



NETWORK ANALYSER

AS-3plus

The analyser is destined for monitoring of power supply quality standards. It is used for measuring and recording of single- and three-phase networks' parameters. Running measurements and recorded values (with recording date and time) are viewable directly on the analyser's display.

The AS-3 plus analysers 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
- As-Multi software

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

- **graphical LCD display:**
 - large, readable graphical display 5"
- **easiness of operation:**
 - front panel keyboard for reviewing measured parameters
 - remote setting and configuration with use of the remote control or via serial interface
 - fast and easy access to readings
- **small dimensions:**
 - standard 144x144mm flush-mounted casing for easy installation in switchboards and control panels
- **large internal memory:**
 - non-volatile internal memory with capacity of 25344 events, 42910 most recent periods of energy extraction, 32182 most recent average voltages and currents, allows storing of measurements and disturbances data
- **real-time monitoring**
- **UPS**
 - internal battery ensuring measurement continuity up to 2h after external power supply decay
- **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 registration of logic states on inputs
- **temperature measurement (option)**
- **additional PWM inputs (max. 3) for external temperature measuring**
- **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



Selected parameters pane - parameters in conventional form

- large, readable digits
- lucid descriptions and units of measured parameters
- statements of arbitrary parameters



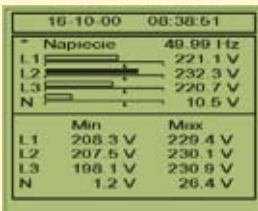
Events register - 25344 events:

- voltages, currents and power overrides
- voltages and currents asymmetry
- cosine and tangent overrides
- harmonics overrides
- K-factor overrides
- voltage dips, decays and surges



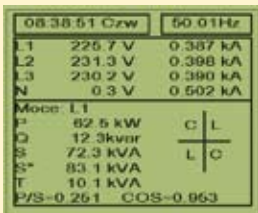
Power guard with the control of the equipment:

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



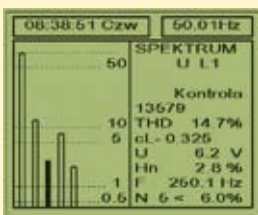
Voltages and currents register - independent recording of up to 32182 TrueRMS voltages and currents on all phases:

- with preset intervals
- on significant alterations



Measured parameters:

- voltages and currents
- powers, cosine and tangent
- each phase and three phases monitoring
- four-quadrantal indicator of load characteristics



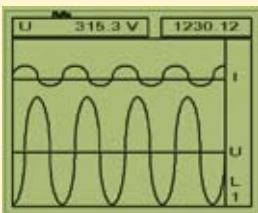
Harmonics analysis – content in current and voltage:

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



Periodic power extraction register – 42910 periods (e.g. 15 min.):

- power consumption during a selected period
- energy meters states
- indicator of power excess in a selected period



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

- manually
- input state alteration
- event
- master system

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:

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

Digital Inputs:

number of inputs	4(7)
operating voltage	±24 V DC
switching threshold	1 mA DC
input resistance	4,7 kΩ
time constant	100 ms
shared insulation	1,5 kV AC

Digital Outputs:

number of outputs	4(2)
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)	YES

Power Supply:

voltage	85 V ÷ 265 V AC
power consumption	<10 VA

Usage:

dimensions	144 x 144 x 60 mm
dimensions assembly hole	138 x 138 mm
protection degree	IP41(IP20)
weight	0,9 kg
operating temperature	-5°C ÷ 40°C
humidity	55 %

Certificate of Quality System:

0929/NBR/07
0930/NBR/07

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