



NETWORK ANALYSER

AS-3mini UPS

The analyser AS-3mini UPS is destined for monitoring of power supply quality standards. It is used for measuring and recording of single- and three-phase networks' parameters. It replaces existing analog and digital meters, and ensures high precision and effectiveness of measurements even after power supply decay. By utilising all of the AS-3mini UPS's features, energy network services gain a diagnostic tool helpful in proper energy management.

The analysers AS-3mini UPS are essential controlling and measuring devices in Power Supply Quality Management Systems.

APPLICATION

- measurement and quality analysis at selected checkpoints in LV, MV and HV energy networks
- remote supervision of qualitative and quantitative parameters of a network
- harmonics measurement
- loads history registration
- optimisation of energy solicitation contracts
- diagnostics of power supply systems

MEASURED PARAMETERS

- line-to-neutral and line-to-line voltages; voltage asymmetry
- phase currents; calculation of neutral line current
- cosine and tangent for each phase and for three phases
- frequency
- harmonics, harmonic content, power factor for each harmonic and THD (voltage and current), transformer K-factor
- powers (active, reactive, complex, apparent, deformed) four - quadrantally, on each phase and on three phases
- energies (active and reactive), four-quadrantally

CHARACTERISTICS

- **small dimensions and easy mounting:**
 - modular casing easily mountable on standard DIN rail
- **internal memory:**
 - non-volatile internal memory with capacity of 25344 events, 37032 most recent periods of energy extraction, 32182 most recent average voltages and currents, allows storing of measurements and disturbances data
- **real-time monitoring**
- **DCF (option)**
 - allows automatic synchronisation with the atomic timepiece
- **four-quadrantal energy meter with Power Guard:**
 - automatic disconnection of loads when there is a risk of overriding the solicited power limit
- **communication:**
 - communication with master system via MODBUS RTU protocol
 - RS-485 or RS-232 serial transmission
- **safe measurement inputs**
 - galvanically insulated current inputs and high-impedance voltage inputs
- **digital inputs and outputs**
 - signalisation of events, detection and recording of inputs logic states
- **temperature measurement -**
 - additional PWM input for external temperature measuring
- **extensive registration of events**
- **oscilloscope:**
 - three-phase oscilloscope recording voltages, currents and inputs and outputs states

EVENTS REGISTRATION

- overrides of preset min. and max. thresholds of measured parameters, average values from 200ms periods
- overrides of 2 preset levels of average voltage tolerance with simultaneous recording of power meters state
- voltage decays and surges (resolution: 1/2 network cycle)
- power supply decays and device restarts
- configuration changes
- digital inputs and outputs state alterations

FUNCTIONAL QUALITY:

Events register - chronological list of 25344 most recent events:

- voltages and currents overrides
- voltages and currents asymmetry
- power overrides
- cosine and tangent overrides
- harmonics overrides
- overall heat-transfer coefficient overrides
- voltage dips, decays and surges
- digital inputs state alterations
- meter power-ups and shut-downs
- meter configuration changes

Periodic power extraction register – 37032 periods (e.g. 15 min.):

- power consumption during a selected period
- start and end date, and duration of a selected period
- watt-hour meters state at the end of a selected period
- indicator of power excess in a selected period

Multi-function power supply:

- internal microprocessor power supply with integrated UPS fitted with lithium-polymer battery. The power supply is capable of working with wide range of phase voltages. It also works properly during simultaneous voltage decay in two random phases.

Power guard with the control of the equipment:

- control and signaling of the contractual capacity
- TrueRMS power indicator
- reserve or excess power prognosis
- determination of safe limit of power

Oscilloscope – allows recording of currents and voltages wave shapes from 10s periods with 5s pre-trigger. Releasable by:

- recorded during a disturbance
- -recorded at an input state alteration

Harmonics analysis – content in current and voltage:

- qualitative content and percentage of harmonics
- thresholds excess indicator
- THDU and THDI, K-factor
- TrueRMS voltage and current, cosine for each harmonic

Voltages and currents register - independent recording of up to 32182 TrueRMS voltages and currents on all phases:

- with preset intervals
- on significant alterations
- synchronically with watt-hour meter

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TECHNICAL INFORMATION:

Voltage inputs:

| | |
|--|------------------|
| number of inputs | 3 |
| nominal range of measured voltage | 230 V (100 V) AC |
| withstand voltage at network frequency | 2,5 kV |
| accuracy | 0,5% |
| voltage circuit input impedance | >1,5 MΩ |

Current inputs indirect measurement:

| | |
|-----------------------------------|--------------|
| number of inputs | 3 |
| nominal range of measured current | 5 A (1 A) AC |
| overcurrent factor | 160 A AC |
| accuracy | 0,5 % |
| current circuit input impedance | <5 mΩ |

Current inputs direct measurement:

| | |
|-----------------------------------|----------|
| number of inputs | 3 |
| nominal range of measured current | 63 A AC |
| overcurrent factor | 240 A AC |
| accuracy | 0,5 % |
| current circuit input impedance | <0,25 mΩ |

Digital Inputs:

| | |
|---------------------|----------------|
| number of inputs | 6 |
| operating voltage | ±24 V DC |
| switching threshold | 1 mA/1,2 mA DC |
| input resistance | 4 kΩ |
| time constant | 100 ms |
| shared insulation | 1,5 kV AC |

Digital Outputs:

| | |
|-------------------|------------------|
| number of outputs | 3 |
| operating voltage | 30 V DC, 24 V AC |
| load capacity | 100 mA |
| output resistance | <10 Ω |
| shared insulation | 1,5 kV AC |

Communication:

| | |
|--------------------------------------|-----------------|
| interface type | RS-485 (RS-232) |
| RS485 transmitters receiver capacity | up to 32 |
| transmission speed | 1200...57600 Bd |
| galvanic insulation | 1,5 kV |
| communication protocol | MODBUS RTU |

Configuration:

| | |
|--|-----|
| remote setting | YES |
| local operation (keypad, remote control) | NO |

Power Supply:

| | |
|-----------------------------|-----------------------------------|
| voltage | 110 V ÷ 360 V DC 85 ÷ 265 V AC |
| power consumption | max 5 VA |
| external UPS operating time | 2 h |

Usage:

| | |
|---------------------------------|--|
| dimensions indirect (direct) | 228 x 91 x 65 mm (298 x 91 x 65 mm) |
| number of modules | 13 (17) |
| protection degree | IP20 |
| weight | 390 g (790 g) |
| operating temperature | -5° C ÷ 40° C |
| humidity | 55 % |

Certificate of Quality System:

0929/NBR/07
0930/NBR/07
