

Turn on the power supply by holding the button **Power**. After this follows an initial animation with 3 light emitting diodes and rising sound of the display, as well is displayed an ID number of the temperature recorder, the version of the firmware and the site of the manufacturer. For time from 5 up to 8 seconds, while the screen does not change, are scanned the available sensors on the interface, the built in GPS and printer.

The working screens are changing automatically every 8 seconds. You can leaf through the screens manually, by the two buttons under the display.



Previous screen

Next screen

Manually leafing through by a button holds the screen for 16 seconds, after which the automatically leafing through continues.



Screen **Sensors Data**

Screen **Sensors Data** shows measured values of two sensors for temperature and a sensor for moisture in the refrigerant volume. The indications are depicted with green colour, if they are within the set limits. A measured value under a set Lower limit shall be depicted with blue colour. A measured value above a set Upper limit shall be depicted with red colour.

The GPS icon is in the upper right corner.

the WiFi icon is in the lower right corner.

In the upper left corner there can be a sign for a pause – when there is not turned on a recording or a sign with a red, twinkling dot – upon a turned on recording.



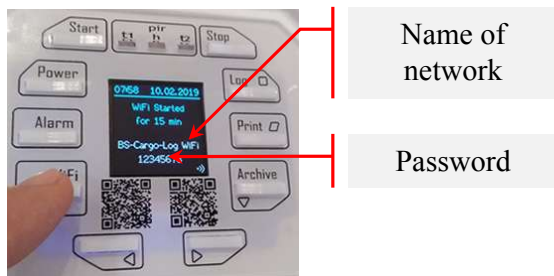
Starting of a new recording for transportation is realized by a single pressing of button **Start**.



Termination of a recording is realized by pressing and holding of button **Stop** for 5 seconds.

You can set the temperature recorder through each smart device, of distance up to 30 meters.

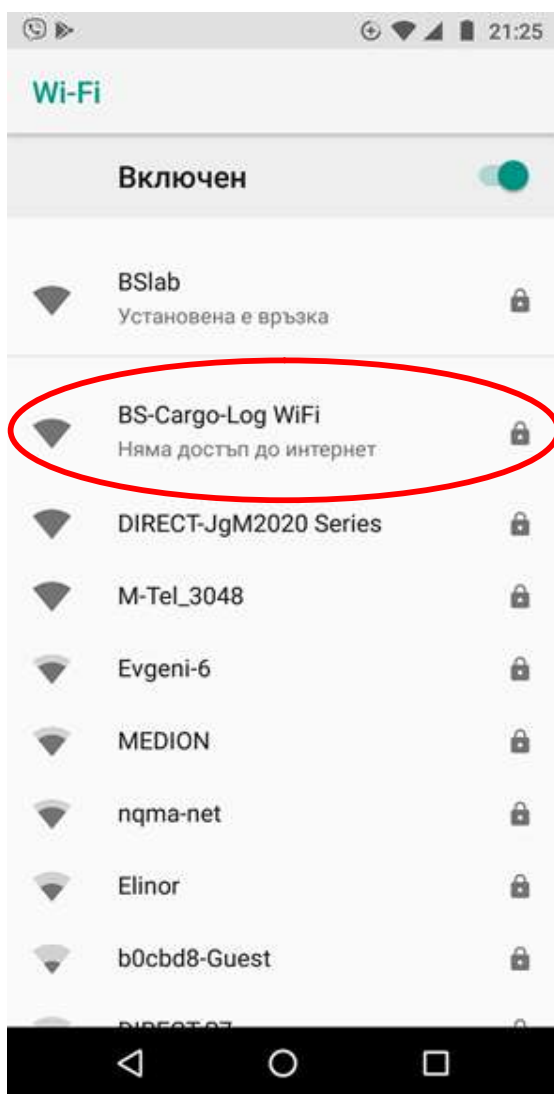
Press button **WiFi**. Its consecutive pressing shall operate the emitted network for 5, 15 or 30 minutes.



The name of the emitted network and the password for access are written on the screen. It is possible to configure the temperature recorder via a smartphone, tablet or laptop.

Scan the available networks in the proximity and find the factory name of the temperature recorder:

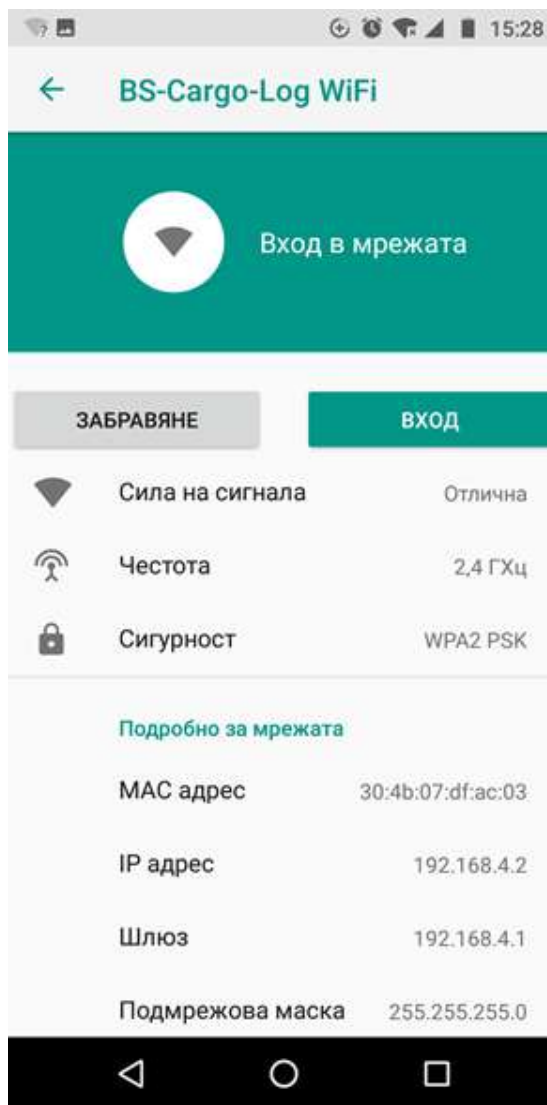
#### BS-Cargo-Log WiFi.



Select connection to the available network and fill in the factory password: **1 2 3 4 5 6 7 8**

It is normal to be received a notice, that the selected network does not give access to internet, ignore it.

The screen of the telephone looks like this:



Push the button for entrance.

The web browser as per default shall open automatically with the following address filled in:

**192.168.4.1**

Fill in the address manually, in case it is impossible to open automatically.

The screen of the telephone looks like this:



IP address of the temperature recorder network

Factory name of the network  
*(it can be changed)*

ID and version of the firmware

Name of the company owner  
*(it can be changed)*

Name of the driver  
*(it can be changed)*

Country  
*(it can be changed)*

Registration number  
*(it can be changed)*

Date and time of the clock, built in the temperature recorder

Transitory indications of temperatures and humidity

Setting for automatic start of a record on motion

Information for the WiFi network

A link towards a settings menu

After a click on the connection: **change device settings** the screen looks like this:

Name of the web server (Access Point) emitted by the temperature recorder – you shall see it upon scanning for available WiFi networks

Name of the company – owner of the temperature recorder. Fill in up to 24 symbols with the Roman alphabet.

Name of the vehicle’s driver. Fill in up to 20 symbols with the Roman alphabet.

Country, in which the vehicle has been registered.

Registration number of the vehicle.

In the indicated fields are filled in letters and numbers with the Roman alphabet (for temperature recorders with version of firmware from 1.0 to 1.5).

The data is filled in from the keyboard of a telephone or tablet.

The changed data is recorded in a non-volatile memory, after a click of the SAVE button, at the bottom of the shown screen.

The filled in data is printed out at the beginning of each print.

Time interval of a record

For change of the desired time interval, please click on the drop-down menu **Sample Rate**.

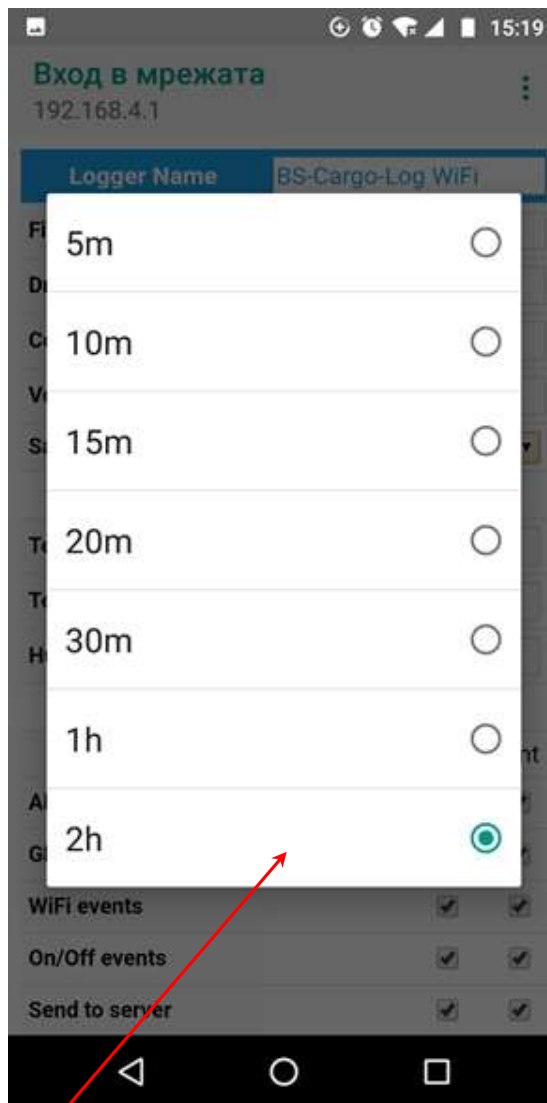
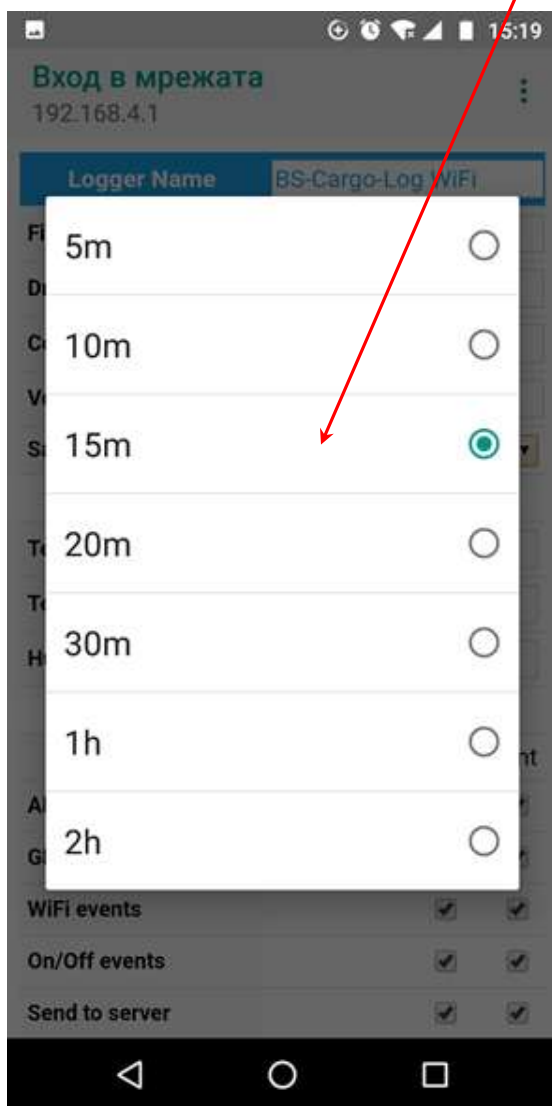
The screen for selection is shown below.

Screen for selection of time interval of a record.

Options:

- 5 minutes (12 reports per hour)
- 10 minutes (6 records per hour)
- 15 minutes (4 records per hour)
- 20 minutes (3 records per hour)
- 30 minutes (2 records per hour)
- 1 record per every hour
- 1 record per every 2 hours

Time interval 15 minutes



Time interval 2 hours

Select a desired time interval and continue with the rest settings.



The screenshot shows the settings page for the Cargo Log Master. It includes fields for user information, temperature and humidity limits, and a list of recording options. Red arrows point from text boxes to specific input fields: the left limit of Temperature 1, the right limit of Temperature 1, the right limit of Temperature 2, and the right limit of Humidity.

**Lower limit for Temperature 1.** Fill in only numbers with sign minus or without a sign – for a positive value. Upon measured temperature by sensor 1 under Lower limit, **the left** indicator of the temperature recorder’s front panel shall flash in **green**

**Upper limit for Temperature 1.** Upon measured temperature by sensor 1 above Upper limit, the left indicator of the temperature recorder’s front panel shall flash in **red**

**Lower limit for Temperature 2.** Upon measured temperature by sensor 2 under Lower limit, **the right** indicator of temperature recorder’s front panel shall flash in **green**

**Upper limit for Temperature 2.** Upon measured temperature by sensor 2 above Upper limit, **the right** indicator of the temperature recorder’s front panel shall flash in **red**

The middle indicator of the front panel shall flash in **red** only upon setting in motion of the PIR sensor for motion in the refrigerant volume. The red light remains to flash 120 seconds after the last setting in motion, after a registered motion.

The limits, set in motion are recorded in the memory with the time interval of the reports and are written down in the print, if they are allowed.

The screenshot shows the settings screen for the Cargo Log Master. The interface includes a status bar at the top with the time 15:20 and network information. The main content area contains several sections: a network connection status (Вход в мрежата), a form for logging details (Logger Name, Firm, Driver, Country, Vehicle number, Sample rate), temperature and humidity settings (Temperature 1, Temperature 2, Humidity), a table of event settings (Alarm, GPS data, WiFi events, On/Off events, Send to server, Start log on motion, Motion speed), and a WiFi AP password field. A large blue 'Save' button is at the bottom, followed by a link to return to the home page and the website URL www.bisersystems.com. The Android navigation bar is visible at the very bottom.

Annotations on the right side of the image explain the following features:

- A column with ticks allowing a record
- A column with ticks for allowing printing out
- Select which additional data, besides Temperature 1, Temperature 2, Humidity and PIR to be recorded in the memory and/or to be printed out subsequently.
- The settings are saved by button **Save**.
- A record of every exceeding of limits, outside the set time interval
- Data of GPS. It shall record Latitude, Longitude, Speed (km/h), Course (degrees) upon a permitted tick for a record and occurred time interval
- An event with a change of settings through WiFi and pressed Save
- Stopping and restoring of the power supply of the temperature recorder
- Connecting to the data server for submitting of the reports and settings
- Allowing start of a record at exceeding speed as per GPS
- After how many kilometers per hour to start the record – a whole number without a sign
- A password for access through WiFi - minimum 8 symbols with the Roman alphanet
- A link for return to the home screen

An example of access to the temperature recorder via WiFi in regime of recording.

The screenshot shows the 'Вход в мрежата' (Network Access) screen of the Cargo Log Master app. The interface displays various system and sensor data. A red circle highlights the 'Recording...' status, which is accompanied by a red arrow pointing to a text box explaining that this indicates recording is turned on. The 'Temperature 1' reading is shown in blue (20.6 °C), with a red arrow pointing to a text box stating it is below the lower limit. The 'Temperature 2' reading is shown in red (20.1 °C), with a red arrow pointing to a text box stating it is above the upper limit. The 'Humidity' reading is shown in black (37%), with a red arrow pointing to a text box stating it is within limits. Other fields include 'Logger Name' (BS-Cargo-Log WiFi), 'Device ID' (24:0A:C4:16:69:A0), 'Firm' (Company name), 'Driver' (Driver name), 'Country' (Country), 'Vehicle number' (XXXXXXXX), 'Date' (01.02.2019), 'Time' (15:18), 'Record on motion' (35 km/h), 'WiFi network', 'WiFi quality' (Not connected), and 'Server connection' (indicated by a red X).

Field	Value
Logger Name	BS-Cargo-Log WiFi
Device ID	24:0A:C4:16:69:A0 (v1.0)
Firm	Company name
Driver	Driver name
Country	Country
Vehicle number	XXXXXXXX
Date	01.02.2019
Time	15:18
Recording...	Recording...
Temperature 1	20.6 °C
Temperature 2	20.1 °C
Humidity	37 %
Record on motion	35 km/h
WiFi network	
WiFi quality	Not connected
Server connection	X

An indication for a turned on recording

Measured temperature by sensor 1 is under set Lower limit – the reading is in **blue** colour

Measured temperature by sensor 2 is above set Upper limit – the reading is in **red** colour

The measured humidity is within the set limits – the reading is in black colour



Printing of a brief note about the moment condition of the temperatures, humidity and coordinates can be done at any time, at turned on power supply and does not matter whether the temperature recorder is in a recording regime.

After a single pressing of button **Print**, the hard copy looks like this:

The image shows two screenshots of the printer output from the Cargo Log Master device. Red arrows point from callout boxes on the right to specific fields in the printed text.

**First Screenshot:**

- SN: A06916C40A24**: A unique serial number of a temperature recorder
- Ver: 1.0**: Name of company/owner/carrier
- Firm: Company name**: Driver's name of a vehicle
- Driver: Driver name**: Country of a vehicle
- Country: Country**: Registration number of a vehicle
- Vehicle number: XXXXXXXX**: An indicator of the type of the print
- > 31.01.2019 19:34 Moment Print <**: GPS coordinates, if they are allowed to be printed by the settings
- t1:+21.4°C t2:+20.8°C H:48%**: GPS coordinates, if they are allowed to be printed by the settings
- GPS Latitude: 43.223980**: GPS coordinates, if they are allowed to be printed by the settings
- GPS Longitude: 27.926640**: GPS coordinates, if they are allowed to be printed by the settings

**Second Screenshot:**

- > 01.02.2019 12:39 Moment Print <**: Date in format: Day.Month.Year
- t1:+21.3°C t2:+21.0°C H:43%**: Time in format: Hours:Minutes
- H:43%**: Relative humidity
- t2:+21.0°C**: Temperature from sensor 2
- t1:+21.3°C**: Temperature from sensor 1

Printing of a protocol for transportation is realized by pressing button **Log**. If at the moment there is a record on, on the screen shall be displayed information for the moment from which (date and hour) of start of the record (Start) until the present moment (Now) with date and hour, as well as how many lines does it contain. The screen looks like this:



A twinkling dot – there is a record on at the moment

An indication that you are looking through information about the record on and you can print the data for the interval from the pressing of the button **Start** until the moment

How many records are there up to the moment from pressing of button **Start**

An indication that it is recording at the moment (the record is not finished) – you can print it and the temperature recorder shall continue to record

If at the moment there is not a record on, on the screen is displayed information about the last, latest, finished by button **Stop** record. The screen looks like this:



A pause sign – there is not a record on at the moment

An indication that the shown information is for a finished record from the archive

Information for initial date and hour

Information for end date and hour

Number of lines in the archive for this finished protocol of transportation

You can look through previous in time records by pressing button **Archive**. There is not a button for leafing through towards newer ones, after they have gone back in the archive. You can wait 5 seconds so the screen shall return to normal working regime and then start the search of the desired former record again by button **Log**, which shall show the present or last finished record and again to leaf through back in time to the archive, desired for printing.

In order to start the printing, press button **Print**.

In order to look through previous records press consequently button **Archive**, until you reach the desired record in a selected day and hour and print it by pressing button **Print**.

An example of a printed previous record of transportation, as per selected day and hour from the temperature recorder's archive.

```

Cargo Log Master
SN: A06916C40A24 Ver: 1.0
Firm: Company name
Driver: Driver name
Country: Country
Vehicle number: XXXXXXXX
>
01.02.2019 15:18 > Start Log
t1:+20.5°C t2:+20.1°C H:36%
>
01.02.2019 15:25 > Log on time
t1:+20.9°C t2:+20.3°C H:41%
>
01.02.2019 16:00 > Log on time
t1:+21.5°C t2:+20.8°C H:40%
>
01.02.2019 18:00 > Log on time
t1:+21.3°C t2:+20.6°C H:42%
>
01.02.2019 20:00 <- Log on time
t1:+21.0°C t2:+20.3°C H:43%
>
01.02.2019 22:00 <- Log on time
t1:+20.7°C t2:+20.0°C H:43%
>
02.02.2019 00:00 > Log on time
t1:+20.5°C t2:+19.8°C H:43%
>
04.02.2019 15:48 > Stop Log
t1:+ 0.0°C t2:+19.1°C H:50%
*** cargo access ***
.....
< Logger Settings >
Time interval: 2 hours
T1 min: -12 T1 max: 25
T2 min: -18 T2 max: 28
H min: 30 H max: 60
.....
    
```

- Date and hour of pressing the button **Start**
- An indicator of the event - Start
- Upon setting for a record on every 5 minutes is carried out a record as per time
- An indicator of the event – a record as per time
- A change of the setting for time interval, which is not permitted for recording and printing. The temperature recorder is reset for recording on every 2 hours
- A record on every 2 hours
- A record on every 2 hours
- Date and hour at pressing the button **Stop**
- An indicator of the event - Stop
- A PIR sensor set in motion for access to the refrigerant volume
- The print contains the latest settings
- A set time interval
- Minimum and maximum limits of the two temperatures for humidity

In **Cargo Log Master** temperature recorder is built in memory for 524 287 records. The memory is not overfilled, and it turns (rewinds) endlessly, as it deletes and rewrites the oldest lines.

The data is not lost from the memory upon absence of power supply.