TECHNICAL PARAMETERS

Parameters	ENERGYS-2	ENERGYS-1	
Inputs: (NO/NC)	8 / 1 (tamper input)	8 / 1 (tamper input)	
Free inputs	**2**	**4**	
Used inputs	6 + 2	4 + 1	
Monitored parameters required in the tender	- phase L1 (the relay 230VAC) - phase L2 (the relay 230VAC) - phase L2 (the relay 230VAC) - shock (shock sensor) **- tilt (accelerometer position sensor)**	- phase L1 (the relay 230VAC) - phase L2 (the relay 230VAC) - phase L2 (the relay 230VAC) - shock (shock sensor)	
Additional monitored parameters	**- overvoltage protection B+C failure** - opening the casing (tamper switch in casing) - Battery failure - Power failure - GPRS connection - GSM connection - Other selected in the tab Monitoring, in the Configurator of the device	- opening the casing (tamper switch in casing) - Battery failure - Power failure - GPRS connection - GSM connection - Other selected in the tab Monitoring, in the Configurator of the device	
Outputs	- Tamper (TMP) - 1 (OC type) - Additional (AUX) - 1 (OC type)	- Tamper (OUT1) - 1 (OC type) - Additional (NC,NO,C) – **1 relay output**	
Operating modes	- GPRS transmission only - SMS transmission only - GPRS and SMS transmission	- GPRS transmission only - SMS transmission only - GPRS and SMS transmission	
Notification	sending text messages on defined mobile phone numbers	sending text messages on defined mobile phone numbers	
Configuration	- Remote - GPRS - Remote - SMS - Remote - CSD - Local – with a PC through RS232, using dedicated software	- Remote - GPRS - Remote - SMS - Remote - CSD - Local – with a PC through RS232, using dedicated software	
Digital interface	RS232 (lines: RxD, TxD, RTS, CTS)	RS232 (lines: RxD, TxD, RTS, CTS)	
Phone input compatible with DTMF standard	-	**YES**	
GPRS/SMS transmission security	AES encryption	AES encryption	
Outputs load	Max. 100 mA	- Tamper OUT - OC type - Max. 1 A	- Additional NC,NO,C - relay - Max. 100 mA
Device voltage supply	230VAC (205-255VAC)	230VAC (205-255VAC)	
Transmitter voltage suply	18VAC (16-20VAC)	18VAC (16-20VAC)	
Power consumption (average / max)	25 mA / 100 mA @230VAC	20 mA / 100 mA @230VAC	
Device power consumption (average / max)	6 W / 20 W	5 W / 20 W	
Battery charging current	Max. 1000 mA	Max. 220 mA	
Fuse, slow (secondary transformer 18 V)	1,25 A	-	
Fuse (transformer primary side)	250 mA	-	
Charge voltage	13,8 V	13,8 V	
Battery	7 Ah, lead-acid 12 V	1.2 Ah, lead-acid 12 V	
Threshold of signaling low bartery voltage	11 VDC	11 VDC	
Installed GSM modem	Cinterion MC55i	Ublox LEON-G100	
Housing dimensions	40 cm x 30 cm x 15 cm	30 cm x 30 cm x 15 cm	

EBS
CREATING A SENSE OF SECURITY
SINCE 1989

THEFT PREVENTION
FOR POWER
TRANSFORMERS

Energys
by EBS

Power transformers are at present elements of low failure frequency. According to the statistics, only 2 per 100 devices are damaged within a year. Vandalism and theft are the biggest threat to it. Damages resulting from it are counted in hundreds of thousands USD.
The high quality of power transformers guarantees very rare need to replace it. Although the issue of deliberate damage caused by thieves of nonferrous metal still remains. **Theft prevention for transformers offered by EBS shall allow to avoid damages connected with thefts and damages of devices of the whole network. We offer two systems, that are used to protect transformers: ENERGYS-1 and expanded version ENERGYS-2.**
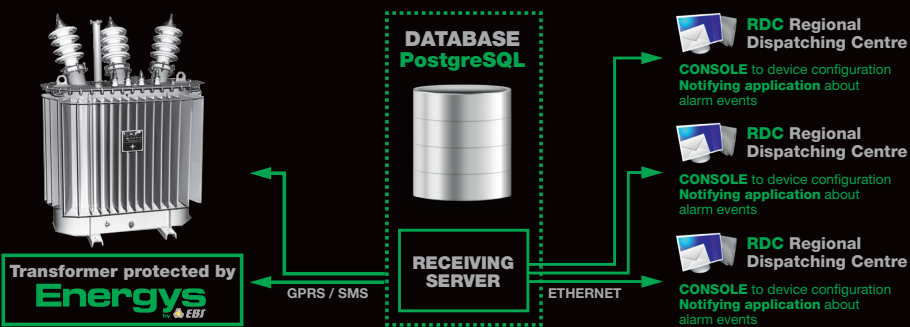
The basic function of Energys system is sending data in REAL TIME concerning to the following:

■ network or transformer failure (voltage drop, voltage recovery – L1, L2, L3)

■ sabotage/theft tests (shock or tilt of transformer, casing opening)

RECEIVING SERVER WITH MANAGEMENT CONSOLE – HOW DOES ENERGYS WORK?

All alarms from object stations are sent to **central server installed in the Department office**. Receiving server has a form of the service in MS Windows system. All events sent to the receiving server are recorded in **PostgreSQL database**. To the receiving server we delivered the **console**, which enables the following:

■ Adding new transmission device to the system and edition its parameters (name of the station, localization of the station, no. of the station),
■ Review of connected and disconnected devices,
■ Review of events sent from devices in real-time,
■ Readout of the signal level of the device,
■ Readout of events history for the device.

Notifying application

Each device is assigned to a group linked to the dispatcher responsible for the area. Grouping is performed during device configuration.

Notifying applications are installed locally, on computers in the RDC (Regional Dispatching Center) responsible for a given station.

The messages are sent according to programmed address on the computer **installed on RDC**. They will be displayed on the dispatcher's computer regardless of the launched applications. Delivery of the message is signaled by a sound message. Messages mentioned are archived on the server with the time and hour tag of the receiving by RDC dispatcher. The software allows you to create summary reports for the period with the possibility to export to Excel, Word, txt format.

THE SYSTEM FEATURES

■ **Special assembly the battery** inside the housing in a manner, that protects the electronics at the collapse of the device.
■ **Tight casing (IP65), resistant to weather conditions,** adopted to be installed to the transformer's tanks.
■ It is possible to connect **8 sensors** for taking measurement or various alarm sources.
■ **RS232 / RS485 interface** allowing to further development of transmitting devices for digital measurement sensors.
■ **Regular and often test signals** allowing to permanent monitoring of the object.
■ **Remote change of settings** with GPRS/SMS/CSD allowing to modify the system with no extra costs.
■ **Clear and immediate massages** sent to any mobile phone number or e-mail address including the localization of the transformer station.
■ **Interference resistant** in the electromagnetic field in the low voltage network operation close to distribution transformers 15/0,4kV.
■ **Surge protection** provided by voltage limiters of B+C class (only in ENERGYS-2 version)
■ **Tilt sensor** – built-in accelerometer (only in ENERGYS-2 version)

The device that should protect the transformers must be also, in itself, resistant to attempts to destroy, or adverse conditions. For this reason ENERGYS is equipped with numerous of sensors and accessories:

■ Overvoltage arrester (B+C class) installed on the input ~230V (only in ENERGYS-2 version),
■ Tight casing - IP65, resistant to weather conditions,
■ External screw joint enabling to ground the casing,
■ Battery maintaining - operation with the battery min. 24 h,
■ The battery is installed inside of the casing to protect the electronics in case of the device fall,
■ Tilt sensor of the casing (only in ENERGYS-2 version),
■ Insensitive to the voltage loss and the voltage recovery,
■ The GSM antenna is protected in case of the damage with no possibility to disconnect it from external casing.

The damage made by thieves at stealing components of the transformer (oil cooling, non-ferrous metals).