



Power Quality Analyzer UP-2210-R

UNIPOWER offers a wide range of products for power quality measurements and demand analysis. Our product line covers a full range from traditional portable PQ analysers to fully integrated, automated Power Quality Management systems. All UNIPOWER products are developed and manufactured in Sweden.

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Power Quality Analyzer - 19" Rack Mounted



The UP-2210-R is a IEC 61000-4-30 Class A Power Quality Analyzer and Fault Recorder targeted on MV and HV applications.

Unipower PQ Secure

PQ Secure lets you monitor your power quality continuously and gives you a complete picture of the status in the power network, logging all critical parameters giving direct response on any deviation.

UP-2210-R

Comes in a convenient 19" case that fits easily in the sub-station control cabinets. The hardware is based on Unipowers class A platform and measures all

Power Quality parameters, does fault recording and energy metering as well as advanced disturbance recording. See UP-2210R technical manual for additional details.



UP-2210-R - Technical Specification

Voltage inputs

Voltage channels	4 differential inputs
Channel input level	275 or 150 VAC RMS (custom range available)
Resolution	14 bit (84 dB)
Basic sampling rate	256 samples/cycle
Input impedance	2 Mohm
Bandwidth	3.2 kHz analogue anti-aliasing filters
Accuracy	IEC 61000-4-30 class A (0.1%)
For maximum accuracy, automatic synchronisation to the power frequency is ensured by a phase-locked loop (PLL).	

Voltage transient inputs

Voltage transient channels	4 differential inputs
Channel input level	+/- 1500 V peak level
Resolution	14 bit (84 dB)
Transient detection	Fast transients (>0.5us), sag/swells, interruptions
Input impedance	2 Mohm
Bandwidth	3 MHz

Current inputs

Current channels	4 differential inputs
Channel input level	0-6 or 0-1.2 A RMS (voltage input optional)
Resolution	14 bit
Basic sampling rate	256 samples/cycle
Input impedance	<10 mOhm
Bandwidth	3.2 kHz analogue anti-aliasing filters
Accuracy	0.1%

Digital inputs

8 opto-isolated digital inputs (0-250 VDC). 32 channels optional.

Digital outputs

2 solid state relays (0-110 VDC, 0-110 mA). 4 channels optional.

Time synchronisation

GPS or NTP synchronization via server protocol. Separate GPS module also available.

Fault recorder

Optional Software for fault recording of currents and voltages on all analogue channels, as well as on the eight digital inputs. A powerful tool e.g. for circuit breaker monitoring.

Communication

Built-in RS-232, RS-485 and USB. Optional Ethernet and internal modem. Support for external modems, radio devices, ISDN- and GSM/GPRS-modems. The meter can also interface with other systems using either Modbus or PQDif (IEEE 1159.3).

Power supply

Standard: 110/230 V AC or 100-375 V DC, Optional: 24 V DC or 48 V DC

Selected calculated parameters

Power Quantities	All 3-phase configurations. Active power [kW], Reactive power [kVar], Apparent power [kVA], Power Factor and cosφ (displacement factor), Active Energy [kWh], Reactive energy [kVarh], Apparent energy [kVAh] Energy accuracy class 0.2S (IEC 62053-22)
Frequency	50 or 60 Hz according to IEC 61000-4-30 Class A.
Harmonics	0 - 50th individual harmonics of voltage and current in accordance with IEC 61000-4-30 Class A. THD factors (THD-R, THD-F, TDD, THD-I etc), K-factor, 3sec Max Harmonic
Power Harmonics (PFFT)	Harmonic power with direction
Interharmonics	In accordance with IEC 61000-4-30 Class A.
Flicker	IFL, Pst, Plt calculated in accordance with standard IEC 61000-4-30 Class A (IEC 61000-4-15)
Voltage / Current Unbalance	Positive-, negative- and zero phase sequence plus unbalance value (%) according to standard IEC 61000-4-30 Class A
Signalling Voltage	In accordance with EN 50160 and IEC 61000-4-30 Class A
RVC	Rapid voltage changes in accordance with IEC 61000-3-7 and 61000-4-30 Class A
Isum and Usum	Current leakage and Voltage sum

Slowscan

Module enables RMS recording up to 5 minutes. Multiple triggers available: Frequency threshold, Voltage threshold, dI/dt, dP/dt, dQ/dt and dF/dt.

SENSE/Reference inputs

Provides real time calibration of a fluctuating signal using a 50Hz/60Hz reference signal input. Enables accurate unbalance, voltage, transient and harmonic readings on capacitive taps.

Memory capacity

8 MB (larger memory is optional) built-in flash memory for measure data. A unit with standard memory will be able to measure for at least 25 days with normal configuration.

Standards

Voltage Quality	EN 50160, IEC 61000-2-2, IEC 61000-2-12 and other norms
Harmonics Measurements	IEC 61000-4-30 Class A (IEC 61000-4-7)
Flicker Measurements	IEC 61000-4-30 Class A (IEC 61000-4-15)
Power Quality	IEC 61000-4-30 Class A (Testing and measurement techniques)

Mechanical data

Size W x H x D	430 x285 x88 mm (W x D x H)
Operational temperature	-10 °C to +55 °C
Humidity	10% - 98% non-condensing
Weight	4,1 kg
Safety	IEC 61 010-1
EMC	IEC 61000-6-4 and IEC 61000-6-2 (EN 50 081-1,2; EN 50 082-1,2)