

Universal monitoring system for lowvoltage transformer substations

MTP04

Institute of high technologies
of Belgorod State University
(IVT)



ABOUT THE SYSTEM

MTP04 is a software and hardware complex which allows to record voltage drop/presence events, measure the instantaneous values of currents, voltages and powers on the outgoing feeders of transformer substations, store and transmit this information to the upper level of the system using various communication channels: GSM (GPRS, EDGE, 3G) or LoRaWAN protocol..

BENEFITS OF THE SYSTEM



Monitoring and assurance of power quality



Controlling of overload situations



Minimization of losses

SCOPE OF APPLICATION



GSM -
for distant geographically
dispersed objects



LoRaWAN -
for settlements
and cities

ADVANTAGES OF USING LoRaWAN

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High radio range (up to 15 km without additional signal repeaters);



Fast and easy deployment of networks;



Noise-immunity and data protection;



Open free communication protocol;



Low power consumption (up to 10 years of battery life);



Low cost of end devices.



UBM-5 series control unit

determines voltage level without additional detectors.

TECHNICAL CHARACTERISTICS

Power supply	220 V
Analog inputs for measuring alternating voltages (telemetry)	3
Measurement accuracy	+/- 2%
Inputs insulation	2,5 kV
RS-485 interface	1
SIM cards	2
Overall dimensions (LxWxH)	90x90x85 mm



UB-9 series control unit

determines voltage drop/rise, carry out telemetry, detects the open/close position of circuit breaker.

TECHNICAL CHARACTERISTICS

Power supply	220 V
Discrete inputs for monitoring of "dry contact" type sensors (telesignaling)	12
Measurement accuracy	+/- 2%
Inputs insulation	2,5 kV
RS-485 interface	1
SIM cards	2
Overall dimensions (LxWxH)	160x90x80 mm



UB-916-L
control unit

determines voltage level without additional detectors, registers system and emergency events, transfers the received information to the data ollection/presentation level using the built-in LoRaWAN modem.

TECHNICAL CHARACTERISTICS

Power supply	220 V
Discrete inputs for monitoring of "dry contact" type sensors (telesignaling)	6
Discrete inputs for monitoring the presence of AC mains voltage (telesignaling)	6
Inputs insulation	2,5 kV
RS-485 interface	2
SIM cards	2
Overall dimensions (LxWxH):	160x90x80 mm



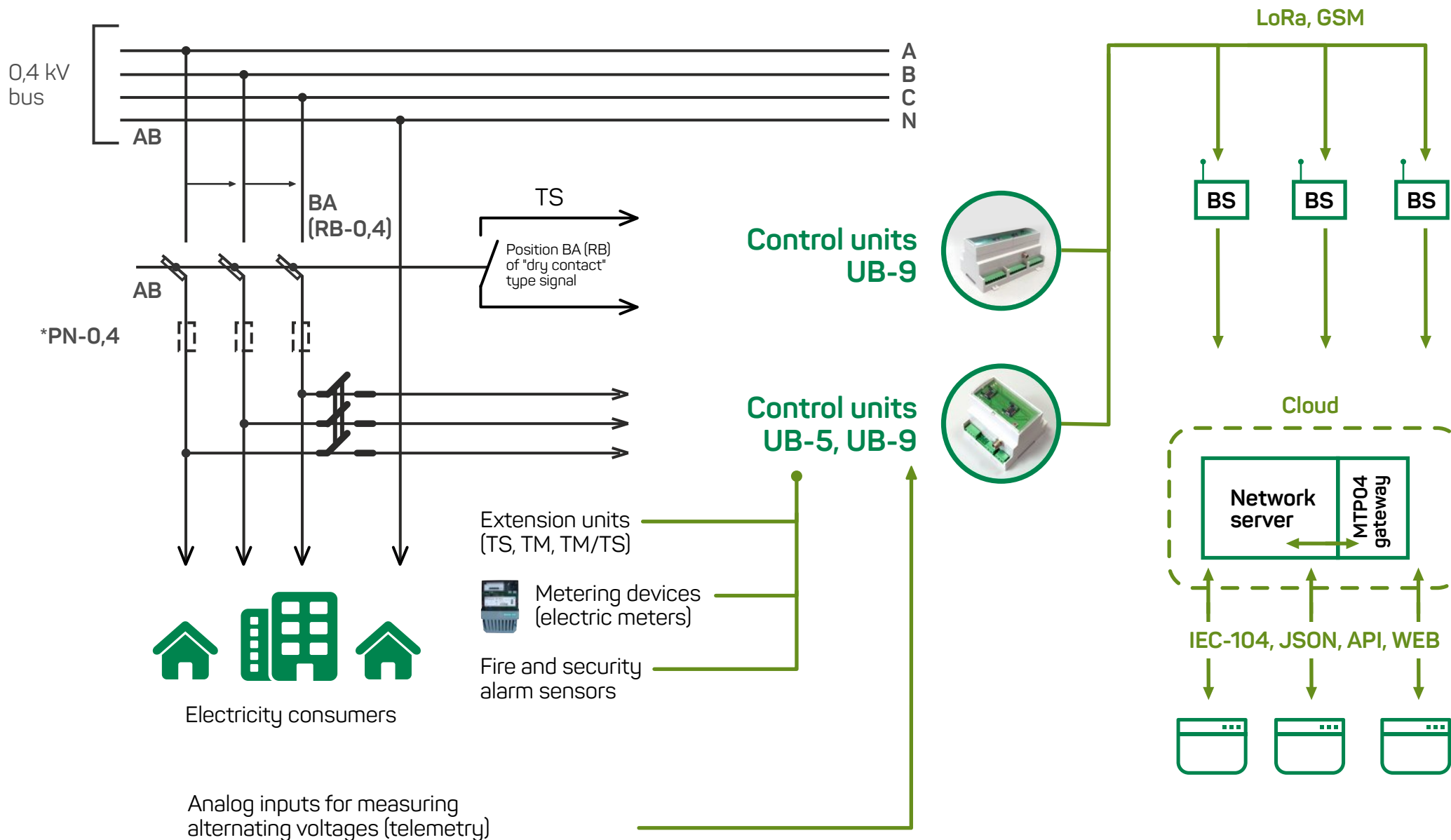
UE-501
extension unit

offers additional analog inputs to existing MTP04 control units.

TECHNICAL CHARACTERISTICS

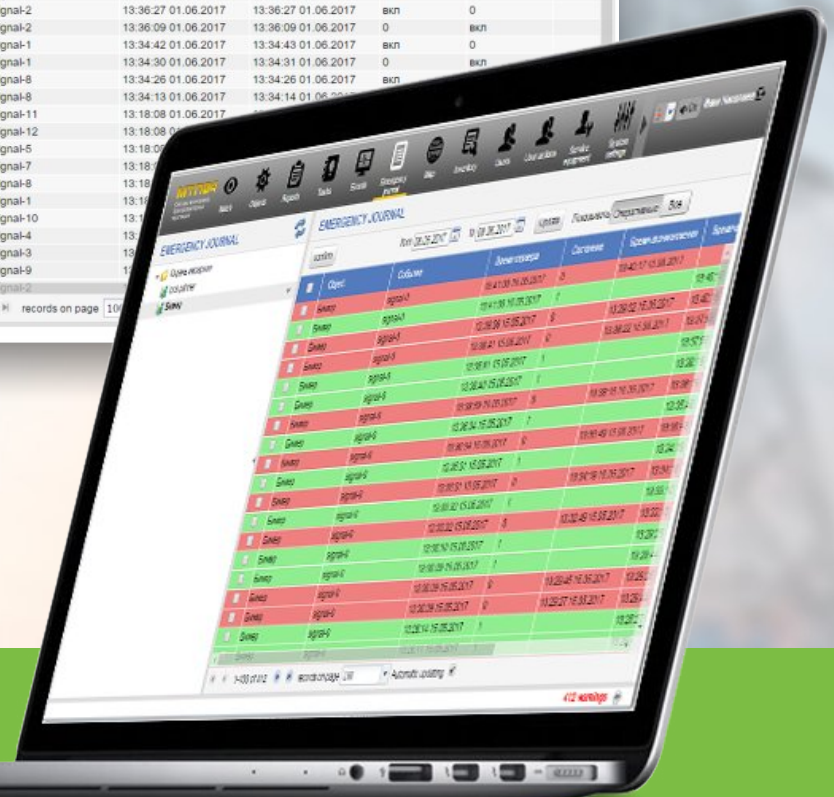
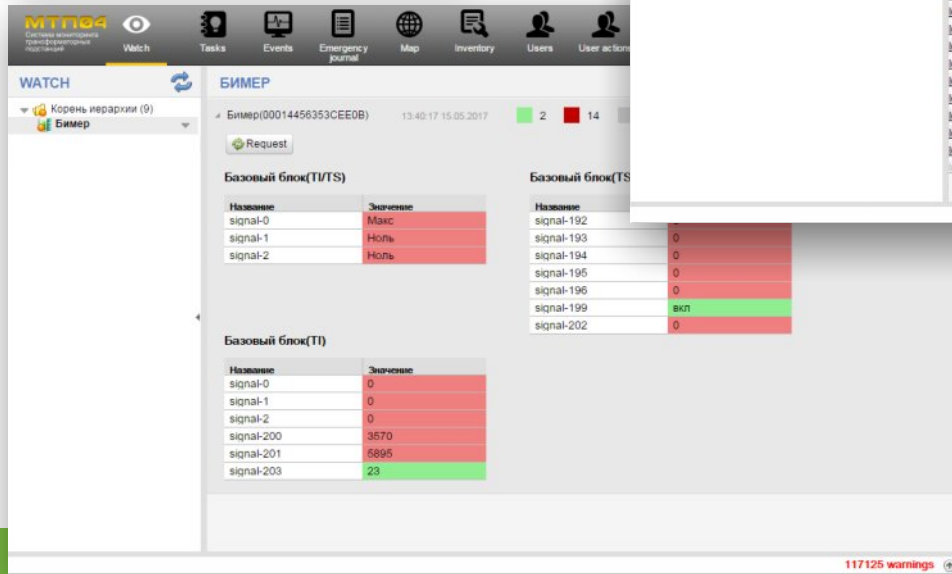
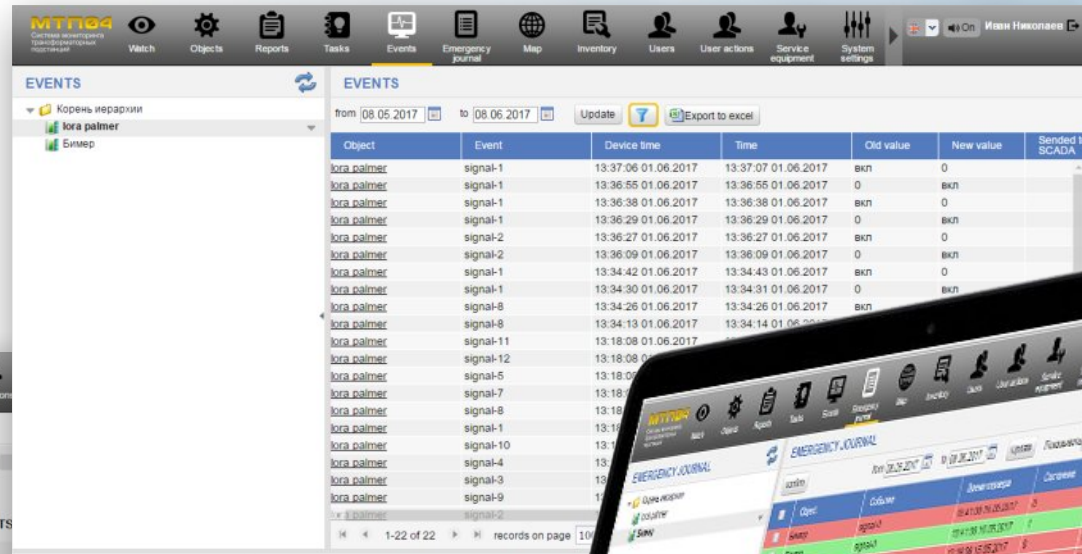
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OPERATION SCHEME



SYSTEM UI

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RESULTS OF IMPLEMENTATION

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Provide substations 6-10/04 with monitoring and control devices.



Reliable measured values for operational management and planning.



Reduce maintenance costs.



Reduce the response time to emergency situations of duty personnel and other services.



Minimum loss of power grid and end customer revenue.



Reduce the number of complaints from consumers by promptly eliminating emergencies.

Thank you for your attention!



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