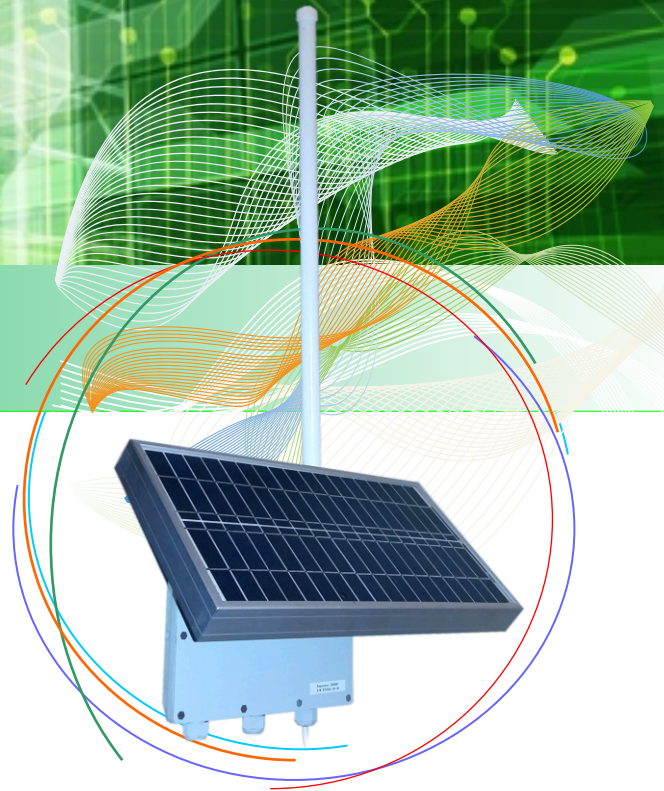


# EM4007

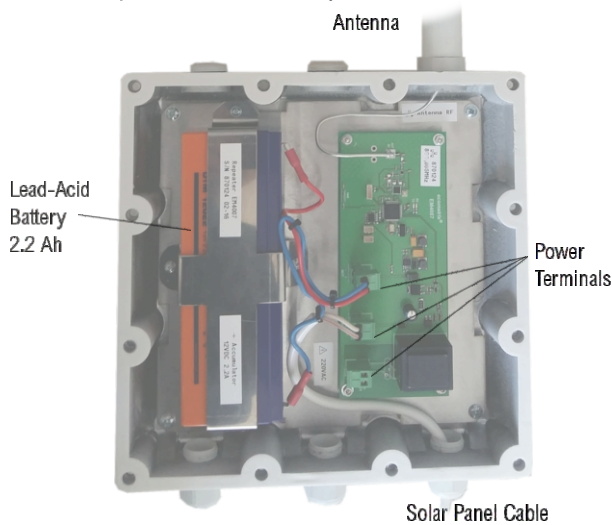
## Solar Repeater RF



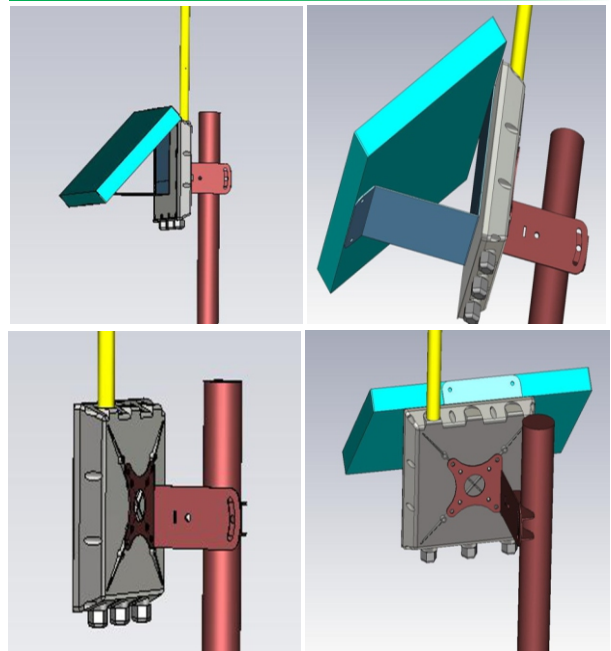
### Technical description

The Solar Repeater RF is engineered to extend the radio coverage range of GateWay concentrators within automated data acquisition systems. The device receives radio signals from transmission modules interfaced with measurement instruments and equipment, and relays the data to a remote GateWay concentrator. This ensures stable long-range communication, even under challenging urban conditions.

Solar Repeater RF units feature a versatile power supply system comprising built-in rechargeable batteries that support automatic charging from either a 220 VAC mains power source or photovoltaic (solar) panels. This design enables flexible deployment and autonomous operation in locations lacking continuous power availability.



### On-site Installation:



### Technical specifications:

<b>Description</b>	Repeater RF EM4007
<b>Box size</b>	250x250x70 mm
<b>Solar battery size</b>	400x232x40 mm
<b>Antenna length</b>	600 mm
<b>Unit Weight</b>	3 kg
<b>Power Supply</b>	Lead accumulator battery 12 VDC 2,2 A*h - with charge from solar battery or power 220VAC
<b>Operational Life without charge</b>	14 days
<b>RF Transmit Bitrate</b>	10.0 kbps
<b>Frequencies</b>	RF - FSK 433/868/900 MHz
<b>Configuration Storage</b>	Non-volatile memory
<b>Operating Temperatures</b>	-40° C to +85° C
<b>Environmental</b>	IP-68
<b>Humidity</b>	Max. 95%

Every 15 minutes, the device transmits diagnostic data via radio, including battery charge voltage, internal temperature, and operational status. This facilitates centralized monitoring of the repeater's performance and allows for prompt detection and resolution of potential issues.

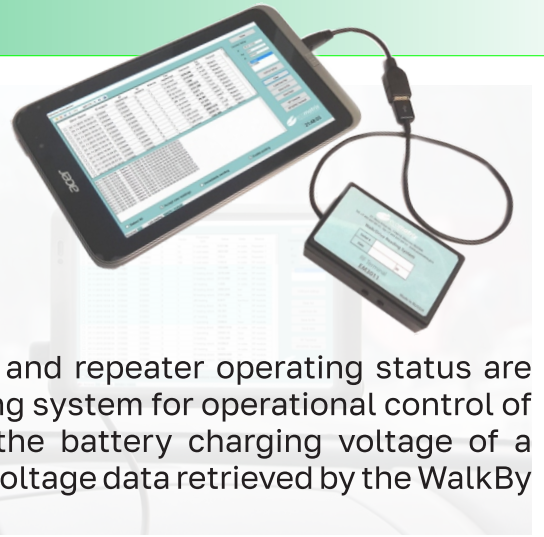
### Connection to Power Terminals:

<b>Battery</b>	+	Battery Connection
	-	
<b>Solar</b>	+	Solar Panel Connection
	-	
<b>Power</b>	L	110/220 VAC Power Supply Connection
	N	

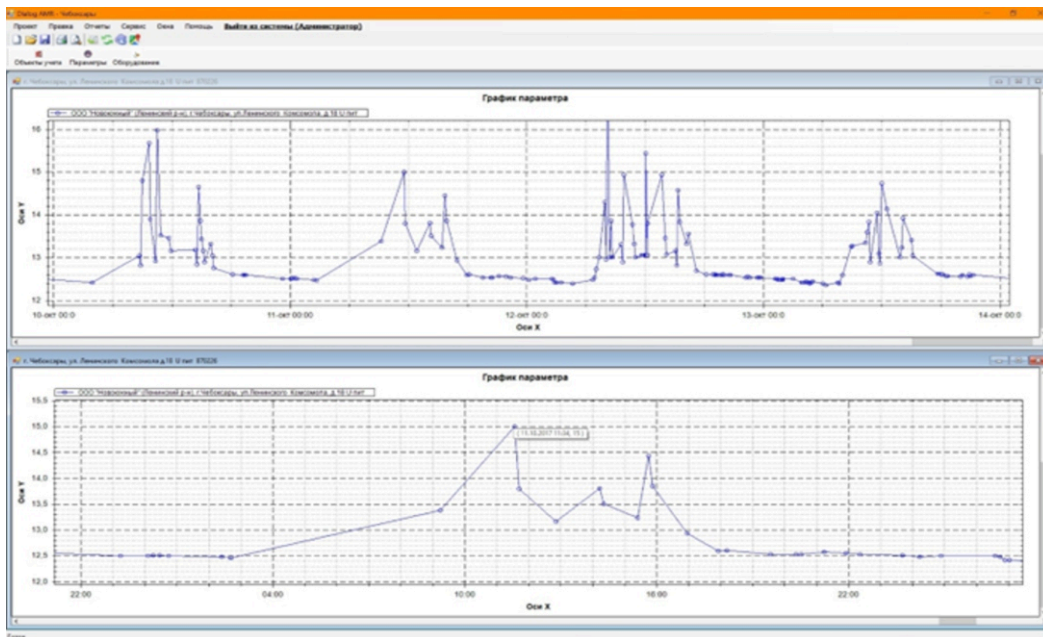
## Reading Diagnostic Parameters

To ensure long battery life, the repeater is equipped with the EM4007 power management system, which provides automatic shutdown at low voltage and disables battery charging when the voltage exceeds the allowable limit.

The battery voltage, internal enclosure temperature, and repeater operating status are transmitted via radio every 15 minutes to the monitoring system for operational control of the repeater. Below are example diagrams showing the battery charging voltage of a repeater powered by a solar panel, as well as archived voltage data retrieved by the WalkBy monitoring system.



## Battery Charging Voltage Diagrams (Solar Panel Source):



## "Data Collection Terminal" Software – Battery Voltage Archive:

Date / Time	Module ID	Parameter ID	Project ID	Factor	Parameter type	Value	Units	Source
04.04.2016 1:31:21	870124	870124	0	10	U battery	12,280	V	Repeater 1
04.04.2016 1:46:21	870124	870124	0	10	U battery	12,260	V	Repeater 1
04.04.2016 2:01:21	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 2:16:21	870124	870124	0	10	U battery	12,260	V	Repeater 1
04.04.2016 2:31:21	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 2:46:21	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 3:01:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 3:16:21	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 3:31:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 3:46:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 4:01:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 4:16:21	870124	870124	0	10	U battery	12,260	V	Repeater 1
04.04.2016 4:31:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 4:46:21	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 5:01:21	870124	870124	0	10	U battery	12,210	V	Repeater 1
04.04.2016 5:16:21	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 5:31:20	870124	870124	0	10	U battery	12,210	V	Repeater 1
04.04.2016 5:46:20	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 6:01:20	870124	870124	0	10	U battery	12,210	V	Repeater 1
04.04.2016 6:16:20	870124	870124	0	10	U battery	12,230	V	Repeater 1
04.04.2016 6:31:20	870124	870124	0	10	U battery	12,210	V	Repeater 1
04.04.2016 6:46:20	870124	870124	0	10	U battery	12,250	V	Repeater 1
04.04.2016 7:01:20	870124	870124	0	10	U battery	12,210	V	Repeater 1