions
Input impedance	3 Mohm
Bandwidth	3.2 kHz for calculated parameters
Accuracy	< 0.2%

Current inputs

Current channels	4 differential inputs
Channel input level	0 - 200 mV RMS. Transducers available in the range 0 to 2000 A.
Resolution	14 bits (84 dB)
Sampling rate	Up to 6.4 / 7.7 kHz @ 50 / 60 Hz. No time gaps.
Input impedance	3 Mohm
Bandwidth	3.2 kHz
Accuracy	< 0.2%

Storage interval	Individually selectable storage intervals for different parameters, from 3 seconds or longer.
Storage capacity	4 MB solid state, non-volatile flash memory for measure data. Standard memory will hold ca 20 days of measure data, up to 60 sag/swell trends, up to 50 transient waveforms and up to 80,000 events. 8 MB memory is optional.
Communications	Built-in RS-232. Optional Ethernet and internal modem. External modems, radio devices and GSM-modems can be connected.
Power Quality standards	EN 50 160, SS 421 18 11 and others
Size W x H x D	340 x 337 x 85 mm (including transducers)
Enclosure	IEC 529 - IP65, dust- and splash-proof
Operating temperature	-10 °C to +50 °C
Operating humidity	10% - 98% non-condensing
Weight	2.6 kg
Personal safety	EN 61 010-1
EMC	EN 50 081-1,2; and EN 50 082-1,2 (CE-marked)
Power supply	85-264 V AC (47 to 63 Hz) or 110-375 V DC

Measurements

Voltage [V]	Rms value every ½ cycle registered. Min, max and average value each storage interval.
Current [A]	Rms value every ½ cycle registered. Min, max and average value each storage interval.
Frequency	45 - 65 Hz
Harmonics	Harmonics and inter-harmonics from 0 to 3000 Hz (50th) of voltage and current according to IEC 61000-4-7.
THD-F (Fundamental)	Total harmonic distortion related to the fundamental.
THD-R (Relative, RMS)	Total harmonic distortion related to the total rms value.
THD-E (Even)	Total Even Harmonic Distortion related to the fundamental.
THD-O (Odd)	Total Odd Harmonic Distortion related to the fundamental.
THD-I (Inter)	Total Inter-Harmonic Distortion related to the fundamental.
TDD	Total Demand Distortion related to nominal value.
THD-2650	Total Upper Band Harmonic Distortion (26th to 50th) related to the fundamental
K-factor	Transformer derating, k-factor.
Power Harmonics (PFFT)	Power harmonics up to the 11 th with sign indicating disturbance direction.
Flicker:	IFL (real time flicker), Pst and Plt calculated according to standard IEC 61000-4-15 (IEC-868)
Voltage Unbalance and Current Unbalance	Positive-, negative- and zero phase sequence voltage/current plus unbalance (%) according to standard IEC 61000-4-30
Sags and swells	All channels are recorded up to 2.5 s (125 cycles) with a 5 cycle pre-trig. Selectable trig condition. Sag management data. Event depth, duration and disturbance direction calculated.
Transients	All events with a duration >0.16 / 0.13 ms (@ 50 / 60 Hz) are captured. All channels are recorded during 5 cycles with a 1 cycle pre-trig. Selectable trig condition. Peak voltage, maximum deviation level and duration calculated.
PQ Measurements	IEC 61000-4-30

Power measurements

All power quantities below are calculated for single phase or any wye- or delta three-phase configuration.

Active power [kW], Reactive power [kVAR], Apparent power [kVA], Power Factor, Displacement Power Factor (cos phi), Active Energy [kWh], Reactive energy [kVARh], Apparent energy [kVAh]

Data Storage and Real-Time Capabilities

Measured values are stored in a non-volatile flash memory. The system does automatic statistics like average, minimum and maximum values as well as cumulative probability analysis for flicker.

The Unilyzer 901 can also be connected to a PC for powerful real-time analysis including waveforms, values, harmonics spectrum and more. Real-time and all other measurements are performed simultaneously, and the update is continuous. The system has automatic transducer identification.

Rev. 1.0 AE. Specifications are subject to change without notice.



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