» STC-BACnet IP V3

EnOcean to BACnet IP Gateway/transceiver

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to alteration
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» APPLICATION

Bidirectional gateway for EnOcean-based sensors and actuators as well as controllers and control systems with BACnet IP interface inclusive external receiving antenna (2,5 m), prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715. To be configured via EasySens airConfig software tool. Details of the communication protocol are available in the software documentation.

» SECURITY ADVICE – CAUTION

The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

» NOTES ON DISPOSAL

As a component of a large-scale fixed installation, Thermokon products are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location, hence the Waste Electrical and Electronic Act (WEEE) is not applicable. However, most of the products may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

»PRODUCT TESTING AND CERTIFICATION

Declaration of conformity

The declaration of conformity of the products can be found on our website https://www.thermokon.de/.

»INFORMATION ABOUT EASYSENS® (RADIO) / AIRCONFIG GENERAL USAGE

EasySens® - airConfig

Basic information about EasySens® radio and about general usage of our airConfig software, please download from our website.

»OVERVIEW OF THE RADIO TELEGRAMS

EEP

The structure of the data contained in the telegram can be found in the EEP (EnOcean equipment profile) list provided by the EnOcean Alliance.

»INFORMATION ABOUT SMART ACKNOWLEDGE (SMARTACK)

This bi-directional communication mechanism also allows the building system to send back data to a sensor, i.e. to overwrite SR06LCD´s set point. Smart Acknowledge requires that both communication devices do support the Smart Acknowledge mechanism.

Repeaters are not supported, they delay in the telegram transmission. Sensor and gateway must communicate directly with each other.

Additional Information of the used EEP´s with Smart ACK can be found using the following link:

→ **Download PDF**

»TECHNICAL DATA

Network technology	BACnet IP
Radio technology	EnOcean (IEC 14543-3-10), transmission power <10 mW
Frequency	868 MHz, optional: 902 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	bidirectional, airConfig ready
Receive channels	no limit
Transmit channels	128 (Tx)
Power supply	24 V = (±10%) or 24 V ~ (±10%)
Power consumption	typ. 3 W (24 V =) | 5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	terminal block, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Weight	approx. 300 g, (without antenna)
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery content	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	For network connection use a shielded standard Ethernet cable with shielded RJ45 connectors to use the free software airConfig (download) an usb stick, which is able to send and receive EnOcean telegrams, is necessary. We offer such a stick with the package airScan (item No. 566704 for 868 MHz), magnetic antenna plate recommended to improve radio coverage

» MOUNTING

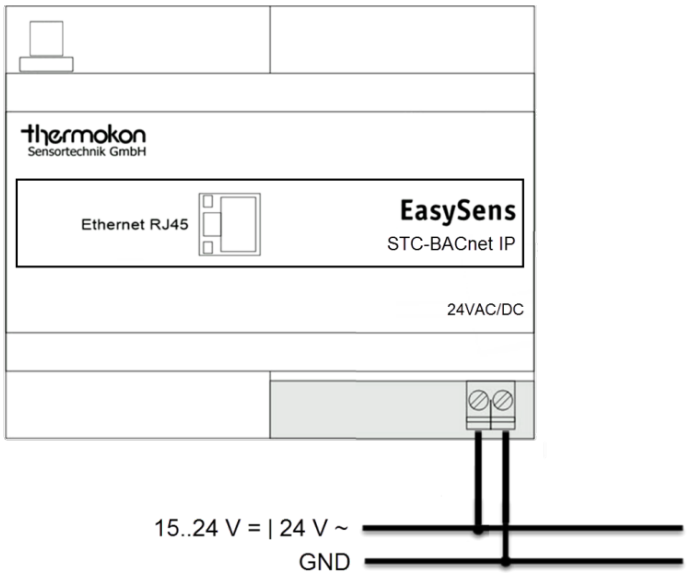
Use standard mounting rails according to DIN EN 60715. The use of the external antenna supplied with the product is necessary for proper operation.

The antenna shall be mounted in the centre of a metal plate (i.e. galvanized sheet metal) exceeding 180mm x 180mm using the advantage of its magnetic base. Best position for the antenna is keeping a distance of >10 cm from ceiling and walls. The distance to other powerful transmitters (e.g. LTE/ GSM / DECT / wireless LAN / EnOcean senders) should be minimum 0,5 m.

The antenna extension should only be used if it is not possible to position the gateway in the respective radio range. Its use additionally attenuates the radio signal and reduces the possible radio range between the participants.

The antenna will be best when mounted vertically, pointing up or downwards. The antenna cable shall be wired in an electric conduit. Pulling with force and bending sharply may cause damages to the sheathing of the antenna cable respectively to the connectors. Minimal radius of the antenna cable is 50 mm.

» CONNECTION PLAN



- Install the IoT Gateway on the DIN rail according to the mounting advices and connect the power supply and ethernet cable.
- Pay attention to the correct polarity of the 24V power supply to the IoT Gateway!
- Connect the STC-IoT to your local network (router).

» BEHAVIOUR OF THE LEDS

With connected power supply the green POWER LED illuminates permanently.

The orange RADIO LED displays the proper operation. While the Gateway is connecting to a network, the orange STATE LED blinks.

If the Gateway has successfully connected to network, the STATE LED lights up permanently.

If a DHCP server is not found the Gateway provides the default IP address: 192.168.100.100. During this process the state LED blinks.

» USAGE OF THE CONFIGURATION SOFTWARE AIRCONFIG

To run AirConfig a Windows operated PC or Apple MAC is required. Java and FlashPlayer have to be installed and for communication an EasySens USB transceiver has to be connected (with driver installed), e.g. same as supplied with Thermokon´s field test tool airScan. Alternatively EnOcean's USB300 may also be used. AirConfig does not require any special license.

» SOFTWARE

EasySens AirConfig commissioning tool is available free of charge for download from the download centre of www.thermokon.de.

» COMMISSIONING AND EEP-VIRTUOSO

In the start screen of airConfig you can choose between commissioning and EEP-Virtuoso. For easy commissioning we recommend the commissioning mode. The EEP-Virtuoso mode is intended for experienced users and offers an extended parameter for the device configuration.

» ACCESS VIA RADIO

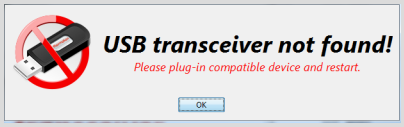
Connect the USB stick to one of your computer's USB ports and start airConfig. The driver should be installed automatically from Windows website. In case the driver of the USB transceiver has not been installed properly, this window will appear:

Access to the gateway via radio is used to configure the IP address. To gain full access to the gateway and to be able to configure the input and output data points, it is necessary to have a network connection from your computer with airConfig to the gateway.

If the STC-BACnet IP gateway and the computer with airConfig are in the same network, a connection is established via BACnet IP (UDP). If the IP address is known, the gateway can be addressed directly via the IP address. In this case, no USB transceiver is required.

Troubleshooting

No USB transceiver has been detected. The Software cannot be started.



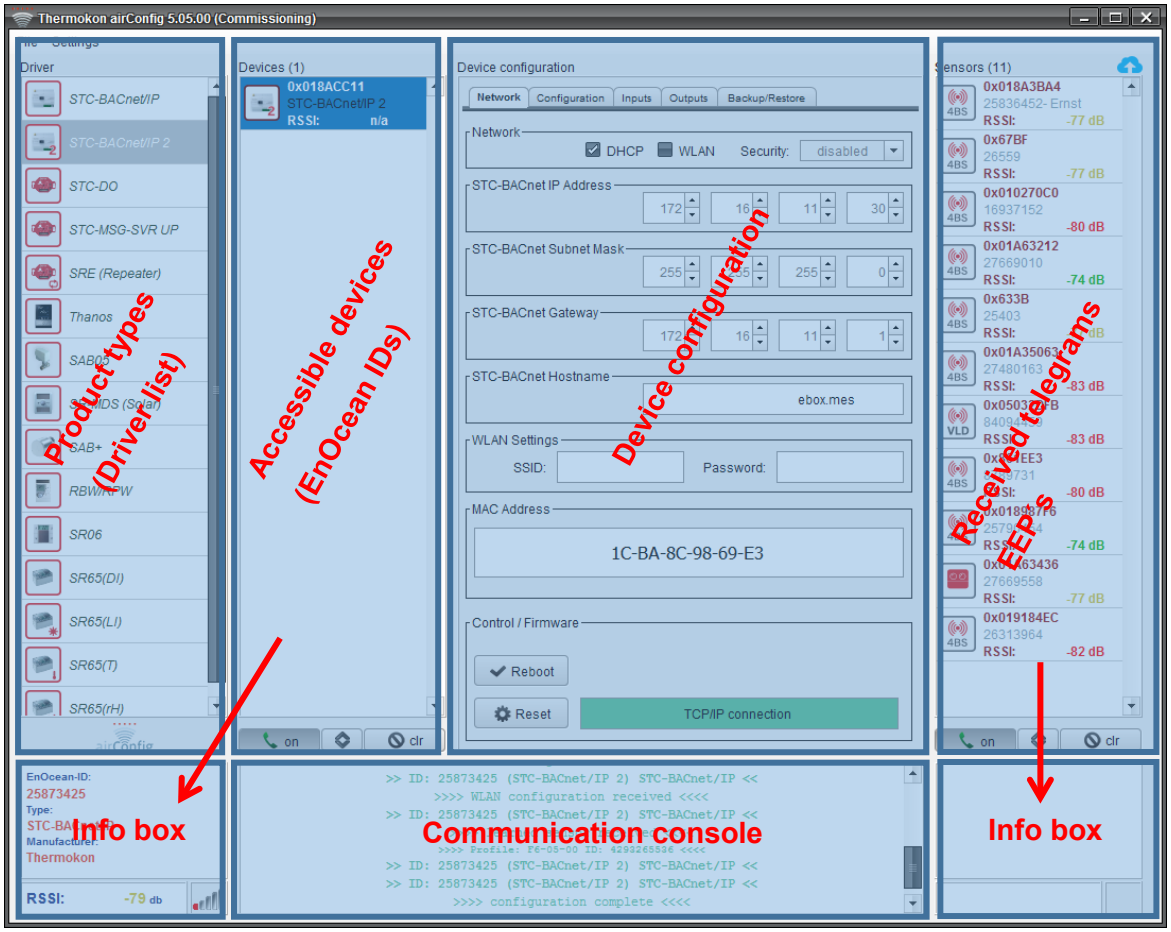
In this case please check in your device manager whether the USB transceiver has been detected properly and the driver is installed. If the driver is missing, you may download the appropriate driver for your system from http://www.ftdichip.com/Drivers/VCP.htm.

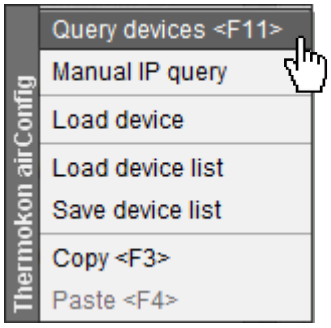
» ACCESS VIA TCP/IP

To integrate the gateway into a local area network (LAN), connect the gateway to a DHCP-enabled router on your network using a standard RJ45 network cable.

If your PC is in the same network, the gateway can be addressed directly with airConfig. To do this, select the BACnet IP network connection in the start window of airConfig (under USB ports) and start airConfig with "Commissioning". To gain access to BACnet Foreign Device Registration, start airConfig in EEP-Virtuoso mode. If the gateway does not find a DHCP server in the network at the beginning, the gateway uses the default IP address 192.168.100.100 and indicates this by a flashing status LED.

» AIRCONFIG HOME SCREEN

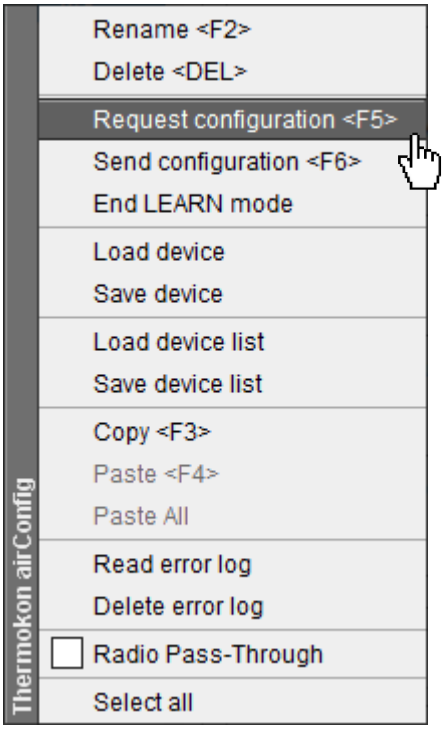




» QUERY DEVICES

Right click on the symbol of the device in the Driver list and Select **<Query devices>** or press **<F11>**. airConfig will send a query to request the IDs of all devices of that kind within transmission range or connected to the same network as the computer.

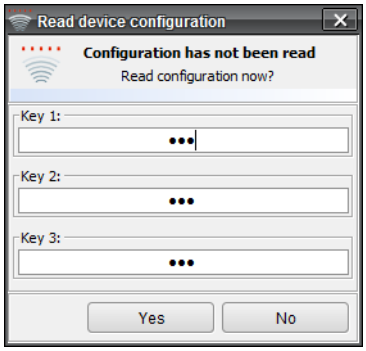
Each device will be listed with its EnOcean ID in the list “Devices” (2nd column). If the IP address is known (static standard IP address, without DHCP 192.168.100.100), the device can also be addressed via the manual input of the IP **<Manual IP query>**.



» REQUEST CONFIGURATION

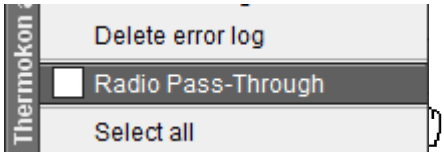
To configure a particular device click right on the Icon of the device and select **<Request configuration**> or press **<F5>**.

airConfig will prompt for the PIN that protects the device’s configuration.



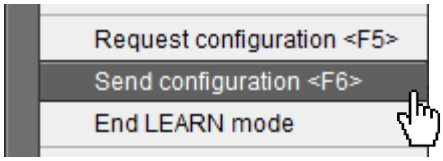
Default PIN key is 000-000-000.

Enter the PIN numbers (000…255) and select “Yes” to read the configuration from the device. To work with the default settings, press “No”. The PIN number can be changed in EEP Virtuoso mode.



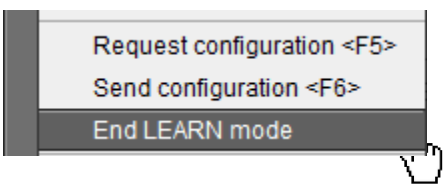
» RADIO PASS-THROUGH

As an alternative to the USB transceiver, the radio receiver of the gateway can also be used to configure airConfig-compatible EasySens sensors. In this case, airConfig displays all received telegrams and RSSI values of the sensors within range of the gateway.



» SEND CONFIGURATION

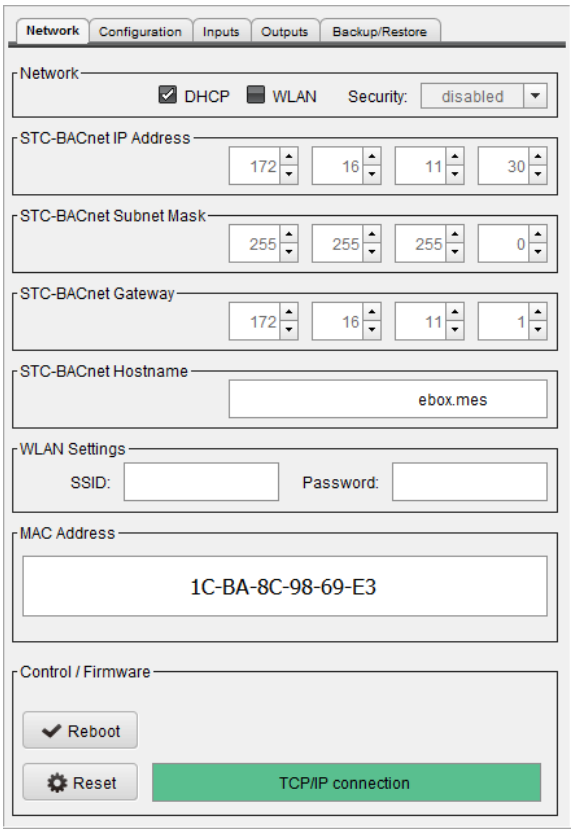
To finalize configuration choose **<Send configuration>** from the context menu **(F6).** For sensors it is necessary to press LEARN button to store the configuration at the device. A restart is only required with changed network settings.



» END LEARN MODE

After finishing the configuration, the LEARN mode must be exited. AirConfig establishes a connection to the gateway protected by a session ID and prevents another device from accessing the configuration for the duration of the connection. If the learning mode is not properly terminated, this connection remains until it is automatically terminated after 30 minutes. Until then, the device cannot be accessed - even from the same computer. The icon of the affected gateway is marked with a padlock.

» NETWORK



» NETWORK

With DHCP, the Gateway requests the IP address configuration from a DHCP server.

In the current Gateway version, wlan is not supported.

» IP ADDRESS • SUBNET MASK • GATEWAY • HOSTNAME

If a DHCP server is not available on the network, TCP / IP addressing must be done manually. If you configure the TCP / IP protocol, you will need an IP address, the subnet mask, and usually a default gateway as well.

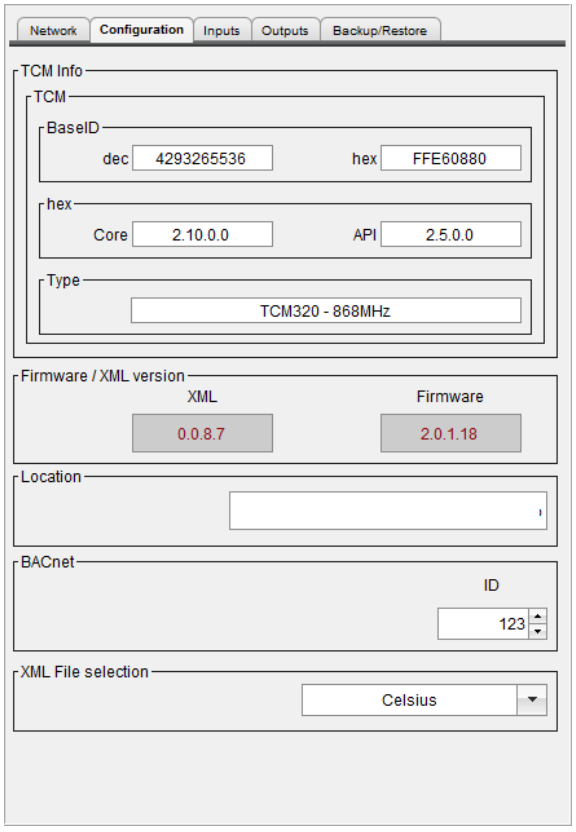
» MAC ADDRESS

The Media Access Control address **(MAC)** is a unique hardware address of each network adapter, allowing each device to be uniquely identified.

» CONTROL / FIRMWARE

Changes of the network settings have to be followed by a restart of the gateway to apply the new network setting. The STC-BACnet IP can receive its IP only during start-up. To allow slower devices to be ready the STC-BACnet IP has implemented a delay in restart of approximately. 90 seconds to allow slow DHCP devices to start their services. As soon as both orange radio and state LEDs will light up, the gateway is online again.

» CONFIGURATION



» TCM (DOLPHIN MODUL) INFORMATION

The programmable transceiver module TCM enables the realization of highly efficient RF repeaters and transceivers for the EnOcean radio systems. The gateway sends a maximum of 128 different IDs (output data points), starting with the base ID.

» FIRMWARE / XML VERSION

Please check the current version of your firmware version. Firmware updates are distributed with airConfig. New firmware versions will be provided with future airConfig versions. Therefore, keep your airConfig version up to date.

» LOCATION

For identification, a location can be entered which is displayed in airConfig.

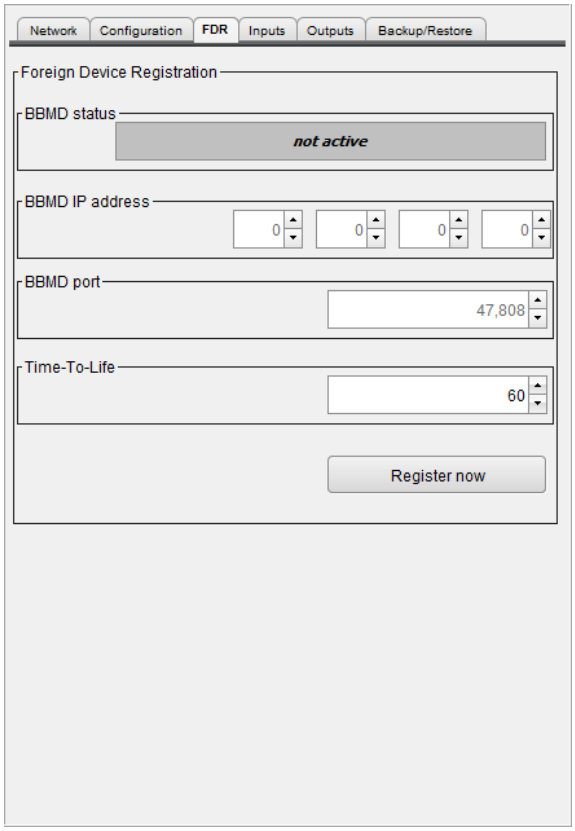
» BACNET ID

A BACnet device is addressed by the "Instance Number", which is also called "device instance". The "device instance" should be unique within the BACnet internetwork, and an integer number in the range 0 to 4,194,302 (factory default 123).

» XML FILE SELECTION

The XML file contains the interpretation of EnOcean device profiles (EEPs) at BACnet level. It defines the object types and properties. It is also possible to choose the data interpretation with imperial units (°F, inchWC, fc ...) which is common in North America.

» FDR – FOREIGN DEVICE REGISTRATION (ONLY EEP-VIRTUOSO MODE)



» BBMD - BACNET/IP BROADCAST MANAGEMENT DEVICE

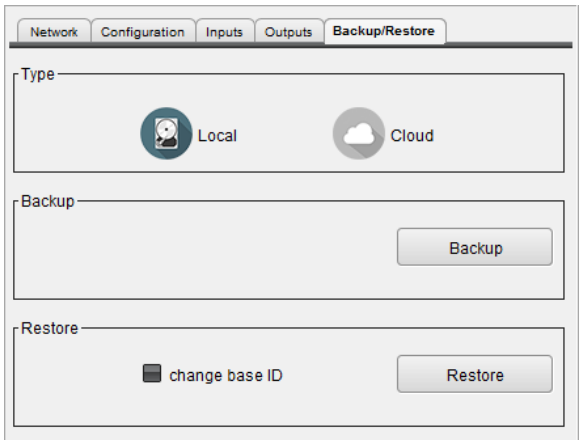
This technology (BACnet service) allows the gateway (as foreign device) to transfer data points to a foreign IP network (other subnet mask). The gateway is (temporarily) logged in to the BBMD service of the foreign network. The connection to a foreign network is limited in time after registration.

Set the properties in this tab if the gateway is to work as a Foreign Device and should log on to an external BBMD. Specify the IP address, the UDP port of the remote BBMD and the duration of the login.

Troubleshooting

How do you install a BBMD?

You install a BBMD (a physical device or a software application on a computer) on each network. You can configure the BBMD by specifying the IP address and mask for each BBMD. This makes both BBMD configurations identical. When one BBM receives a transmission, it forwards the messages to the other BBMD, which in turn broadcasts on the other network.



» BACKUP/RESTORE

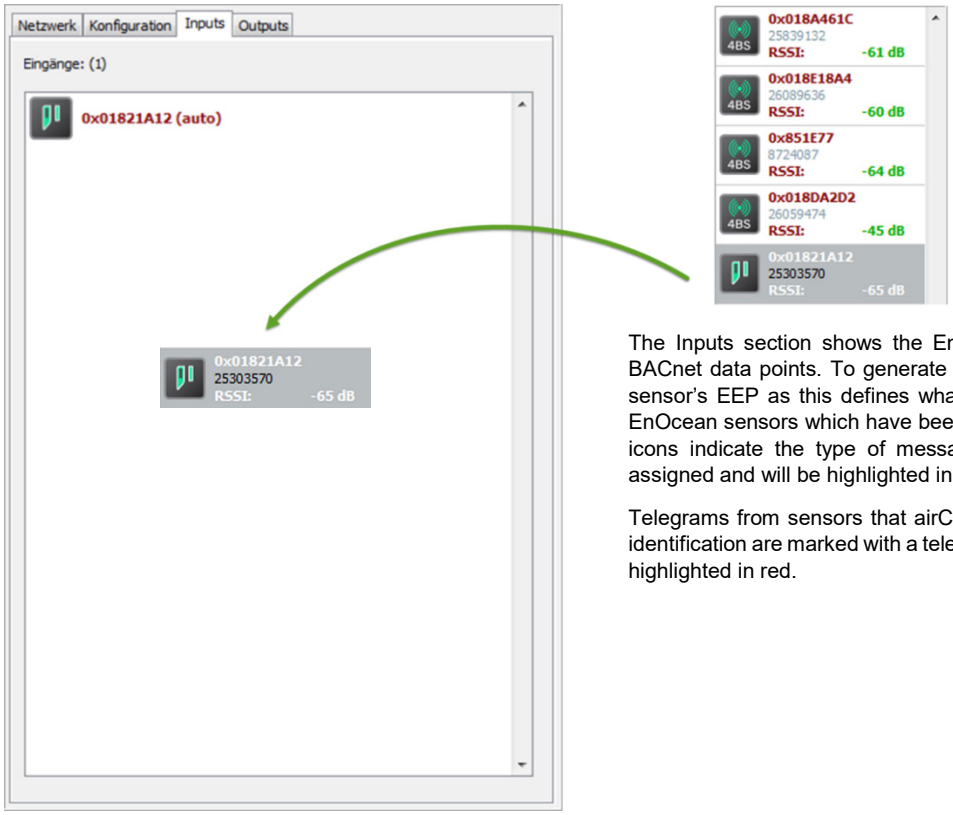
Backup and Restore is a component of airConfig for the Bacnet IP Gateway allowing users to create backups and restores from previously created backups.

Backup and Restore supports two backup options: File Backup Local and File Backup in the Cloud.

With airConfig a complete device backup can be created.

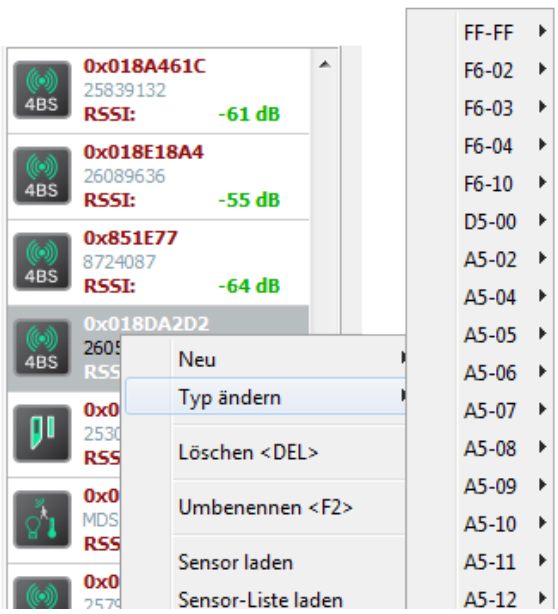
The backup can later be restored to either the same device using either of the backup options or to a new device of the same type with the Local backup option. The latter should be noted that the base ID of the new Dolphin module must be changed for this, so that any saved output data points and the associated send IDs can be correctly restored.

» INPUTS: ENOCEAN -> BACNET



The Inputs section shows the EnOcean devices that will be converted into BACnet data points. To generate data points the gateway needs to know the sensor's EEP as this defines what data point will be created. Therefore only EnOcean sensors which have been recognized can be assigned. Sensors with icons indicate the type of message only (i.e. 4BS, VLD, MSC) cannot be assigned and will be highlighted in red to indicate the problem.

Telegrams from sensors that airConfig cannot assign an EPP due to missing identification are marked with a telegram type symbol (e.g. 4BS, VLD, MSC) and highlighted in red.



If the EEP of a particular sensor is already known, the EEP can be set manually by clicking right on the sensor's icon and selecting the EEP from the "change type" dialogue.

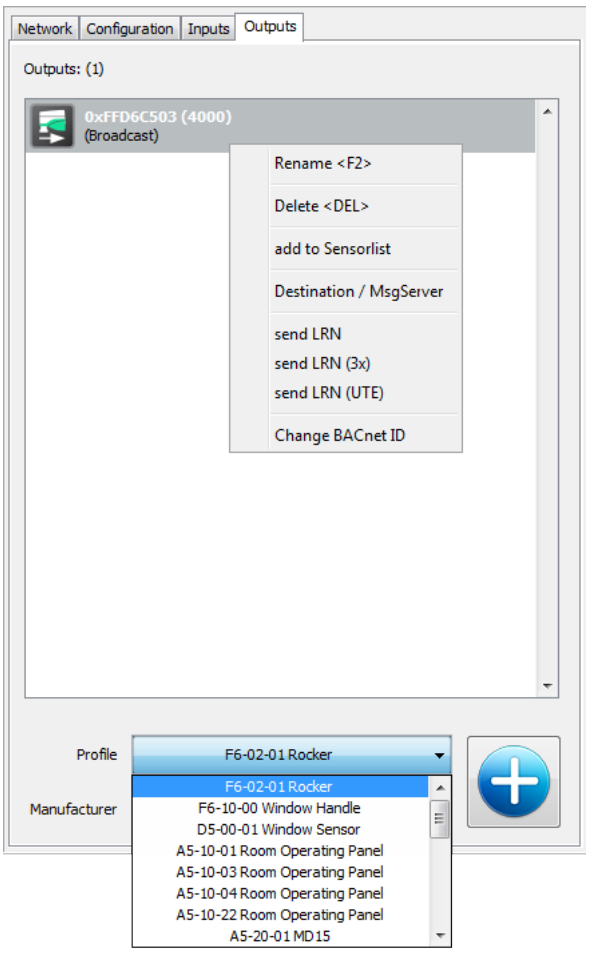
To assign a sensor to the BACnet IP gateway simply drag and drop the sensor's icon from the EnOcean Sensor list on the right into the Inputs window.

The BACnet IP gateway automatically will generate data points for the sensors in the order shown in the inputs window. The BACnet address of the first data point for each sensor is shown in brackets after the configuration has been transferred to the BACnet IP gateway.

A restart of the device is not required, unless the IP settings has been changed. "Auto" indicates a sensor that has been newly assigned but w/o transferring and reading back the configuration from the STC-BACnet IP gateway.

» OUTPUTS BACNET → ENOCEAN

Outputs define EnOcean telegrams that will be generated by the BACnet IP gateway from BACnet data points. Select the EEP from the drop-down list and press the “Add”-button to generate the icon and EnOcean device in the Outputs list. 1000 data points are reserved for each EEP. A maximum of 128 EEPs can be generated. Optionally the manufacturer ID can be specified, which will be included in the Learn-in message. A restart of the device is not required, unless the IP settings has been changed.



Click right on a particular sensor icon to open the context menu and select **<send LRN>** to send a Learn-in message to the device that is to be paired with this message.

<send LRN (3x)> transmits the teach-in telegram 3x with random pauses in between. Do not use this for devices that delete the ID when receiving a LRN telegram the 2nd time.

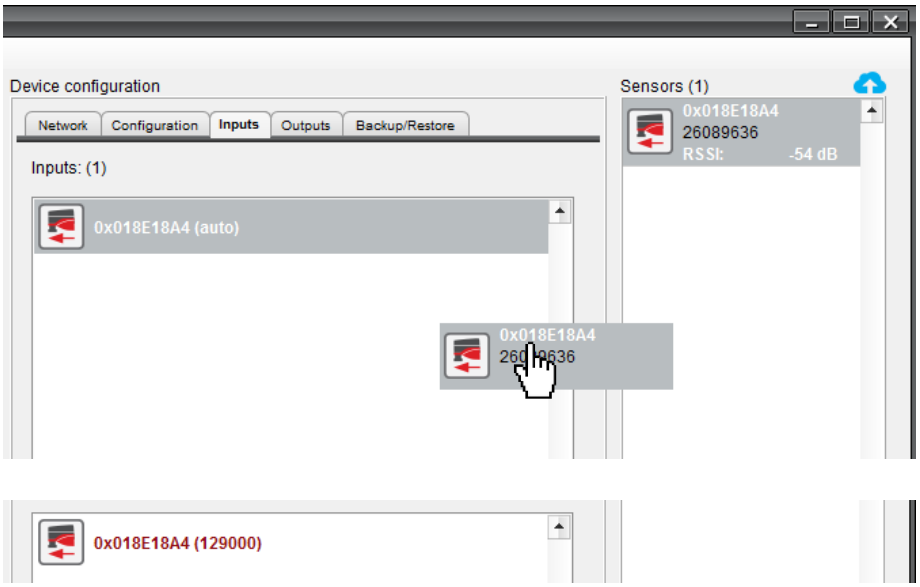
For devices supporting the universal teach-in message (UTE) **<send LRN (UTE)>** should be used.

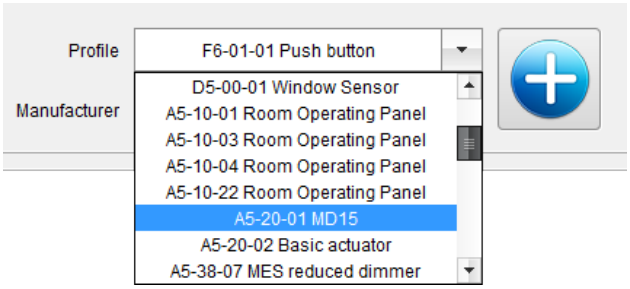
In case the output signal will be assigned to another device supporting airConfig the signal’s ID can be added to the sensor list on the right directly without having to physically send a Learn-in telegram, alternatively by using the “add to sensor list” by dragging the icon into the sensor list.

Each output telegram can be addressed to a certain EnOcean-ID using the destination dialogue.

With the selection of the EEP A5-20-01 SAB05/MD15, the BACnet IP gateway can be configured as a message server for wireless actuators SAB05 or SAB+. With the message server functionality, telegrams are buffered until the next wake-up of the actuator. To activate the message server for a particular output signal simply select the SAB’s EnOcean-ID from the **<Destination / MsgServer>** dialogue.

» MSG-SERVER – BIDIRECTIONAL TEACH IN SAB05





» GENERAL

The teach-in of an valve actuator works in both directions. The SAB does need to learn the ID of the Message Server and the STC-BACnet IP needs to know the SAB'S ID. Therefore the SAB will show up in the inputs section as well as in the outputs. It's status telegram will show up in the inputs, the new position telegram will be sent from the outputs.

» TEACH-IN PROCESS - INPUTS

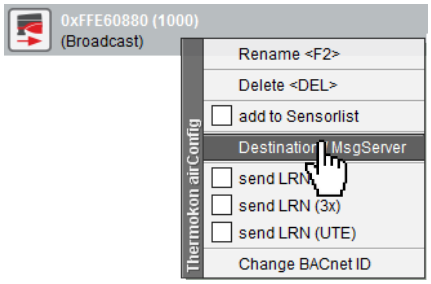
To teach in a SAB valve actuator press the SAB's LEARN-button first. SAB will show up in the sensor list. Drag this icon into the STC-BACnet's input window.

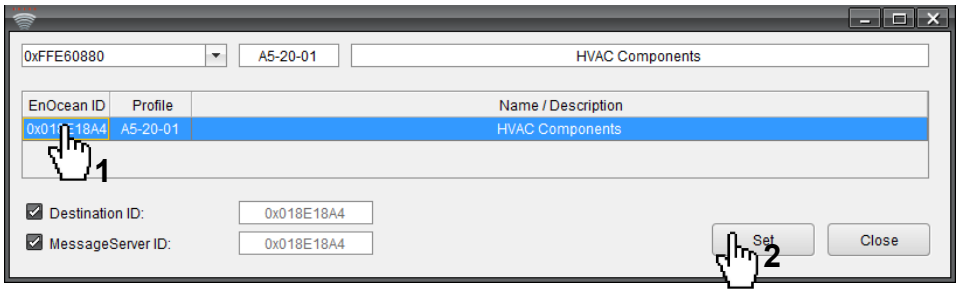
Send the configuration (without rebooting) and request the configuration directly again. In brackets the instance number to the BACnet objects is displayed.

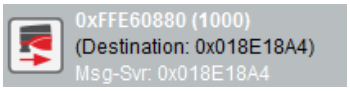
» TEACH-IN PROCESS - OUTPUTS

Select the tab "outputs" and select a SAB type telegram **(A5-20-01 MD15)** from the drop-down list and add it to the output list.

Right click on the SAB-output's icon, select **<Destination / MsgServer>** and choose the ID of the desired SAB, the MSG-Server function shall be activated for. This must be the same ID that has been dragged into the Inputs section in Step 1.







The Message Server does forward data to a particular SAB only, which is done by using addressed telegrams. The address must be set by selecting Destination and the ID of the SAB valve actuator.

Finish the configuration by transferring it to the STC-BACnet. Click right onto the BACnet symbol and choose **<Send configuration>**. If the configuration process is completely finished, end the session with **<End LEARN mode>**.

Finally the STC-BACnet IP and the SAB05 need to exchange their LRN messages. Load the configuration of the STC-BACnet IP (clicking right onto the STC-BACnet IP symbol -> **<Request configuration>**).

Select the SAB05/MSG-Server symbol in the Outputs Tab and select **<send LRN>**. Press the SAB05's LRN button which will confirm the teach-in acoustically with 2 friendly beeps and blinking twice with its green LED. SAB+: The successful teach-in is confirmed by a single flashing of the LED.

BACnet data points follow the sensor definition in the EEPs, which are assumed to be known in detail. Data points will be generated automatically in the order of being dragged into the inputs tab or the order of their generation in the output tab. The numbers in brackets indicate the starting index of each data point. Each sensor or device starts at a multiple of 1000. Outputs will be found from 1.000..128.000, inputs start at 129.000.

Video tutorial
Teach-in process BACnet IP – SAB+

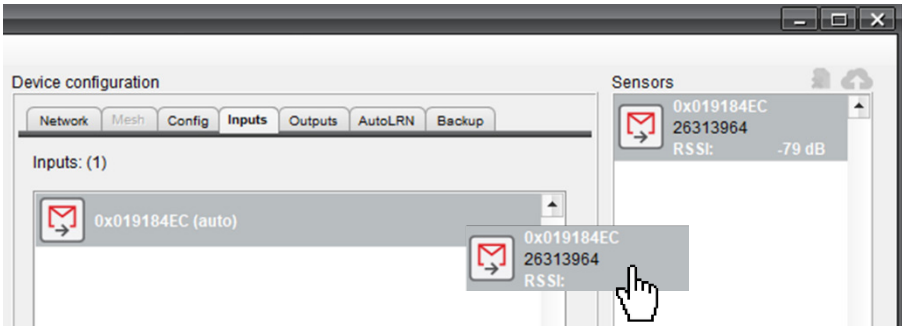
→ Link (Video)

» SUPERIOR TEMPERATURE CONTROLLER - BIDIRECTIONAL TEACH-IN USING THE "JOY SR" EXAMPLE

» GENERAL

The JOY room thermostat must be taught-in bidirectionally in order to receive data on the status of the room thermostat and to be able to overwrite the device with the higher-level control via the gateway.

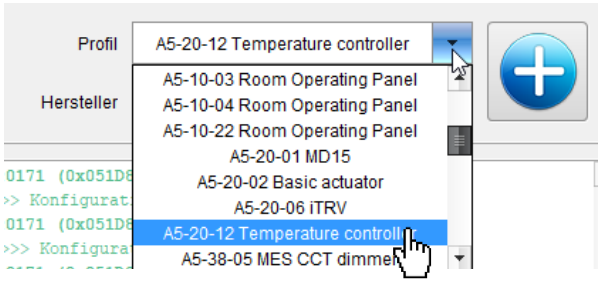
For this purpose, the status telegram of the JOY is taught-in as a BACnet input and a BACnet output defined as a "higher-level controller" is taught-in from the STC-BACnet into the JOY SR.



» TEACH-IN PROCESS - INPUTS

In the EnOcean configuration menu of the JOY SR, select the last menu item Actuator Teach-in - OUT A5-11-02 and confirm the selection with the Enter button. The LRN telegram is sent and appears in the sensor list (right) of airConfig. From there you can drag and drop it into the inputs.

Send the configuration (without rebooting) and request the configuration directly again. In brackets the instance number to the BACnet objects is displayed.



» TEACH-IN PROCESS OUTPUTS

Now select the telegram **(A5-20-12, Temperature controller)** from the list in the "Outputs" tab and add it to the output list with the blue PLUS symbol.

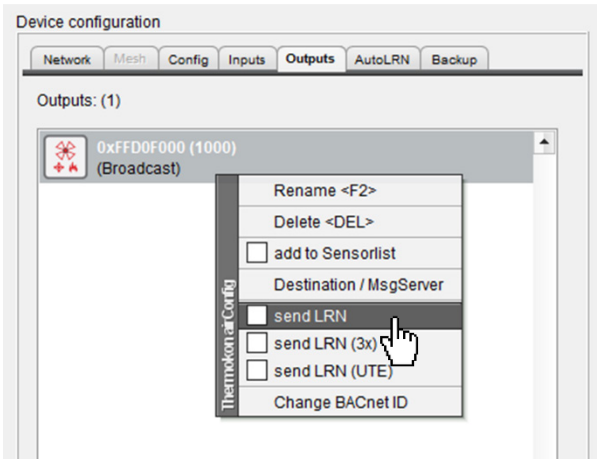
Send the configuration (without rebooting) and request the configuration directly again. In brackets the instance number to the BACnet objects is displayed.

The numbers shown in brackets behind the symbols indicate the start value of the data points. Outputs can be found in steps of 1000 from 1.000..128.000. Inputs are also found in steps of 1000 from 129,000.

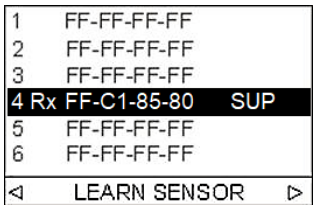
Abschliessend muss nun das „Superior Temperature Controller“ Profil in das JOY eingelernt werden.

Finally, the "Superior Temperature Controller" profile must now be teached to the JOY.

In the Outputs tab, right-click on the "Temperature controller" icon and select **<Send LRN>**.



Zur Kontrolle muss im JOY SR Display jetzt die EnOcean ID des Telegramms gefolgt von der Kennung „SUP“ für Superior Temperature Controller erscheinen.

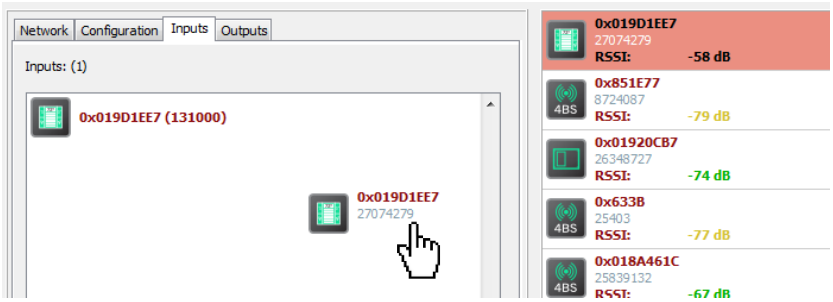


» SMARTACK – BIDIRECTIONAL TEACH IN SR06LCD

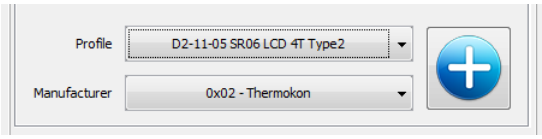
The learn-in process is carried out in both directions.

Activate SmartACK of the SR06 LCD via airConfig:

or with the configuration software.

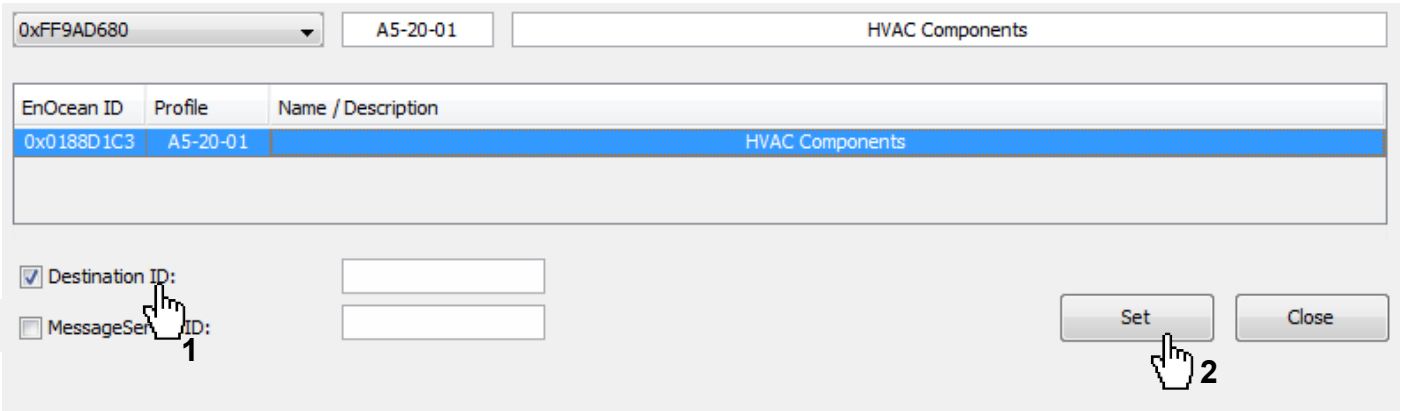


For the learn-in process press shortly the LRN-button. The EasySens room operating panel will be displayed in the sensorlist. Drag this symbol in the inputs.



Select the appropriate profile on the „Outputs“ tab. Add the profile to the “outputs” using the blue plus symbol.

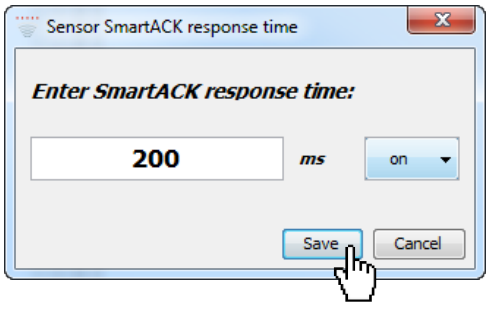
The output channel only sends data to specific participants, using addressed telegramms. A click with the right mouse button on the output datapoint opens the context menu. Select the **<Destination / MsgServer>** entry from the menu and activate the desired destination address. This should be the same address, which has been drawn in the input channel.



Send the new configuration to the BACnet IP Gateway. A click with the right mouse button on the device symbol opens the context menu. Select the **<Send configuration>** entry. A restart of the device is not required. When the configuration process is completed, the configuration session has to be closed with the **<End LEARN mode>** entry.

A click with the right mouse button on the output datapoint opens the context menu. Select the **<SmartACK Response Time>** entry from the menu and activate the desired destination address.

The waiting period between data and reclaim telegram is defined with the response time. SR06 LCD has a fixed response time of 200 ms.



SmartACK

For more information about the function, please download from the following link.

→ Link (PDF)

» EXEMPLARY OVERVIEW OF THE BACNET DATA POINTS

Any Bacnet Explorer allows access to the created objects and their properties.
Thermokon offers a free version of BACeye (V1) for Thermokon units in the download area. Third-party devices cannot be accessed in this version.

Obj. Type	Inst.-No.	Object Name	Description
AI	1	CPU load	With this object you can display the current curve of the processor load. This provides a simple overview of the performance.
AI	2	EnOcean error count	Network and communication error EnOcean.
AI	3	BACnet error count	Network and communication error BACnet.
BO	4	Purge MessageServer	Purge MessageServer deletes telegrams for actuators stored in the MessageServer that have not yet been sent.
DEV	123	STC-BACnet/IP 3.0	The device object provides all basic properties and information and contains, among other things, the time of the last start, which can be used, for example, to detect the restart after a power failure.

Example: Data points created from EEP A5-08-01

0x123456789 = Example EnOcean ID

Obj. Type	Inst.-No.	Object Name	Description
AI	129000	0x123456789 [0] (5) Supply voltage (linear)	The data points of the sensors and actuators are named according to the EEP definition of the EnOcean Alliance. Each sensor generates several data points according to the EEP as well as the gateway-specific standard data points: Heartbeat, Signal, Manufacturer and RSSI.
AI	129001	0x123456789 [0] (4) Illumination (linear)	
AI	129002	0x123456789 [0] (3) Temperature (linear)	
BI	129003	0x123456789 [0] (2) PIR Status	
BI	129004	0x123456789 [0] (1) Occupancy button	
AO	129995	{HeartBeat}	Using the {HeartBeat} object, the gateway can signal to each sensor data point block that a data point represents an "old" value. The PresentValue of each data point always contains the last valid value received, regardless of when it was received. In order to signal to the application programme that the value is not up-to-date, a period of time in seconds can be defined in the PresentValue, after the expiry of which the gateway first declares all associated data points as "unreliable" and, in the absence of a telegram for even longer, as faulty ("no sensor"). EnOcean sensors send a heatbeat signal every 1000s (±30%) in the default setting, a value of approx. 2400s has proven itself.
BI	129997	{Signal}	The PresentValue of the data point Signal shows whether a telegram of this sensor has been received since the gateway start. Directly after the start of the gateway, this value is "Invalid". After the first received valid telegram, the PresentValue changes to "valid".
MI	129998	{Manufacturer}	contains manufaturer ID.
AI	129999	{RSSI}	RSSI shows the field strength of the last telegram received. The value range is from approx. -50 to typ. -93 dBm, whereby larger numerical values indicate a lower reception level. If both the original telegram of a sensor and the repetition by a repeater reach the gateway, the RSSI value of the first received (= sensor telegram) is displayed, even if the level of the repeater signal was received much stronger.

» BACNET INTEROPERABILITY BUILDING BLOCKS SUPPORTED (BIBBS)

Data Sharing BIBBs

BIBB Type	BACnet Service
DS-RP-B	ReadProperty
DS-RPM-B	ReadPropertyMultiple
DS-RPC-B	ReadPropertyConditional
DS-WP-B	WriteProperty
DS-WPM-B	WritePropertyMultiple
DS-COV-B	SubscribeCOV ConfirmedCOVNotification UnconfirmedCOVNotification
DS-COVP-B	SubscribeCOV
DS-COVU-A	UnconfirmedCOVNotification
DS-COVU-B	UnconfirmedCOVNotification

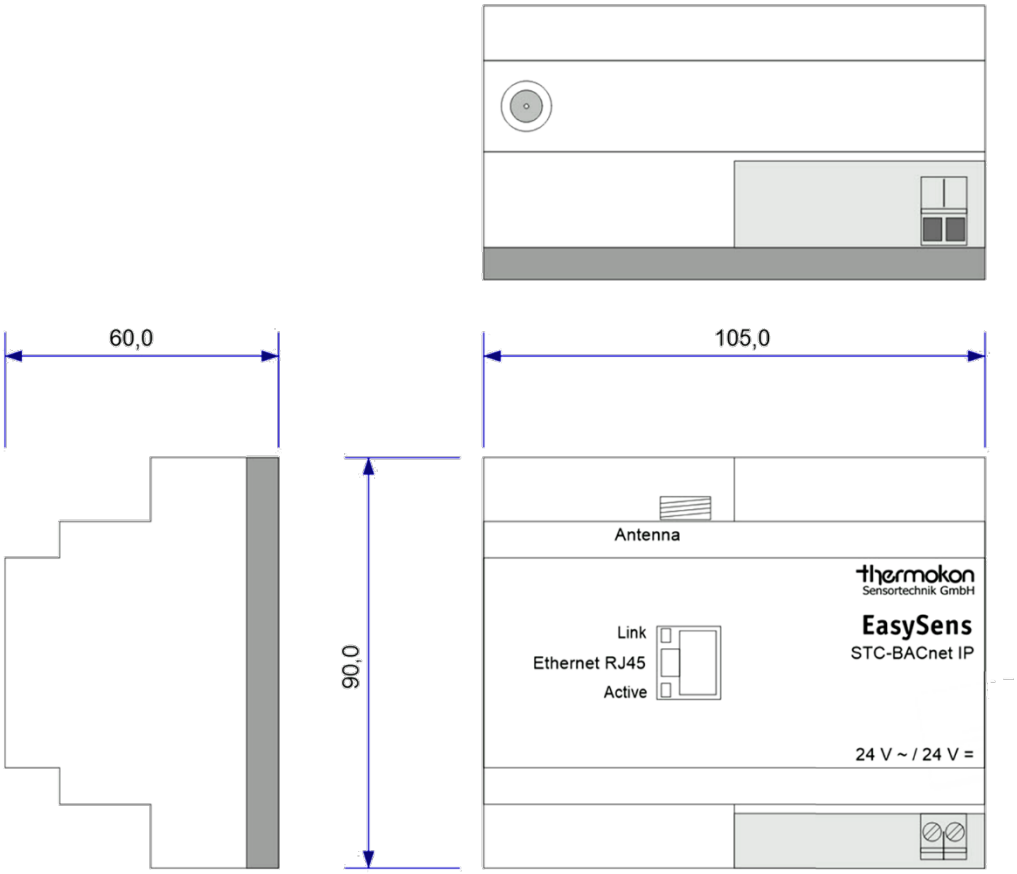
Network Management BIBBs

BIBB Type	BACnet Service
NM-CE-B	Establish-Connection-To-Network Disconnect-Connection-To-Network

Device Management BIBBs

BIBB Type	BACnet Service
DM-DDB-B	Who-Is I-Am
DM-DOB-B	Who-Has I-Have
DM-TS-A	TimeSynchronization
DM-UTC-B	UTCTimeSynchronization
DM-RD-B	ReinitializeDevice

» DIMENSIONS (MM)



» ACCESSORIES (OPTIONAL)

Antenna extension 10 m	Item No. 257206
Antenna extension 20 m	Item No. 257213
Magnetic antenna holder form L, 180x180 mm	Item No. 255097
EnOcean USB transceiver 868 MHz for airConfig/airScan (incl. license)	Item No. 566704