

PWS 3.3 *genX*

Three-phase Portable Working Standard and Power Quality Analyzer



The PWS 3.3 genX is a combination of a Portable Working Standard of class 0.05 % and an IEC 61000-4-30 Class A compatible Power Quality Analyzer with 4 voltage (U1, U2, U3, UN, UPE) and 4 current channels (direct: I1, I2, I3 and via clamp-on CT: IN / IPE Neutral current / Protection Earth current).

The modular concept of the PWS 3.3 genX allows the extension of the direct current measurement range from 12A up to 120A and the adding of a battery pack keeps the device running in the event of interruptions in the supply voltage during Power Quality recording or when supply from measuring voltage or mains is not possible.

NEW FUNCTIONS

The PWS 3.3 genX enables as first MTE reference standard

- **Calibration of DC meters or DC energy measurement units** up to 1000 VDC / 200 ADC applied in EVSE Electric Vehicle Supply Equipment with CCS Type 2 connector (IEC 62196-3).
- **Calibration of digital meters, non-conventional CTs / PTs and merging units** with SV Sampled Values interface (IEC 61850-9-2 LE) in digital substations.

Advantages

- Large 9" (800 x 480 pixels) TFT touch screen colour display with graphical user interface
- Integrated operation manual
- Built in web server for remote display of graphical user interface and remote control of the unit
- Data transfer and communication via USB (Type B), ETHERNET or WLAN
- Data storage on removable SD memory card
- Two USB (type A) connectors for connection of peripherals like mouse, keyboard, optical readout head OKK to communicate with the meter
- Time synchronisation via GPS (option) and 1 PPS Pulse Per Second / IRIG-B signal

WORKING STANDARD - Functions

- Meter testing of pulse outputs (LED/disc mark/S0) and registers of active, reactive, apparent 1- or 3-phase 3- or 4-wire energy meters with 2 pulse inputs (1 configurable as pulse output).
- Measurement of electrical parameters (UI ϕ , PQS, f, PF) including vector diagram, harmonic analysis and wave form display.
- Instrument transformer testing (CT/PT burden, CT/PT ratio)

POWER QUALITY ANALYZER – Functions

- Dips / Swells / Interruptions
- Harmonics / Interharmonics / Signal voltages
- Unbalance
- Flicker
- RVC Rapid Voltage Changes
- Transients

Options

- Software CALegration
- UCT 10.3 set of 3 clamp-on CT's 10 A
- UCT 120.3 set of 3 clamp-on CT's 120 A
- UCT 1000.3 set of 3 clamp-on CT's 1000 A
- UCT LEM.3 set of 3 flexible current probes FLEX 3000 (30/300/3000A)
- UCT 120.1 clamp-on CT 120A for IN/IPE
- UCT AMP-LiteWire 3-phase adapter set for AmpLiteWire + primary high voltage current sensor AmpLiteWire 2000 A
- UCT VOLT-LiteWire 3-phase adapter set for VoltLiteWire + primary voltage sensor VoltLiteWire 40 kV

Adapters for EVSE Electric Vehicle Supply Equipment test

- eMOB I-32.3 AC (600 V / 32 A) to test AC charging
- eMOB I-200.1 DC (1000 VDC / 200 ADC) to test DC charging

Portable Working Standard PWS 3.3 genX

Auxiliary power supply:	46 ... 300 VAC, 47 ... 63 Hz (65 ... 423 VDC) Protection: up to 440 VAC
Power consumption:	max. 20 VA (+ 10 VA + 20 VA (charging)) PWS 3.3 genX (+ I.3 120A + Battery module)
Safety / Protection:	IEC 61010-1:2010 (CE certified) / IP-40
Measurement Category:	300V CAT IV, 600V CAT III
Operation temperature:	-10 °C ... +50 °C (Storage: -20 °C ... +60 °C)
Relative humidity:	≤ 85% at Ta ≤ 21°C ≤ 95% at Ta ≤ 25°C, 30 days / year spread

Measurement Ranges

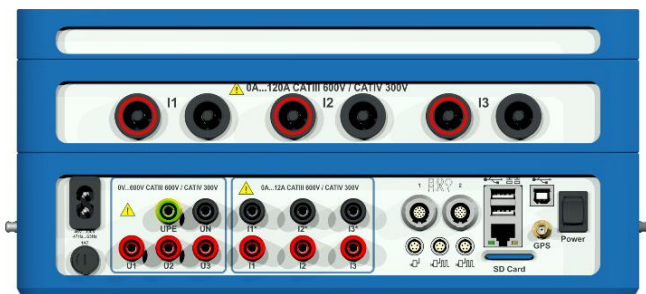
Measuring Quantity	Range	Input / Sensor
Voltage (phase - neutral)	5 V ... 600 V	U1, U2, U3, UPE
	10 mV ... 5 V	U1, U2, U3 (Burden)
	10 VDC ... 1000 VDC	U1
Current	1 mA ... 12 A	12 A (I1, I2, I3)
	10 mA ... 120 A	I.3 120 A (I1, I2, I3)
	1 mA ... 10 A	UCT 10.3
	10 mA ... 120 A	UCT 120.3
	100 mA ... 1000 A	UCT 1000.3
	10 mA ... 120 A	UCT 120.1 (IPE / IN)
	3 A ... 3000 A	FLEX 3000
	1 mA ... 32 A	eMOB I-32.3 AC
1 ADC ... 200 ADC	eMOB I-200.1 DC (I1)	
Primary current	30 A ... 2000 A	AmpLiteWire 2000A
Primary voltage	500 V ... 40 kV	VoltLiteWire 40kV

Accuracy Class Power / Energy Measurement

Class	Input / Sensor
0.05	current direct 12 A / current direct 120 A
0.1	eMOB I-32.3 AC adapter / eMOB I-200.1 DC adapter
0.2	Clamp-on CT's UCT 10.3 / UCT 120.3 / UCT 1000.3

3 MODULES FOR VARIOUS APPLICATIONS

Module (Hard Plastic)	Dimensions [mm]	Weight [kg]
PWS 3.3 genX	W 320 x H 210 x D 66	approx. 2.5
I.3 120A	W 320 x H 210 x D 56	approx. 1.5
Battery	W 320 x H 210 x D 29	approx. 1.0



Portable Working Standard PWS 3.3 genX - 12A

Best for meter test, CT / PT burden and ratio test and installation check in installations with instrument transformers.



NEW FUNCTIONS AND APPLICATIONS

Field Testing of EVSE Electric Vehicle Supply Equipment

Calibration of AC or DC electricity meters or energy measurement units built into the charging stations for EV Electric Vehicles with connector Type 2 / CCS Type 2 (IEC 62196-2/3).

- **PWS 3.3 genX + eMOB I-32.3 AC adapter** with **Type 2** connector to test 3 phase AC energy accuracy up to 3 x 32 A
- **PWS 3.3 genX + eMOB I-200.1 DC adapter** with **CCS Type 2** connector to test DC energy accuracy up to 1000 VDC, 200 ADC



Field Testing of Digital Meters, non-conventional CTs / PTs and Merging Units (under development)

- ETHERNET interface for IEC 61850-9-2-LE Sampled Values
- Time synchronisation: GPS and 1 PPS Pulse Per Second / IRIG-B

Portable Working Standard PWS 3.3 genX - 120A

Best for use in the laboratory in combination with a power source or in the field to test direct connected meters up to 120A.



PWS 3.3 genX - 12A with Battery module

Best for Power Quality Analysis or EVSE testing to keep the device running if auxiliary supply from measuring voltage or socket is interrupted or not available.



- Battery 12V, 4000 mAh (20 x NiMH 1.2V type AA) for operation up to 4h
- Power Quality Analysis IEC 61000-4-30 Class A (0.1 %), IEC 62586-2 with 4 voltage and 4 current channels (under development)

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Subject to alterations

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