



Power Network Analyser

DIP 9000

How does bad power quality affect you? Why do light bulbs break and computers malfunction? What are the consequences of the increased use of low-energy light bulbs and air conditioners? By measuring the power quality you can find out the status of the power network and trace the source of various problems.

DIP 9000

DIP 9000 is a trouble-shooting instrument for those who want to carry out power quality studies in field. It is also powerful enough for the more advanced user, which demands a lot of analysis possibilities. Just as the other instruments from Unipower, the DIP 9000 is designed for ease-of-use and once on site, the DIP 9000 is connected and measuring in a few minutes!

Applications

DIP 9000 is a small and smart instrument for measuring and analysing power quality. The instrument measures voltage, current, power, energy and all power quality parameters such as transients, harmonics and sags/swells simultaneously. DIP 9000 measures parameters according to established

norms, both national and international, for instance EN 50160.

DIP 9000 is designed for primary use in low voltage networks.



Evaluating the data

Unipower's analysis software offers powerful evaluation possibilities. In the real-time tool PQ Online, extensive possibilities for real-time analysis and

handling of the data are available.

For in-depth analysis of recorded data the PQ Secure software is used. PQ Secure is a powerful tool for data administration and post analysis. DIP 9000 also offers the possibility to generate reports according to EN 50160, IEC 61000-2-2 and IEC 61000-2-12.

Remote communication

By using the remote communication option the DIP 9000 is fully equipped for long-term measurements. By using this option the instrument can easily be connected to a GSM-modem allowing automatic download of measurement data to a computer at the office.

DIP 9000 - Technical Specification

Voltage Inputs

Voltage channels	3 inputs
Measure range/channel	0 - 275 V RMS.
Dynamic	14 bit (84 dB)
Sampling rate	Up to 7.7 kHz. No time gaps.
Transient detection	>0.16 ms duration
Transient range	+/- 4 times the measure range
Transient resolution	14 bit (84 dB)
Transient recording	Fast transients (>0.16 ms), sags, swells and interruptions
Input impedance	3 Mohm
Bandwidth	3.2 kHz analogue anti-alias filter
Accuracy	< 0.4%

Current Inputs

Current inputs	4 differential inputs
Measure range/channel	0 - 200 mV RMS. Transducers available in the range 0 to 2000 A.
Dynamic	14 bit (84 dB)
Sampling rate	Up to 7.7 kHz. No time gaps.
Input impedance	3 Mohm
Bandwidth	3.2 kHz analogue anti-alias filter
Accuracy	< 0.4%

Miscellaneous

Storage intervals	Individual settings for each parameter group, from 3 seconds and up. Standard setting 10 minutes.
Storage capacity	4 MB flash memory (standard). With standard settings the memory can store approx. 20 days of measure data, up to 60 sag/swell RMS trend graphs, 50 transient waveform graphs and up to 80 000 events. Optional 8 MB memory available.
Communication	RS-232 (standard). Optional external modem (incl radio and GSM possibility) functionality available.
Power quality norms	EN 50 160, IEC 61000-2-2, IEC 61000-2-12 etc
Transducer identification	Automatic
Size W x D x H	275 x 215 x 54 mm
Operational temperature	-10 °C to +50 °C
Weight	1.8 kg
Personal safety	EN 61 010-1
EMC	IEC 61000-6-2 and IEC 61000-6-3

Power supply 230 V AC or 120 V AC

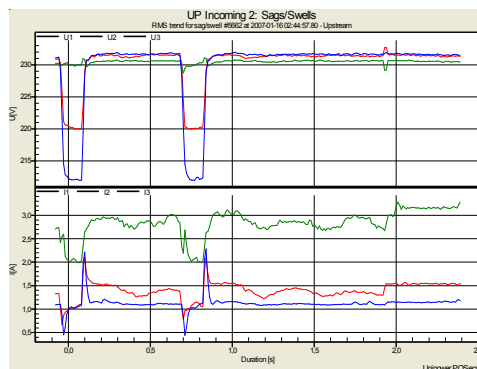
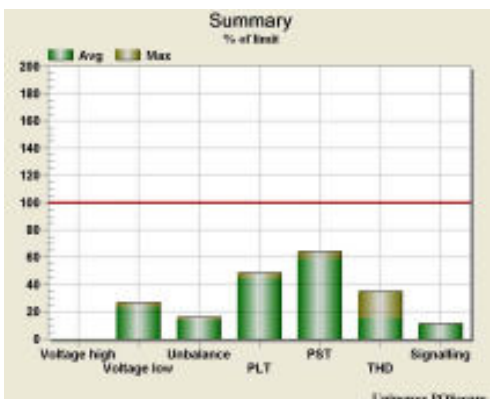
Measured Parameters

Voltage [V]	RMS values registered every half-period. Min, max and average value for each stored interval.
Current [A]	RMS values registered every half-period. Min, max and average value for each stored interval.
Frequency	45 - 65 Hz
Power	Calculated for single-phase and 3-phase configurations. Active power [kW], Reactive power [kVAr], Apparent power [kVA], power factor, cos phi, Active energy [kWh], Reactive energy [kVAh] och Apparent energy [kVAh].
Harmonics	Harmonics, interharmonics and THD to the 50th, voltage and current in accordance with IEC 61000-4-7.
Flicker	In accordance with IEC 61000-4-15.
Unbalance (voltage and current)	Positive, negative and zero phase sequence. Unbalance in percentage for voltage and current, in accordance with IEC 61000-4-30.
Norm measurements	EN 50160, EN 61000-2-2 and EN 61000-2-12 etc
Signalling	In accordance with EN 50160.
Sags/Swells	All channels stored during 2.5 s (125 periods) with 5-period pre-trig. Selectable trig conditions. Event depth, duration and direction are calculated. All events above >0.16 ms are stored. All channels are stored for 5 periods with a one-period pre-trig. Selectable trig conditions. Maximum value, maximum deviation and duration are calculated.
Transients	In accordance with IEC 61000-4-30, class B.
Power quality measurements	

Real-time possibilities

While measuring, the DIP 9000 can provide powerful real-time analysis when connected directly or remotely to a computer. Values, wave forms, harmonics, vector diagram etc are shown in real time. The real-time study does not affect the measuring and storing of measurement data. The system has automatic transducer identification.

Rev. 1.4 AE Specifications are subject to change without notice.



DIP 9000 analyses the transducers and the connected signals. If a current transducer is incorrectly connected or if the actual voltage differs from the nominal voltage in the configuration, a yellow LEDs is lit. If the signal is OK the green LED is lit.

The data evaluation software PQ Secure can generate easy reports in accordance with EN 50160, IEC 61000-2-2 etc.

Detailed analysis of both voltage and current for sags and swells. The evaluation software PQ Secure provides powerful and easy-to-use analysis possibilities for all power quality parameters.



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