EM2043
pulse RF/3G/LTE module
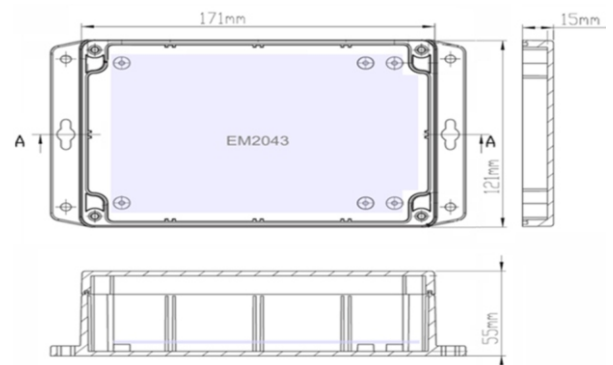
Technical description

The external radio module EM2043 is designed for data transmission via RF radio channel and/or mobile network (3G/LTE) from water, gas, and electricity meters with pulse outputs, digital alarm sensors, as well as from an analog pressure sensor. The module features: 3 pulse inputs for connecting meters, 1 analog input (0.4...2 (0...10) VDC) for a pressure sensor, 3 digital inputs for liquid level alarms or other safety sensors.

The module is powered by a built-in lithium battery. The autonomous operation period is at least 6 years (including power supply to the connected pressure sensor).To ensure reliable mobile connectivity, the module supports operation with two SIM cards, enabling automatic switching from the primary SIM to the backup one.

The built-in archive management system allows remote retrieval (via radio channel) of stored parameter data upon user request. Archived values can be provided for any period in the form of accumulated (total), hourly, or daily parameters.

Main dimensions:

Technical specifications:

Description	Pulse RF/3G/LTE unit EM2043
Input Connection Types	3 programmable pulse inputs, 1 analog input, 3 digital inputs
Inputs Specification	Pulse inputs – 'dry contact', 'open collector'. Minimum pulse width - 20 mSec. Maximum cable from meters length - 10 meters. Analog input - 0,4…2 (0…10) VDC
Box Size	160x80x55mm
Unit Weight	550 g
Power Supply	1 Lithium batteries, "D" size, 19 A*h
Operational Life	Depends on the transmission interval settings. The average battery life is 6 years
Settings time intervals between:	For RF transmit - 10 sec…18 hours. For 3G/LTE transmit - 1 min…45 days. For pressure samples - 1 min…45 days
Maximum number of records in archive (internal data logger)	6 months of hourly values of each input, pressure samples - every 15 min
RF frequencies (ranges), TX power	FSK 430/868/900 MHz, 10/25 mW (optional)
RF Transmit Bitrate	40.0 kbps
3G/LTE frequencies	UMDS GPRS 800/900/1700/1800 MHz
Configuration Storage	Non-volatile memory
Environmental	IP65 (options – IP67/68)
Operating Temperatures	-20° C to +60° C
Humidity	Max. 90%

Input terminal assignment:

Terminal	Function	Description	
L1	Dinput	3 inputs from level sensor relays	
L2			
L3			
GND	Common		
COM	Common	Connection of signals from meters with pulse outputs	
IN1	Input 1		
IN2	Input 2		
IN3	Input 3		
COM	Common	Connection of a signal from an intrusion (entry) sensor	
D1	Dinput		
AIN+	+3,6 VDC	Connection of a pressure sensor (powered by 3.6 VDC in pulse mode)	
AIN	Analog input		
COM	Common		

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Data reading from the EM2043

Data and archive of EM2043 module reading, is carried out via radio channel using the RF Terminal device (EM3011) and specialized software.

The Terminal is a transceiver equipped with a built-in or external antenna and connects to a computer or tablet via a USB cable. This device is designed for use in the WalkBy system, where it functions as a receiving module, enabling data collection from devices located in the field without the need for direct contact.

Additionally, the RF Terminal is used for configuring various system devices via the radio channel. In combination with the appropriate software, the RF Terminal allows convenient remote equipment setup significantly simplifying system maintenance processes in the field.
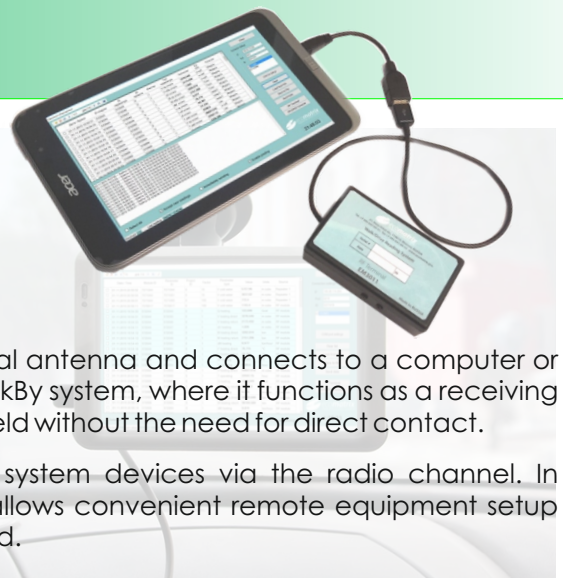
The "Data Collection Terminal" program – data reading and mode settings:

- Connection settings for transmitting selected data to the server
- Data upload/download, export of selected data to Excel
- Sending selected data to the server
- Start of parameter configuration mode EM2043

The "Archive Collection Terminal" program – retrieval of archived data:

- Connection settings for transmitting selected data to the server
- Data upload/download, export of selected data to Excel
- Sending selected data to the server
- Request for retrieving archived data

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