АЛГОРИТМ

IA METER

Data Interchange And
MEasurement Technologies
for Electric poweR

BINOM$_3$ it's a series of universal multifunctional electric power quality meters with such functions as:

- Electric Network Characteristics Meter
- High Precision Energy Meter
- Power Quality Analyzer: IEC 61 000-4-30 (Class A), IEC 61 000-4-7 (Class I), IEC 61 000-4-15, GOST 32144-2013, GOST 32145-2013, GOST R 8.655, GOST33073-2014
- Oscilloscope Transient Recorder
- Substation Controller with Discrete Inputs and Relay Outputs
- Large-Scale Communication Capabilities and Web Access to all Data of the Device

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Models of the BINOM$_3$ devices:

№	Models	Ratings		Archiving	Waveform recording	Communications [2]						Micro SD (4 GB memory)	Digital inputs [3]	Relay outputs [4]	Operating temperature	Power supply [5]		
		I_n [1], A	U_n, B			Ethernet (f)	RS-485/PPS (f)	RS-485/422 (f)	RS-232 (f)	Optical port						Main (AC or DC)	Backup (DC)	Built-in battery
1	**BINOM334i**U3.57I3.5(1)L	3·5(1)	3·57,7/100	-	-	-	+	-	-	+	-	-	-	-25+45	+	+	-
	BINOM334iU3.220I3.5(1)L	3·5(1)	3·220/380	-	-	-	+	-	-	+	-	-	-	-25+45	+	+	-
2	**BINOM334i**U3.57I3.5(1)	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	-	-	-25+45	+	+	-
	BINOM334iU3.220I3.5(1)	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	-	-	-25+45	+	+	-
3	**BINOM335**U3.57I3.5(1)	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	-	-	-40+45	+	+	+
	BINOM335U3.220I3.5(1)	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	-	-	-40+45	+	+	+
4	**BINOM336**U3.57I3.5(1)**S16T2**	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	16	2	-40+45	+	+	+
	BINOM336U3.57I3.5(1)**S16T3**	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	16	3	-40+45	+	+	+
	BINOM336U3.57I3.5(1)**S16T4**	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	16	4	-40+45	+	+	+
	BINOM336U3.220I3.5(1)**S16T2**	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	16	2	-40+45	+	+	+
	BINOM336U3.220I3.5(1)**S16T3**	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	16	3	-40+45	+	+	+
	BINOM336U3.220I3.5(1)**S16T4**	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	16	4	-40+45	+	+	+
5	**BINOM336s**U3.57I3.5(1)**S16**	3·5(1)	3·57,7/100	+	-	+	+	-	-	+	+	16	-	-40+45	+	+	+
	BINOM336sU3.220I3.5(1)**S16**	3·5(1)	3·220/380	+	-	+	+	-	-	+	+	16	-	-40+45	+	+	+
6	**BINOM337**U3.57I3.5(1)**S16T2**	3·5(1)	3·57,7/100	+	+	+	+	+	+	+	+	16	2	-40+45	+	+	+
	BINOM337U3.57I3.5(1)**S16T3**	3·5(1)	3·57,7/100	+	+	+	+	+	+	+	+	16	3	-40+45	+	+	+
	BINOM337U3.57I3.5(1)**S16T4**	3·5(1)	3·57,7/100	+	+	+	+	+	+	+	+	16	4	-40+45	+	+	+
	BINOM337U3.220I3.5(1)**S16T2**	3·5(1)	3·220/380	+	+	+	+	+	+	+	+	16	2	-40+45	+	+	+
	BINOM337U3.220I3.5(1)**S16T3**	3·5(1)	3·220/380	+	+	+	+	+	+	+	+	16	3	-40+45	+	+	+
	BINOM337U3.220I3.5(1)**S16T4**	3·5(1)	3·220/380	+	+	+	+	+	+	+	+	16	4	-40+45	+	+	+
7	**BINOM337s**U3.57I3.5(1)**S16**	3·5(1)	3·57,7/100	+	+	+	+	+	+	+	+	16	-	-40+45	+	+	+
	BINOM337sU3.220I3.5(1)**S16**	3·5(1)	3·220/380	+	+	+	+	+	+	+	+	16	-	-40+45	+	+	+
8	**BINOM338**U3.57I3.5(1)**S16T2**	3·5(1)	3·57,7/100	+	+	+	+	-	-	+	+	16	2	-40+45	+	+	+
	BINOM338U3.57I3.5(1)**S16T3**	3·5(1)	3·57,7/100	+	+	+	+	-	-	+	+	16	3	-40+45	+	+	+
	BINOM338U3.57I3.5(1)**S16T4**	3·5(1)	3·57,7/100	+	+	+	+	-	-	+	+	16	4	-40+45	+	+	+
	BINOM338U3.220I3.5(1)**S16T2**	3·5(1)	3·220/380	+	+	+	+	-	-	+	+	16	2	-40+45	+	+	+
	BINOM338U3.220I3.5(1)**S16T3**	3·5(1)	3·220/380	+	+	+	+	-	-	+	+	16	3	-40+45	+	+	+
	BINOM338U3.220I3.5(1)**S16T4**	3·5(1)	3·220/380	+	+	+	+	-	-	+	+	16	4	-40+45	+	+	+
9	**BINOM338s**U3.57I3.5(1)**S16**	3·5(1)	3·57,7/100	+	+	+	+	-	-	+	+	16	-	-40+45	+	+	+
	BINOM338sU3.220I3.5(1)**S16**	3·5(1)	3·220/380	+	+	+	+	-	-	+	+	16	-	-40+45	+	+	+
10	**BINOM339**iU3.57I3.5(1)	3·5(1)	3·57,7/100	+	+	+	+	+	+	+	+	-	-	-40+45	+	+	+
	BINOM339iU3.220I3.5(1)	3·5(1)	3·220/380	+	+	+	+	+	+	+	+	-	-	-40+45	+	+	+
11	**BINOM339**U3.57I3.5(1)	3·5(1)	3·57,7/100	+	+	+	+	-	-	+	+	-	-	-40+45	+	+	+
	BINOM339U3.220I3.5(1)	3·5(1)	3·220/380	+	+	+	+	-	-	+	+	-	-	-40+45	+	+	+

[1] AC current inputs (I_n): 5 A or 1 A
[2] Isolation RS-485, RS-232 - 4 kV, Ethernet-2 kV, 1 min, interference protection according to GOST R 51317.6.5: f - field connection, l - local connection.
[3] Rated voltage 24 V, external and internal power (redundant integrated battery), discrete inputs are Isolated to 3 kV AC, 1 min;
electromagnetic compatibility according to IEC 61000-6-5.
[4] The number of channels of two-position, two-stage remote control with using block relay TE37R. Each channel has a relay on, relay off, group selection relay.
There is one on the block solid state or electromagnetic relay supply operating current. The unit is equipped with the hardware lock commands input (remote control) (=24V DC).
Switching capacity up to 5A, 250V AC/DC; electromagnetic relay outputs are Isolated to 4 kV AC, 1 min, with solid state relay are Isolated to 2,5 kV AC, 1 min, electromagnetic compatibility according to IEC 61000-6-5.
[5] AC voltage range: ~35-275V (BINOM 334i); ~90-265V (all the types)
DC voltage range: ~35-350V (BINOM 334i); ~125-265V (all the types)
[6] Simultaneous network connection AC / DC isn't supported.

BINOM$_3$

Relay outputs

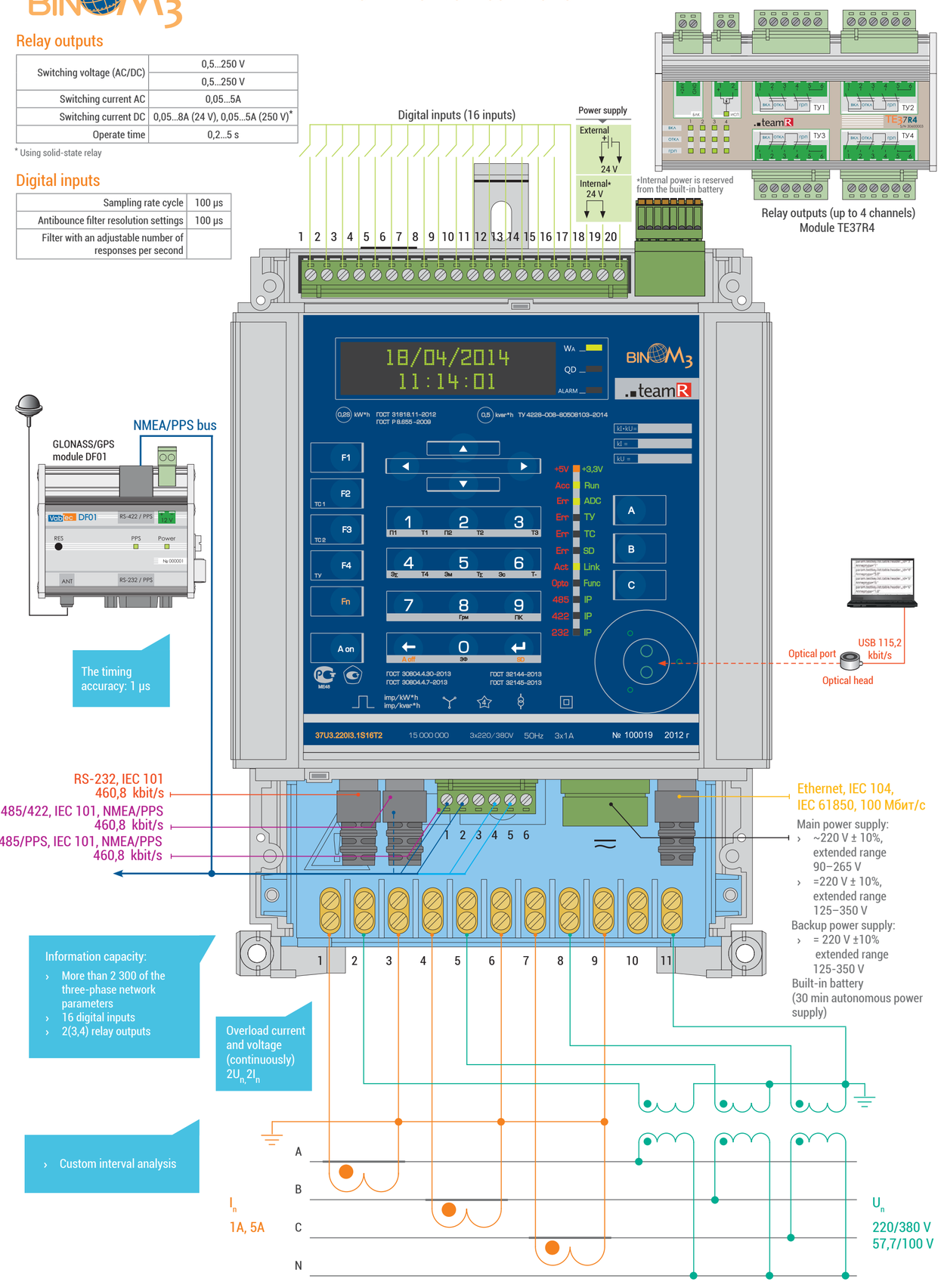
Switching voltage (AC/DC)	0,5...250 V
	0,5...250 V
Switching current AC	0,05...5A
Switching current DC	0,05...8A (24 V), 0,05...5A (250 V)*
Operate time	0,2...5 s

* Using solid-state relay

Digital inputs

Sampling rate cycle	100 µs
Antibounce filter resolution settings	100 µs
Filter with an adjustable number of responses per second	

TYPICAL ELECTRICAL CONNECTION

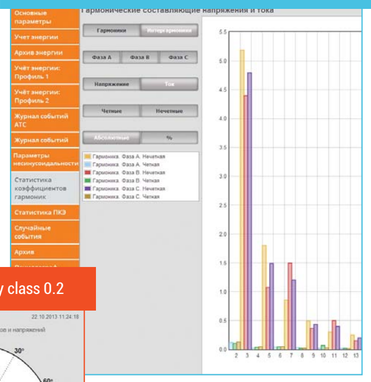


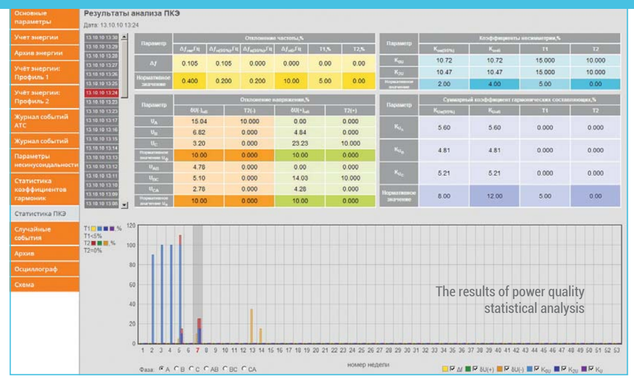
- Key parameters of three-phase electric network: **29**
- RMS value measurement interval: **~ 200** ms

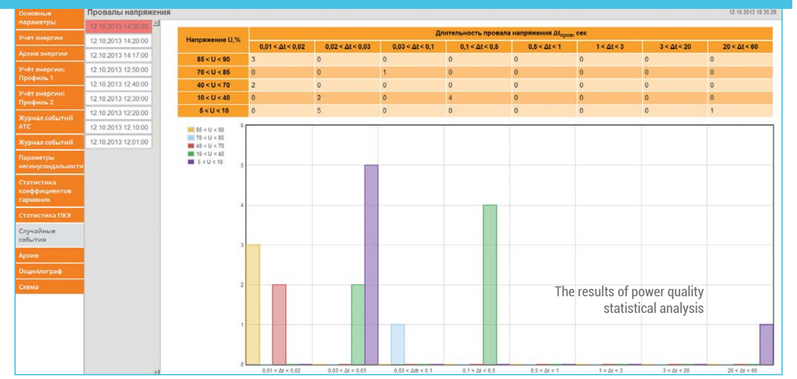
Harmonic and interharmonics components (subgroup) of current, voltage and power, subgroup harmonic and intergarmonic distortions: **1959** parameters
- RMS value measurement interval: **~ 200** ms
- The aggregation interval: **10** min

POWER QUALITY ANALYZER

IEC 61 000-4-30:2009, IEC 61 000-4-7:2008, GOST 32144-2013, GOST 32145-2013, IEC 61 000-4-15: 2010



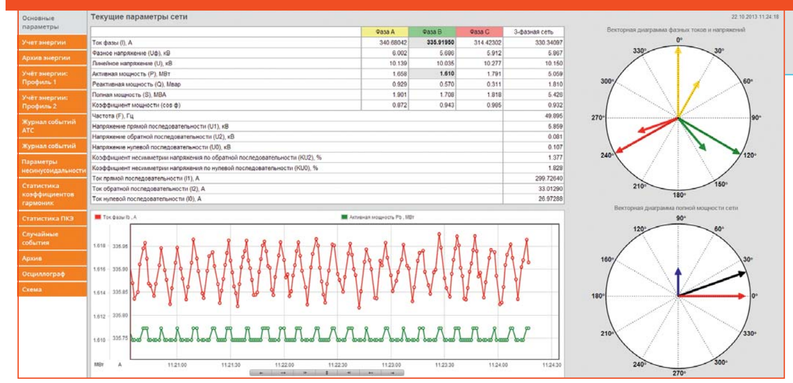




Custom intervals of aggregation and analysis

THREE-PHASE ELECTRIC NETWORK CHARACTERISTICS METER

Accuracy class 0.2



- Voltage, current and power unbalance: **28** parameters
- RMS value measurement interval: **~ 200** ms
- The aggregation interval: **10** min

- Frequency under- and overdeviation: **3** parameters
- Value measurement interval: **10** s

- Voltage under- and overdeviation: **12**
- RMS value measurement interval: **~ 200** ms
- The aggregation interval: **10** min
- Voltage fluctuation - **6** :
  short-term flicker (10 min) - **3**
  long-term flicker (2 hour) - **3**

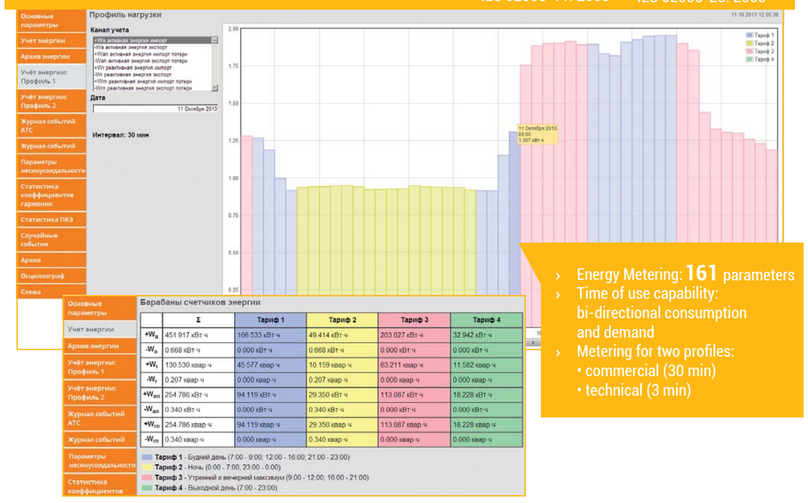
- Voltage dip, swell, interruption: **15** parameters
- RMS value measurement interval: **~10** ms
- Classification by residual voltage and duration

- Sampling rate: 32 kHz
- Waveforming prehistory: 0÷25 s
- Duration of the waveforming: 0÷30 s
- Start on events:
  - voltage dip
  - voltage Interruption
  - voltage swell
  - external signal & etc.
- Accuracy of readings uniform time reference: **1** µs
- Waveforming on the built-in SD-card (83 min.)

HIGH PRECISION ENERGY METER

IEC 62052-11: 2003, IEC 62053-11: 2003

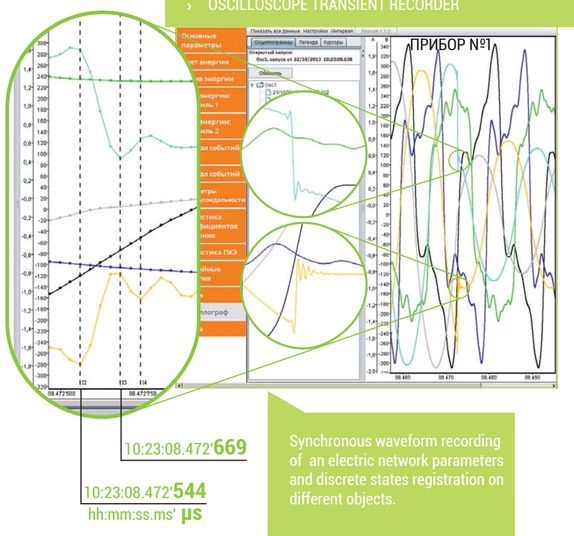
Accuracy class 0.2s IEC 62053-23: 2003



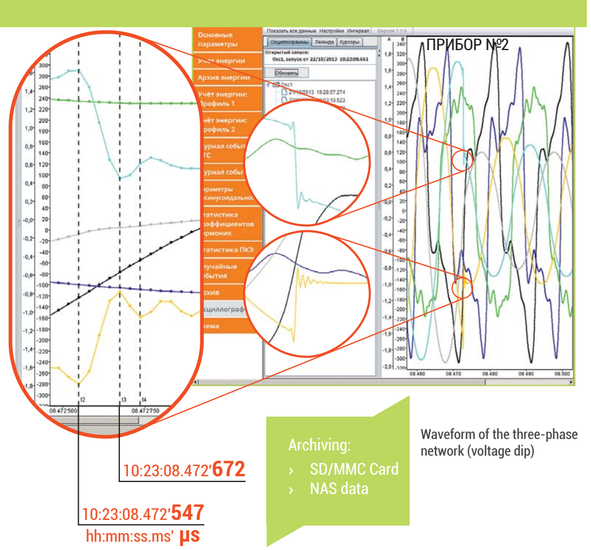
- Energy Metering: **161** parameters
- Time of use capability:
  bi-directional consumption and demand
- Metering for two profiles:
  - commercial (30 min)
  - technical (3 min)

BUILT-IN WEB-SERVER
- Configuring
- Visualization:
  - schemes
  - current, archive, diagnostic data

OSCILLOSCOPE TRANSIENT RECORDER



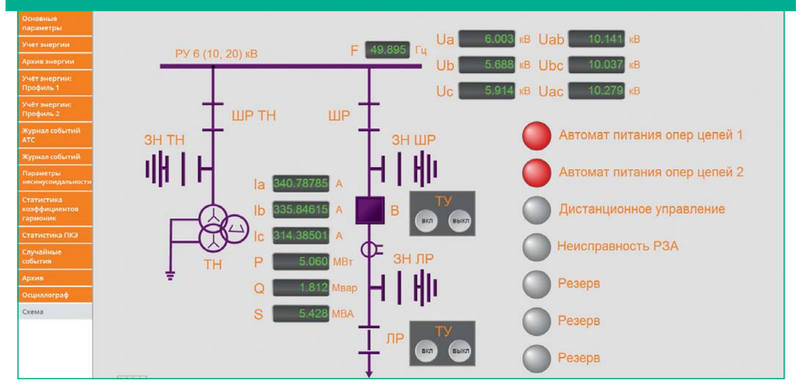
Synchronous waveform recording of an electric network parameters and discrete states registration on different objects.



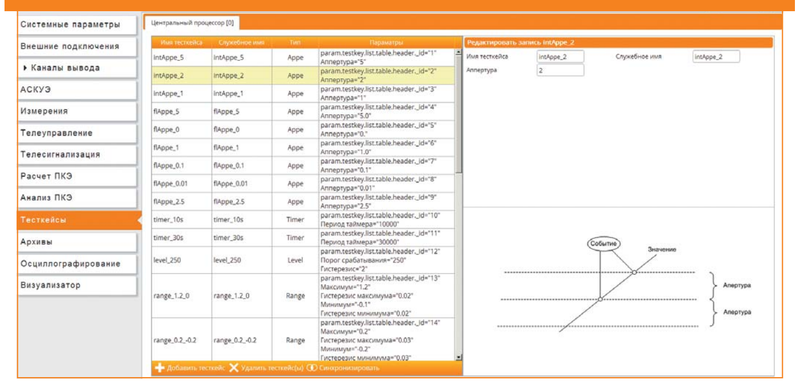
Archiving:
- SD/MMC Card
- NAS data

Waveform of the three-phase network (voltage dip)

WEB- ACCESS TO THE SCHEME AND ALL DATA OF THE DEVICE

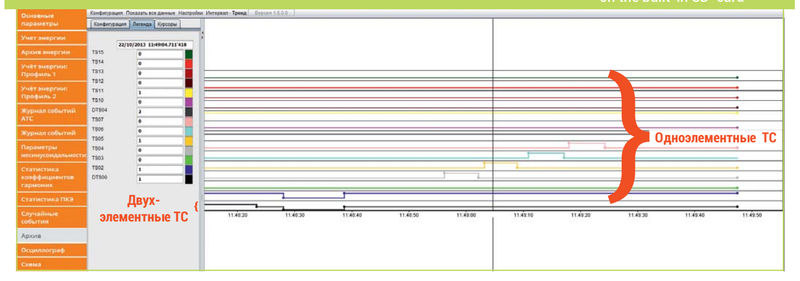


WEB-CONFIGURING



SUBSTATION CONTROLLER WITH DISCRETE INPUTS AND RELAY OUTPUTS

Up to 10 000 000 events on the built-in SD card



IA METER