



Power Quality Analyzer UP-2210-R

Silverline

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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.

UP-2210-R

Comes in a convenient 19" case that fits easily in the sub-station control cabinets. The hardware is based on the class A platform of the UP-2210 and measures voltage, current, frequency, power (active, reactive, apparent), energy (active, reactive, apparent), U-sum, I-sum, power factor, $\cos \phi$, harmonics, inter-harmonics, power harmonics, voltage unbalance, flicker, signalling voltage, sags & swells (waveform and RMS), transients (down to 1 μ s), Rapid

Voltage Changes RVC and more. See UP-2210 product brochure for additional details.



UP-2210-R - Technical Specification

Voltage inputs

Voltage channels	4 differential inputs
Channel input level	0 - 275 VAC RMS
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 performed 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 (>1 μ s / 1 MHz), sag/swells, interruptions
Input impedance	2 Mohm
Bandwidth	3 MHz

Current inputs

Current channels	4 differential isolated inputs
Channel input level	0 - 6 A RMS (voltage input optional)
Resolution	14 bit
Basic sampling rate	256 samples/cycle
Input impedance	<5 m Ohm
Bandwidth	3.2 kHz analogue anti-aliasing filters
Accuracy	0.1%

Digital inputs

8 opto-isolated digital inputs (0-250 VDC). 16 or 32 channels optional.

Digital outputs

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

Time synchronisation

Optional GPS unit for time synchronisation.

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. When a disturbance or interruption occurs both the event and the breaker performance is monitored.

Calculated parameters

Power Quantities

All 3-phase configurations. Active power [kW], Reactive power [kVAR], Apparent power [kVA], Power Factor and $\cos \phi$ (displacement factor), Active Energy [kWh], Reactive energy [kVAh], Apparent energy [kVAh]

Energy accuracy class 0.2S (IEC 62053-22)

Frequency Harmonics

45 - 65 Hz

0 - 50th individual harmonics of voltage and current in accordance with standard IEC 61000-4-30 Class A. THD factors (THD-R, THD-F, TDD, THD-I etc), K-factor

Power Harmonics (PFFT) 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

Memory capacity

4 MB (8 MB is optional) built-in flash memory for measure data. A unit with standard memory will be able to measure for at least 20 days with normal configuration.

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.

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)

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