

Manual **wireless M-Bus Read-out Software**



Manual **SENSOSTAR®2+** radio

1 Short description

The Engelmann radio software is used to read out water, heat, cold or heat/cold meters from the house Engelmann Sensor GmbH.

The following sections will provide information for controlling this programme.
The programme discerns between two programme functions:

- The back office mode for creating and managing routes, their properties and meters. In this area you can also create the properties in the scope of a route.
- The operation - mode for gathering meter data of the properties via radio.

The received data of the meter can be exported together with other route, property and meter data as well as the raw data from the radiogram.

Note:

**The factory-setting of the clock in the meter is standard (winter) Central European Time (GMT +1).
There is no automatic changeover to daylight savings (summer) time.**

Installation of radio components between or behind heating pipes, or the presence of other bulky obstacles directly over or in front of the housing must be avoided.

The transmission quality (range, telegram processing) of radio components can be negatively influenced by instruments or equipment with electromagnetic emissions, such as telephones (particularly LTE mobile radio standard), wi-fi routers, baby monitors, remote control units, electric motors, etc.

In addition, the construction of the building has a strong influence on the transmission range and coverage. Furthermore, when using installation boxes (substations) they must be equipped with non-metallic covers or doors.

If using the compact mode, for one hour after activation the meter transmits in installation mode. This means that format telegrams and compact telegrams are sent alternately.

During installation mode at least one meter of the version being installed (forward or return flow, heat or heat/cooling, pulse inputs, display units) must be read out with the Engelmann Read-out Software. The format of the telegram will be stored locally in the PC in an .xml file.

After completion of the installation mode only compact telegrams will be transmitted.

For operation the software `Net-Framework` in version 4.0 must be installed.

The software can be downloaded for free here: <http://www.microsoft.com/en-gb/download/details.aspx?id=17851>

or:

<http://www.microsoft.com/de-de/download/details.aspx?id=17718>

2 Loading the software

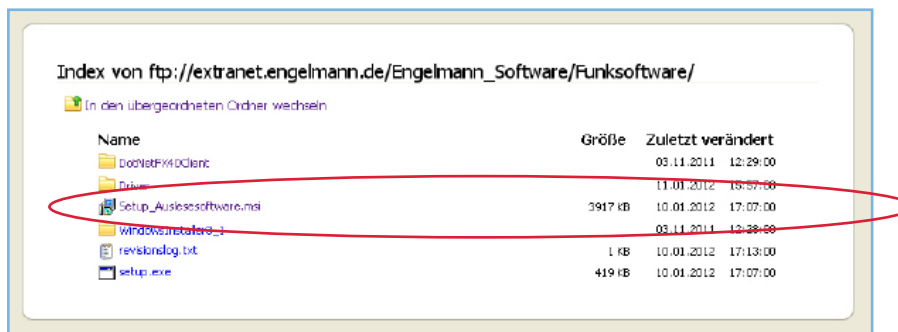
The Engemann radio software can be downloaded via FTP server here: ftp://extranet.engemann.de/Engemann_Software/Funksoftware/

Please note the following approach:

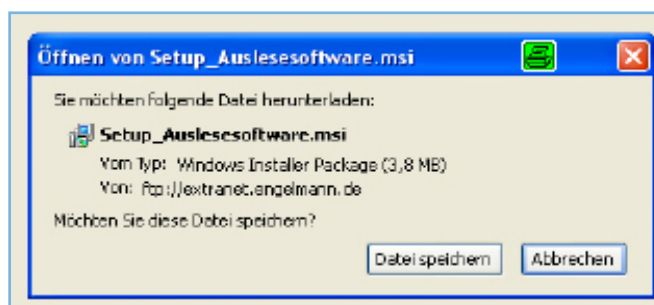
1. First you connect the wireless radio receiver to the computer.
2. Download the USB driver here: ftp://extranet.engemann.de/Engemann_Software/Funksoftware/Driver/ and install this.



3. Install the radio software in the last step using the following link: ftp://extranet.engemann.de/Engemann_Software/Funksoftware/.



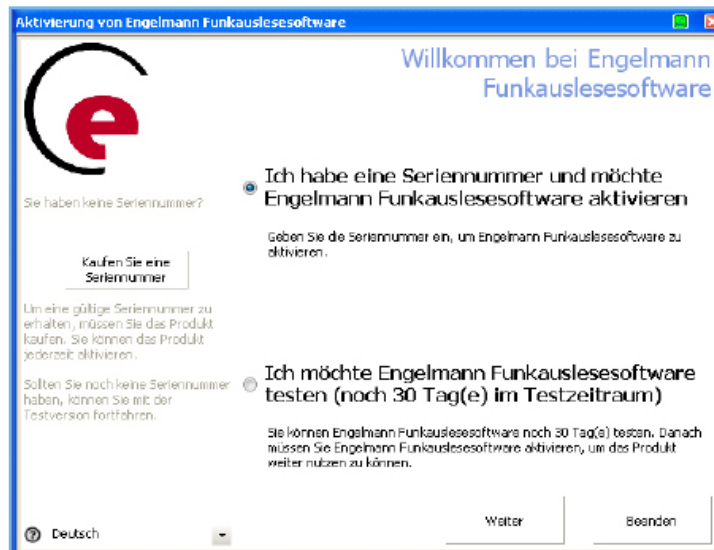
4. Select the file `Setup_Auslesesoftware.msi`.
5. The following window will open. The file or radio software can now be saved on the PC.



Manual **SENSOSTAR®2+** radio

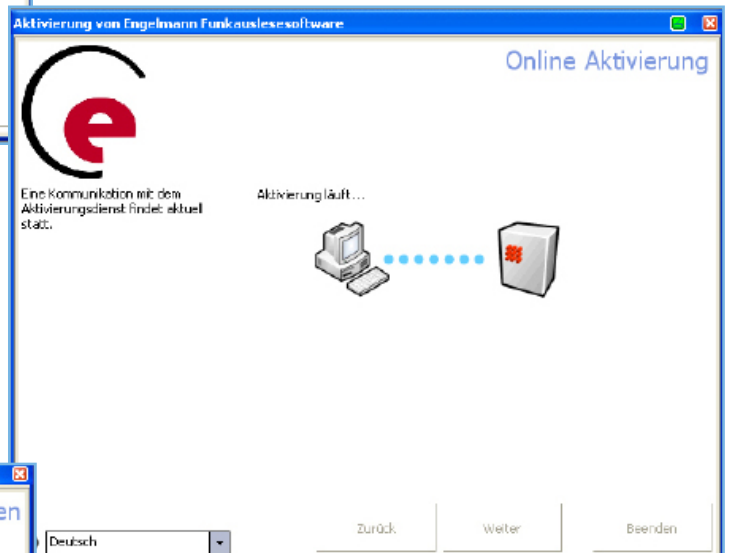
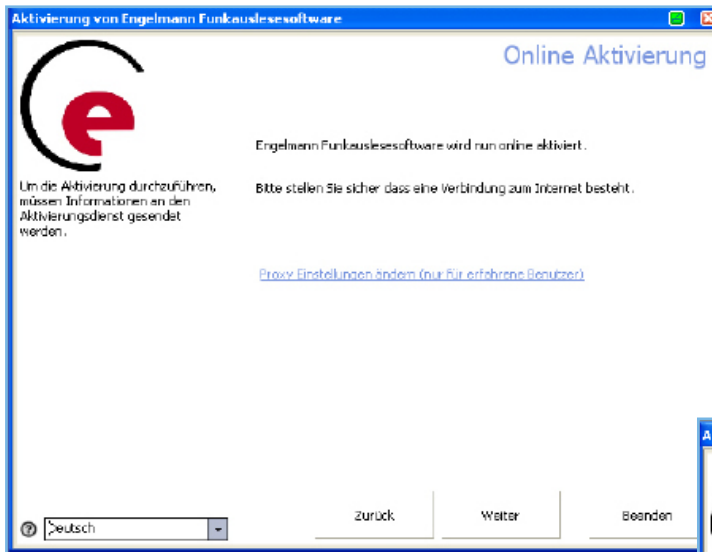
3 Installing the Engelmann radio software

Should you already have received a serial number from us, you can start the software immediately. Should you not have a serial number yet, you are welcome to use this free test version for 30 days.



Please enter the data.

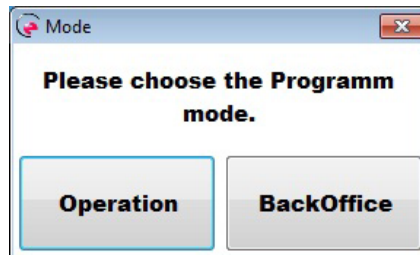
Next steps:



Manual **SENSOSTAR®2+** radio

4. Opening the Engelmann radio software 4.1 User interface `BackOffice`

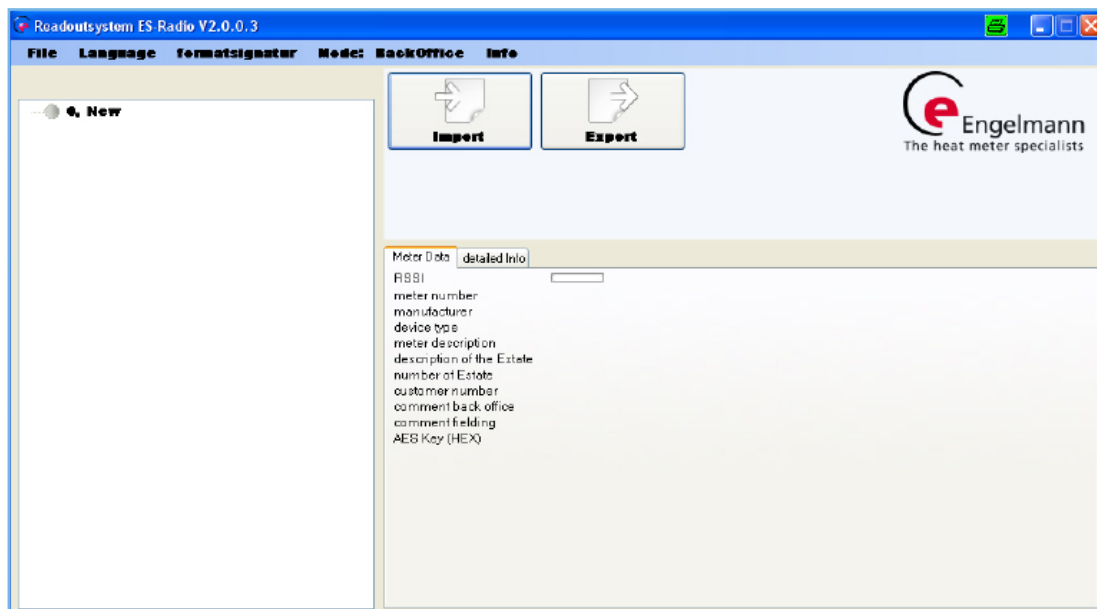
You can choose between `operation` and `back office`!



When you want to create or manage route and their properties and meters, choose the button `back office`. Here you can save all settings or import and export all meter data.

Choose the button `operation` read more from page 10 on.

Upon the selection of the button `back office` the following window will appear
:



Manual **SENSOSTAR® 2+** radio

1. Start the programme in the 'back office' mode.

2. First you create a route.

2.1 You can either read in a csv-file in compatible file format using the button 'import'. The required information and their order are listed in the chapter file formats. The additionally required information timeout and wireless M-Bus mode will be requested for every property to be imported in a new programme window. This window will automatically open upon adding a new property via file import.

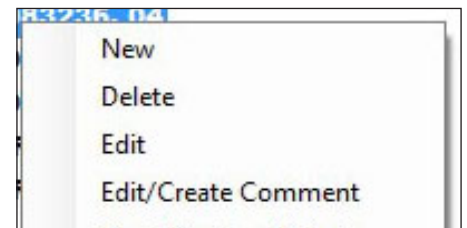
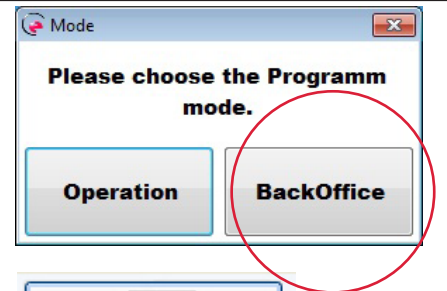
2.2 Or you create routes, properties and meters using the right click menu in the tree view. The right click menu offers, in the back office mode, the following 4 options:
New, delete, edit and edit/create comment.

'new': Here the currently marked element is detected at first and correspondingly a new property (for selected route entry) or a new meter (for selected property entry) is created. Should a meter or no valid element be marked, no action will be implemented

'delete': Here you can delete the currently selected element. Upon this step all sub-elements will be deleted, as well. For safety reasons there is a confirmation for deleting procedures.

'edit attributes': Here a new window will open, in which all current information to the respectively selected element is contained and can be adapted. A change of the wireless M-Bus mode will automatically adopt all meters assigned to this property.

'edit/create comment': Here a new programme window with the previous back office comment will be opened. It can be changed using the programme window.



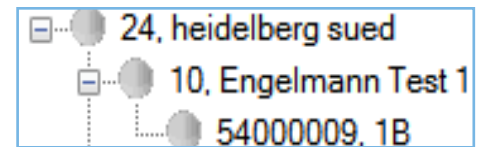
Manual **SENSOSTAR®2+** radio

The listed steps can be repeated any number of times.

This way you create your entire route.

The tree view is described by the following elements (in brackets you will find the respective values of the depicted example):

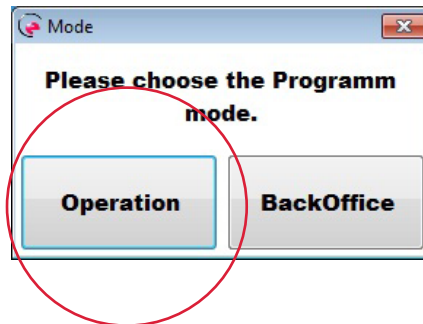
- Level 0: Route consisting of route number (24) and the route designation (heidelberg sued), divided by a comma.
- Level 1: Property number (10) and property designation (Engelmann Test 1), divided by a comma.
- Level 2: Meter consisting of the 8 digit meter ID (54000009) and the device type (1B), in hexadecimal notation, divided by a comma.



3. Add comments to your route using the right click menu `edit/create comment` or change them.
4. A meter can be moved in the tree view in the programme by `drag and drop`, as long as the wireless M-Bus mode (T1, S1), the source and target property are identical.
In case of moving a meter the timeout for the entire property will be set on the larger timeout from the source or target property.
5. Before you export a file, you have to adjust the route name and route number using the option `edit`. A route number of `0` is not allowed.
6. Select the button `export`.
The programme will now check the validity of the elements available and show possible errors. For saving the exported route file a file-saving-dialogue is opened, in which you can select the file name. The file ending `csv` is predetermined by the programme.
7. End the programme now.

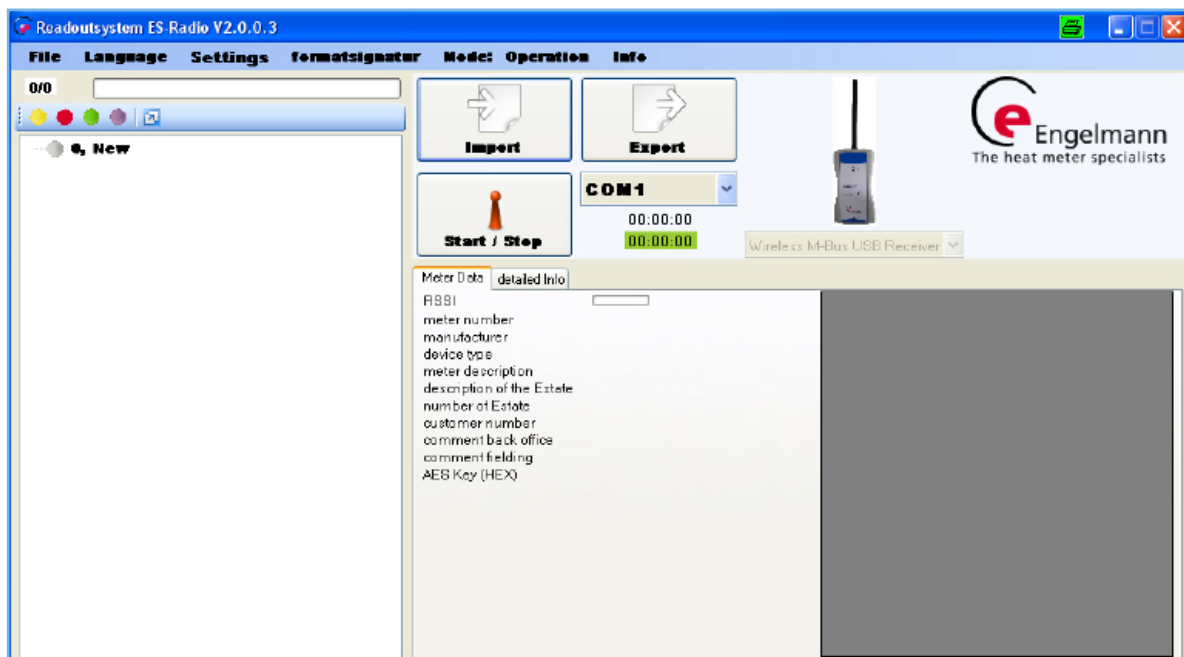


4.2 Opening the Engelmann radio software User interface `operation`.



In the operation mode you can gather meter data of a property by radio.

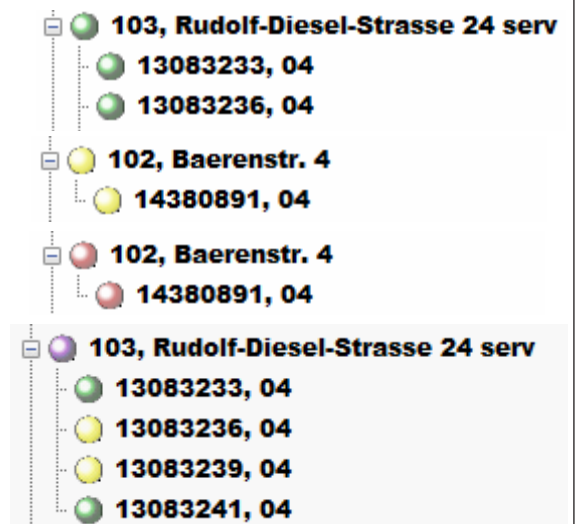
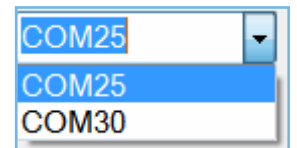
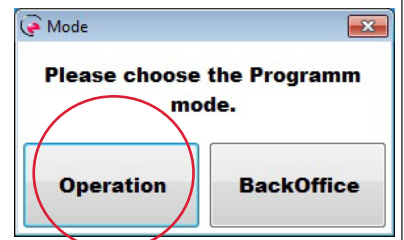
The following window will appear:



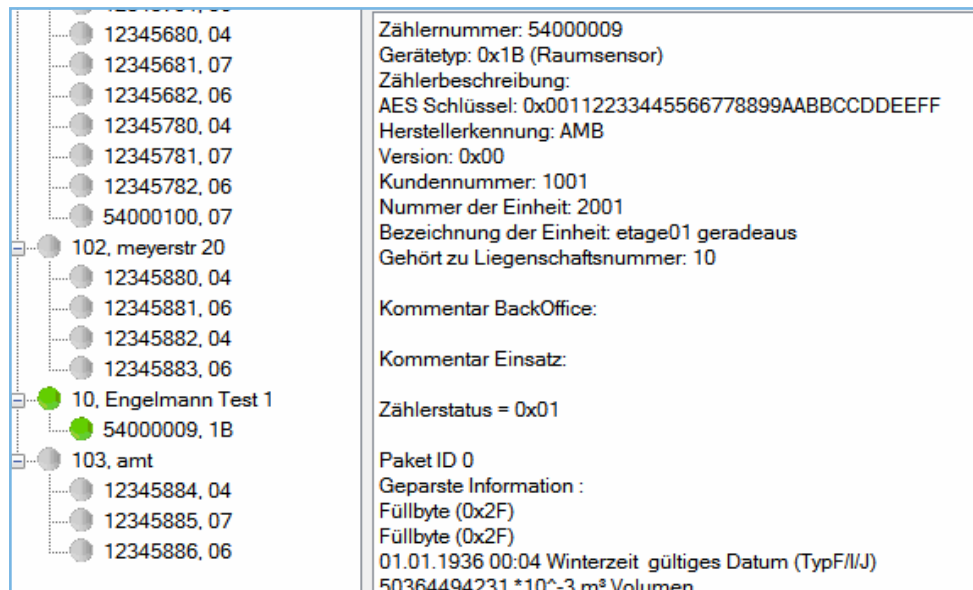
Manual **SENSOSTAR®2+** radio

1. Connect the USB receiver to your readout-device (plug and play) before the programme starts
2. Start the mode `operation` in the programme and import the route file of the back office mode using the button `import`.
3. Select COM-port of the USB receiver in the programme now. This takes place automatically for connected USB receivers.
4. When more than one USB receiver is connected, a possible correction of the COM-connection must take place. A click on the selection box will start a search for valid devices and will give you a selection based on the connection name. Please make sure that the desired COM-connection is not already used by a different programme.
5. Mark the property to be read out in the left half of the programme window by a mouse click. Observe the comments to the selected property (`comment back office`) in the attributes window on the right.
6. Start the read-out by pressing the button `start/stop`. This will display in an animation in the receiving mode that reception is activated. The activation of the receiving mode can take up to 20 seconds in cases of changed configuration in the hardware. In this time the mouse cursor symbol will display the waiting conditions.
7. The meters of the selected property are now received. There are the following variants:
„Green dot“: Successful and complete reception of all corresponding packages.
„Yellow dot“: Error or incomplete reception
„Red dot“: Meters for which no package has been received yet or properties not yet completely received.
„Purple dot“: Incomplete reception

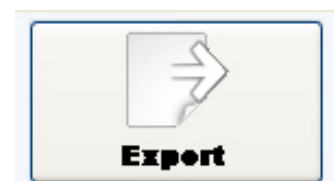
green = ok, yellow = pending;
red = not readable; purple = incomplete.



8. When a package has been received, the content of the package is shown in the attributes window. For that the programme selects the meter that has received last and shows it in the attributes window.



9. The receiving mode will be ended in the following cases:
- Timeout appropriate for the selected time of the property
 - All packages of all meters have been received (all dots of the meters of this property are green, and the property itself is green, as well).
 - Ending of the receiving mode by confirmation of the `start/stop` button
10. You can create the operation `edit/change comment` for the selected element using a right click in the tree view, if needed.
11. Perform the steps 5 and 6 for all available properties of the loaded route to read out the properties of the route.
12. Save the read-out data by pressing the `export` button.
Values not saved will be lost upon ending the programme
13. End the programme or load a new route.



Manual **SENSOSTAR®2+** radio

Technical information for programmes and developers

File formats

The import and export files must be available in the csv file format with a semicolon as separator. Here files with the following file information are supported. Conditioned on the semicolon as separator no such semicolon must be used in any data block that is to be saved.

Header 1:

Number Meter;;Mediumcode;;AESKey;;Number customer;;Number property;;Designation property;;
Number unit;;Designation unit;;

The data in files with header 1 is a pure file import format for back office mode.

Header 2:

Number route;;Designation route;;Comment route BO;;Comment Route E;;Number property;;Designation property;;Timeout property minutes;;mode property;;Comment property BO;;Comment property E;;Number meter;;Number customer;;Number unit;;Designation unit;;Comment meter BO;; Comment meter E;;Medium code;;AESKey;;StatusByte;;Data meter (status 0);;Data meter (status 1);;Data meter (status 2);;Data meter (status 3);; Raw data package 0;;Raw data package 1;; Raw data package 2;; Raw data package 3;;

A file format with header 2 will be used for both import and export. The raw data to the respective packages is gathered by the operation mode and can be integrated into the files only by it. They are used for preservation of already read-out data even after a new edition by the back office mode.

Data meter (status X) is the parsed package data in clear text. Status X means here a part of a special Engelmann status-byte (bits 0 and 1) in the radio package, not to be confused with the previously introduced status-byte of the meter. Raw data package X: This is the raw data of a package with the Engelmann telegram type (status-byte, bits 0 and 1) X. For meters not Engelmann, the status 0 is used always, so only one package per meter is allowed for these meters.

Permitted range of values:

- Number meter: 8- digit meter number (BCD coded)
- Medium code: Device type corresponding to table 3 from EN13757-3.
This information is stated in hexadecimal with 0x as prefix.
- AES key: The key of the meter. As a row with exact 32 hexadecimal characters with `0x` as prefix.

Manual **SENSOSTAR®2+** radio

Short instruction radio configuration

Radio ist always deactivated upon delivery (factory setting) (see Activation of the radio interface).

Parameter	Possible setting	Standard setting
Modus	S1 / T1: unidirectional	T1 (unidirectional)
	S2 / T2: bidirectional	
Transmission period	00:00 - 24:00	7:00 a.m. - 19:00 p.m.
Transmission interval	20 seconds - 240 minutes; special setting: once per month	120 seconds
Weekdays	Monday - Sunday	Monday - Friday
Calendar weeks	1 - 4	1 - 4
Months	1- 12	1 - 12
Switch-on date	01.01. - 31.12.	not set
AES-Encoding	activated / not activated; same key per customer or order / random key per meter	activated; random key per meter
Telegram type	short telegram / long telegram (monthly values)	long telegram (monthly values)

Radio transmission

As a customer option, **SENSOSTAR®2+** meters can be equipped at the factory with a radio interface based on the European standard EN 13757-4 for wireless M-bus.

This option must be stated when ordering.

Operating frequency: 868 MHz

Transmission power: up to 25 mW

Protocol: wireless M-bus based on EN 13757-4, optional mode of operation T1, S1, T2, S2

Short telegram for stationary read-out

Long telegram for walk-by read-out

Activation of the radio interface

When leaving the factory the radio interface is **deactivated**. It can be activated as follows:

- a) Without using additional software the radio function can be activated by pressing the Engelmann pushbutton longer than 3 seconds in the menu item “M-bus address” (see manual heat meter **SENSOSTAR® 2/2+** in level 2 (Technician’s loop).
The standard factory settings will be loaded.



- b) Using separate software Engelmann®Monitor. The software are available as options.

The exact procedure for activating the radio function via the separate software is described in the operating instructions.

Checking whether radio is activated

After the radio function has been successfully activated a triangle will appear permanently in the lower left corner of the display.



Contact

Germany

Engelmann Sensor GmbH
Rudolf-Diesel-Str. 24-28
69168 Wiesloch

Phone: +49 6222 9800-0
Fax: +49 6222 9800-50

E-Mail: info@engelmann.de
www.engelmann.de