

RATMON sp. z o.o.

# SMARTBOX-1 User Manual



ver.1.00

## Introduction

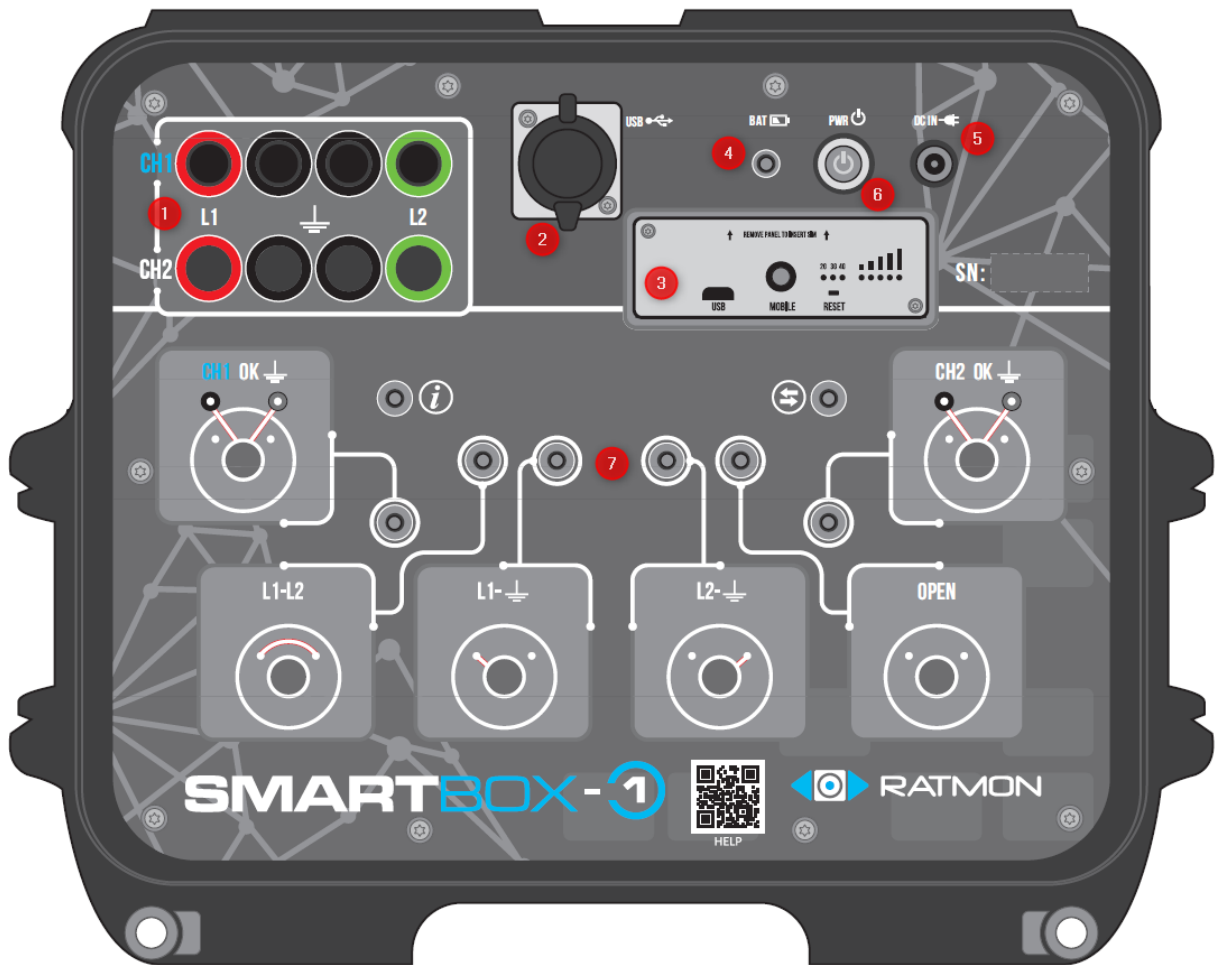
The SMARTBOX-1 device enables remote simulation of alarm network states to assist in fault localization.

### **Basic functionalities of the device:**

1. remote control of alarm network connections
2. configuration of simulation sequences
- 3 Battery power supply
4. case prepared to handle harsh conditions

### **The kit after unpacking contains:**

1. the SMARTBOX-1 device
2. 8 measurement probes
3. 4 crocodiles
4. 2 magnetics connector
5. power supply/charger
6. carrying case
7. 2 USB cables
8. allen key to open the modem panel.



**Panel description:**

- 1. sockets for connecting measurement probes
- 2. USB socket for device configuration
- 3. GSM modem
- 4. battery charge LED indicator
- 5. power charging socket
- PWR power button
- 7 Device status LED indicators

## **Power supply and battery charging**

The device is designed to operate on network power and battery power. Before working on battery power, charge the battery using the original charger. To do this, connect the power supply to the socket (5) and the electrical network. The rechargeable battery allows for 10-12 hours of operation of the device.

LED (4) indications:

1. LED briefly flashes every 3s - battery in charged state ready for operation
2. the LED shines alternating colors: red, yellow, white - the battery in the state of charging
3. LED lights up with continuous red light: low level of charge (<30%)
4. the LED lights up with continuous yellow light: medium level of charge (30-70%)
5. LED lights up with continuous white light: high charge level (70-100%)

## **Preparing the device for operation**

Turn on the power of the device with the button (6). Illumination of the button indicates readiness for operation.

Connect the measuring wires to the sockets (1) according to :

For the first pipe CH1

L1 - wire connected to the beginning of the measurement loop (wire 1)

2x ground connector with tube - wires connected to the magnetic connector MZM-1.

L2 - wire connected to the end of the measurement loop (wire 2)

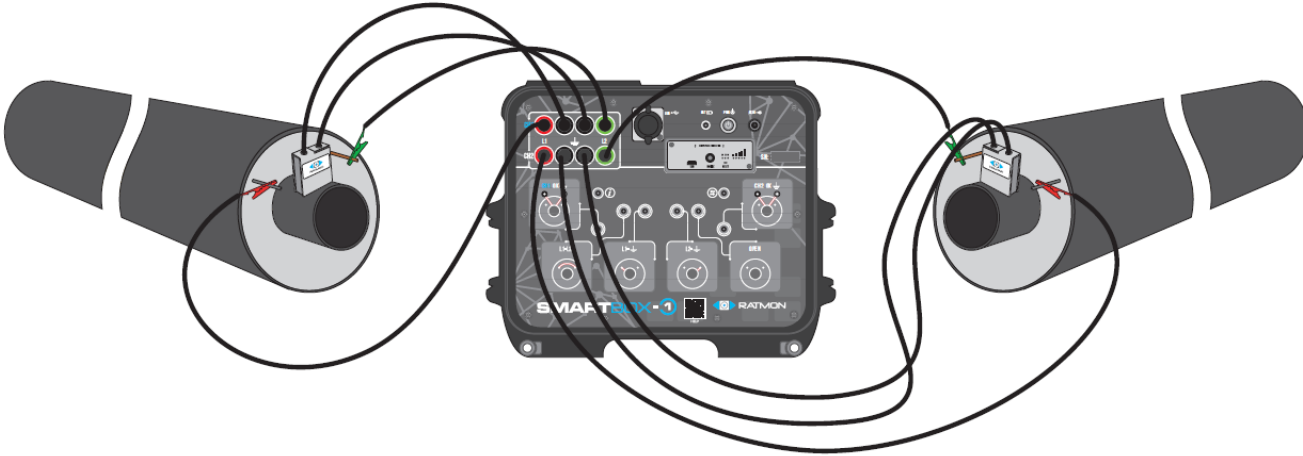
For the second pipe CH2

L1 - wire connected to the beginning of the measurement loop (wire 1)

2x ground connector with tube - wires connected to the magnetic connector MZM-1.

L2 - wire connected to the end of the measurement loop (wire 2)

The MZM-1 ground connector allows you to determine whether the measurement system has metallic contact with the pipe. This guarantees correct measurement of insulation resistance between pipe and wire or the possibility of simulating a full short circuit between wire and pipe.



### GSM module configuration

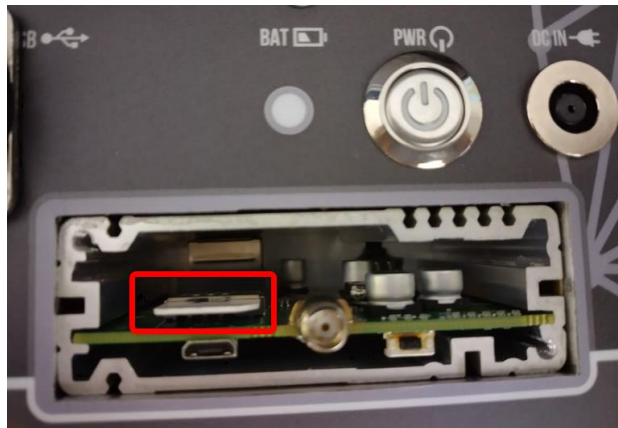
The SMARTBOX-1 uses the TRB140 communication module. If the device was shipped with the manufacturer's SIM card, the modem is ready for operation after SMARTBOX-1 startup and requires no additional steps.

#### SIM card installation

The device works with SIM cards supporting 2G, 3G, 4G bands.

1. Before installing the SIM card, turn off the SMARTBOX-1 with the PWR button (6).
2. Unscrew the front panel of the modem using the included allen wrench.
3. Place the SIM card in the slot according to the instructions in the pictures.

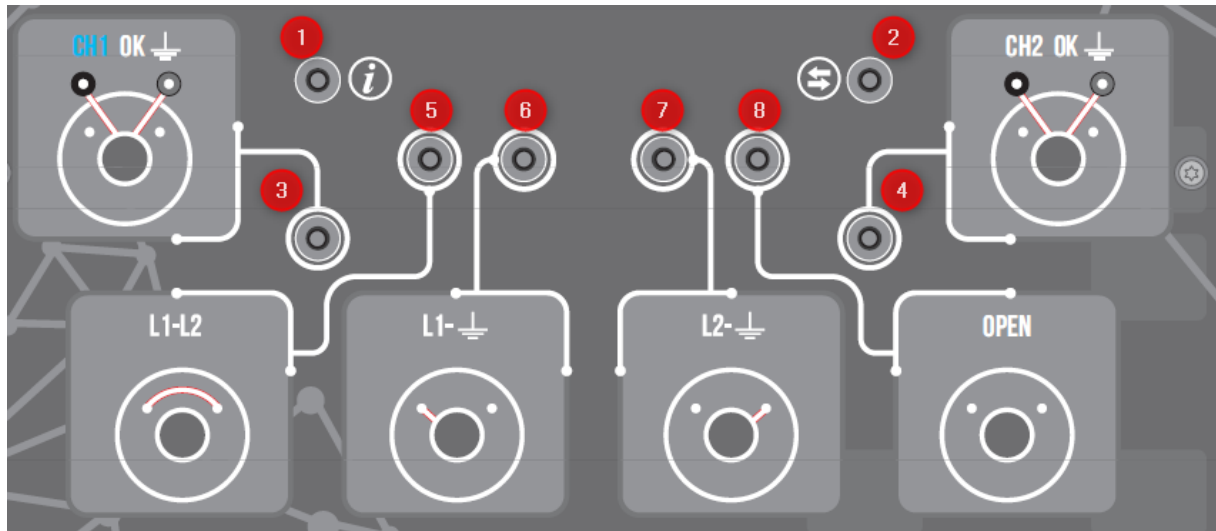




4. Screw on the front panel of the modem.
5. Turn on the device with the PWR button (6).
6. Connect the micro USB cable to the modem.
7. Open a web browser and type: `http://192.168.2.1`
8. In the window that appears, type:  
    login: admin, password: SmartBox01
9. Configure the GSM connection by entering the appropriate PIN and APN

## **Working modes of the SMARTBOX device**

The device has 2 modes of operation - AUTO and MANUAL. Activating the AUTO mode will cause the device to switch automatically between the various connection systems for a specified period of time. The measurement sequence of AUTO mode can be pre-configured according to the following description using the RATManager2 application. The program is available on the manufacturer's website [www.ratmon.com](http://www.ratmon.com).



LED 1 - operation mode of the device

- Blue - automatic operation
- Yellow - device controlled by mobile application
- Green - device connected to RATManager2 via USB

LED 2 - connection status with the server

- Purple - attempt to establish a connection
- Green - correct communication with the server
- Red - connection problems, please check GSM modem

LED 3 - check metallic contact with pipe 1 (CH1)

- Green - magnetic connector has good metallic contact with the pipe
- Red - magnetic connector has bad metallic contact with the pipe (correct/clean the contact and restart the device)

LED 4 - check metallic contact with pipe 2 (CH2)

- Green - magnetic connector has good metallic contact with the pipe
- Red - magnetic connector has bad metallic contact with the pipe (correct/clean the contact and restart the device)

Diode 5 - SMARTBOX-1's L1 to L2 connection is set up (shorted L1 to L2)

- Blue - connection driven on pipe 1 (CH1)
- White - connection driven on pipe 2 (CH2)

Diode 6 - SMARTBOX-1's L1 connection to the pipe (shorted L1 to the pipe) is driven.

- Blue - connection controlled on pipe 1 (CH1)
- White - connection controlled on pipe 2 (CH2)

Diode 7 - SMARTBOX-1 controlled connection L2 to pipe (shorted L2 to pipe)

- Blue - connection controlled on pipe 1 (CH1)

- White - connection controlled on pipe 2 (CH2)

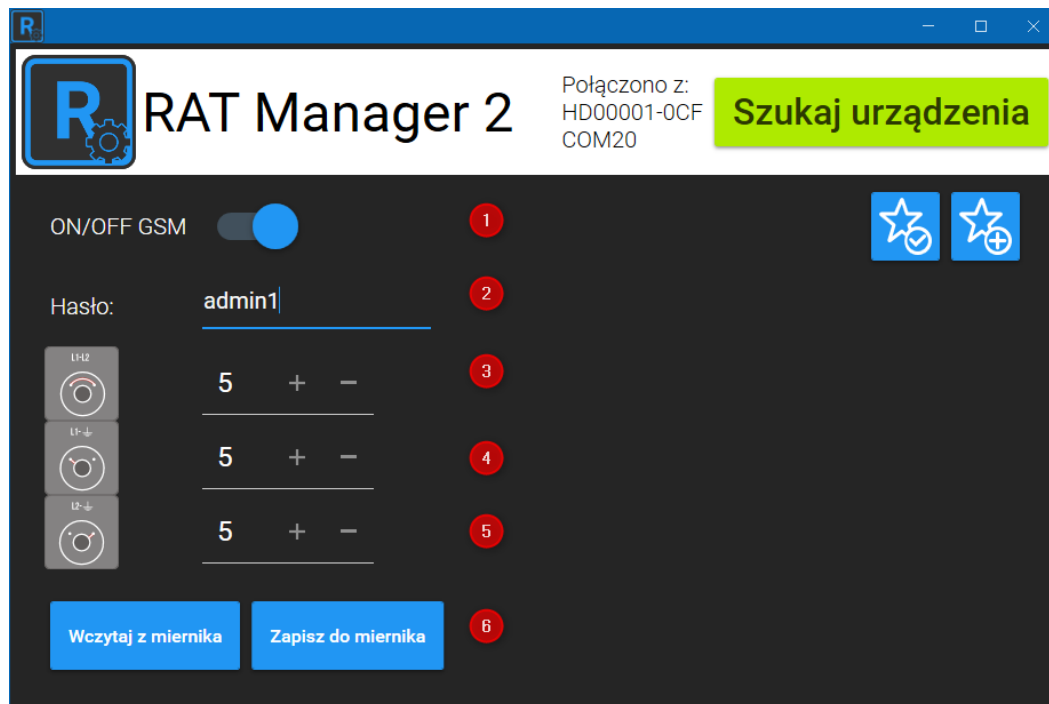
Diode 5 - SMARTBOX-1 controlled connection opening (open L1, L2 and pipe)

- Blue - connection driven on pipe 1 (CH1)

- White - connection driven on pipe 2 (CH2)

## Configuration

1. the device is connected to the computer with a USB type B cable through the connector (2)
2. Run the RATManager2 program.
3. select the "Search for device" button and select the connected device from the list.
4. the program will automatically display the configuration options.



- (1) GSM ON/OFF - disable remote communication.
- (2) Password - the password entered will be required to pair the device with the mobile application.  
A first time password is provided with the device.
- (3) L1-L2 - time (s) to short-circuit the L1 and L2 measurement probes (loop closing/opening)
- (4) L1- - time (s) of shorting L1 and ground measurement probes (shorting wire 1 to the tube).
- (5) L2- - time (s) of shorting the L1 measurement probes and ground (shorting wire 2 to the tube).
- (6) Save to meter - save the changes made to the device.



## Control using the application

1. Click on the “plus” at the bottom of page

2. Fill the data below.

- device name
- serial number
- password

