**UMG 801 basic unit**

Modular multi-channel network analyser for DIN rail mounting

Basic unit of the modular system for DIN rail mounting (8 TE) suitable for measurement in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total), power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, continuous true RMS measurement.

Up to 10 expansion modules (e.g. current measurement modules) can be connected to the system via the internal bus or the bus transfer modules. With a maximum bus length of 100 m, up to 92 current measurement channels can be realised with one basic unit.

Gapless 4-quadrate measurement, distortion factor THD-U / THD-I in %, asymmetry, memory for min- / max-values.

Sampling rate of 25.6 kHz / 51.2 kHz with 512 / 1024 measuring points ( current / voltage ) per period as well as output of the measured values via the interfaces (cycle >=200 ms).

Acquisition of transient events >39 / 19 µs ( current / voltage), over-, & undervoltage for visualisation as well as short-term interruptions with 10 ms acquisition cycle, half-wave RMS recorder for events & event display (over-, & undervoltage, voltage interruption, rapid voltage change, overcurrent, over-, & underfrequency, frequency change) in waveform of the current measurement inputs I1 to I8. 4 GB internal measurement data memory (flash), clock with buffering.

Measurement of the positive, negative and zero sequence as well as calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction as well as crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd and 127th harmonic respectively.

Provision of measured values for comparison of voltage quality characteristics as well as their limit values following IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) following EN 50160. Output of transient & event records in PQ diff format.

Possibility of optical or acoustic warning via external circuitry when the residual current limits are reached and forwarding of the exceeding via the communication interface to e.g. a building management system for permanent residual current monitoring.

Fourth current transformer connection for checking the neutral conductor dimensioning in accordance with DIN VDE 0100-520 / IEC 364-5-5: 1993 of the resulting operating currents in the neutral conductor in the case of asymmetrical, inductive or capacitive loads.

Modbus RTU & TCP - Master function for network connection to own or superordinate software systems of max. 31 top-hat rail or front panel devices as well as energy meters, data loggers per master device of the current product series of the manufacturer. Ethernet gateway function as well as integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles.

Simultaneous supply of the communication interfaces as well as parallel operation of at least 4 Modbus TCP ports.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / Current: 0.2 / Voltage: 0.2

RMS value from periods (50/60 Hz): 10/12

Colour graphic display, 320 x 240 pixels, 6 keys, 256 colours, protection class (front / rear) IP 20, protection class: I, net weight: 420 g, heat dissipation: max. 4 W.

Supply voltage:

Nominal range: 24-48 V DC (+/- 10%) PELV

Voltage measurement:

Number of voltage measurement inputs: 3

Measurement category: 1000 V CAT III

Measurement in 3-phase 4-wire systems: up to 480 V L-N / 830 V L-L (+-10%) according to IEC

Measurement in 3-phase 3-wire systems earthed: up to 380 V L-L (+-10%) acc. to IEC

Measurement in 3-phase 3-wire systems unearthed: up to 690 V L-L (+-10%) according to IEC

Measurement in 1-phase 2-wire systems up to 690 V (+-10%)

Rated impulse voltage: 8 kV

Impedance: 4 MOhm / phase

Sampling frequency voltage: 51.2 kHz (1024 samples)

Crest factor:1.6 (at 600V L-N)

Resolution: 16 bit

Frequency of the fundamental wave: 40Hz to 70Hz

Current measurement:

Current measurement inputs: 8x as 2 blocks of four

Measuring modes: 1-Ph.-measurement, 3-Ph.-measurement optional with N or Aron circuit

Measuring category: 300V CAT II

Current measuring range: 5 mA to 6 A rms

Resolution: 0.1mA

Sampling frequency current: 25.6 kHz (512 samples)

Crest factor: 1.98

Rated impulse voltage: 2 kV

Power consumption: approx. 0.2 VA ( Ri = 5 mOhm )

Overload: 1s at 120A (sinusoidal)

Multifunctional inputs:

Number of multifunctional inputs: 04x

Modes: differential current inputs or temperature inputs or 0/4 - 60 mA current measurement inputs

differential current inputs:

Standard: IEC/TR 60755 (2008-01), type A, type B, type B+

Types: AC / DC / AC+DC with transformer monitoring

Measuring range: 100 µA to 60 mA rms

Response current: 100 µA

Resolution: 1 µA

Crest factor: 1.414 (referred to 80mA)

Load: 4 Ohm

Overload: 20ms 50A; 1s 5A, permanently 1A

Temperature measurement:

Sensor types: KTY83, KTY84, PT100, PT1000

Update time: 1 s

Total load (sensor and cable): max. 4 kOhm

Cable: <=30m unshielded; >30m shielded

Digital inputs:

Number of digital inputs: 04x

Input signal High: 18 V to 28 V DC; typically 4 mA

Input signal Low: 0 to 5 V DC; < 0.5 mA

Maximum counter frequency: 20 Hz

Digital outputs:

Number of digital outputs: 04x

Modes: Pulse output

Switching voltage: max. 60V DC

Switching current: max. 50 mAeff DC

Response time: approx. 500 ms

Frequency pulse output: max. 20 Hz

Analogue outputs:

Number of analogue outputs: 01x

Output type: 0-20 mA, 4-20 mA

Interfaces / Protocols:

01x RS485 for polling slave devices with Modbus RTU.

02x Ethernet (RJ45) with Modbus TCP, Modbus Gateway, OPC UA in switch mode with one IP (IP V4); IPv4 configuration modes: DHCP & static IP, NTP (active & off mode)

Net weight: approx. 420 g

Unit dimensions (W x H x D): 144 x 90 x 76 (8 TE)

Construction: Top-hat rail installation unit

Protection class according to EN 60529: IP20

Temperature range in operation: -10° C - +55° C (K55)

Temperature range transport & storage: -25° C - +70° C

Relative humidity: 5 to 95% at 25 °C without condensation

Operating altitude:

4000m above sea level Voltage measurement: 600V CAT3 / Current measurement: 300V CAT2

2000m above sea level Voltage measurement: 1000V CAT3; 600V CAT4 / Current measurement: 300V CAT2

Delivery includes: Documentation,

Delivery includes:

Mounting accessories, documentation, bus connector & end bracket, parameterisation, & evaluation software in basic version, matching of the design to the practical application as well as the measured variables incl. their recording intervals, compatible current transformer set min. Kl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges as well as DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterisation of the unit (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation as well as connection

Primary current at measuring point: '.........'. A.

Manufacturer: Janitza electronics GmbH

Type: UMG 801

Art.no.: 5231001