STC-IoT

EnOcean to IoT gateway/transceiver

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Bidirectional radio gateway for the networking of EnOcean sensors and actuators with common cloud applications (e.g. IBM Watson). The new EnOcean Over-IP standard enables the seamless integration of EnOcean devices into the Internet of Things (IoT) via JSON stream- or line-oriented (Command-Line) interface. Browser interface for simple commissioning and administration of the devices. Graphical, data-flow-oriented processing via integrated Node-RED editor (https://nodered.org/) enables simple, rule-based evaluations such as SMS/e-mail alerting when thresholds are exceeded. Easy integration of EasySens devices into online applications. Ideally suited for connection to IP based controller and display systems.

- Translates EnOcean radio into different IP worlds (protocols)
- Easy integration into existing system landscapes
- Web interface for easy commissioning and administration
- Standardized file format
- Multiple parallel client connections possible
- No limitation of the number of sensors and actuators
- Simple API (String, TCP) and REST API (JSON, HTTP)
- Secure TLS encryption
- Node-Red on board
- Documentation installed locally on gateway

» TYPES AVAILABLE

Gateway – EnOcean <-> IP IoT
- STC-IoT

NOTE: The gateway is marked as STC-IoT, but will be delivered as unidirectional gateway for the time being. A send function for actuators is planned and can be added later via the update function.

» PRODUCT TESTING AND CERTIFICATION

Declaration of conformity
The declaration of conformity of the products are available on our website
https://www.thermokon.de/direct/en-gb/categories/stc-iot

»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

The crossed-out wheelie bin symbol indicates that the product or removable batteries must not be disposed of with household or commercial waste. Within the EU, you are legally obliged to dispose of the product separately and appropriately in accordance with the national laws of your country. Alternatively, please contact your supplier or Thermokon Sensortechnik GmbH. Further information can be found at: www.thermokon.com

»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. http://www.enocean-alliance.org/eep/

»USER MANUAL

Application and configuration
More detailed information about the configuration and the supported telegrams of the gateway can be found in the corresponding software description. https://www.thermokon.de/direct/files/use-rs485-bacnet-manual.zip
EEP Overview: Functions and Profiles, Chapter 2.5

»TECHNICAL DATA

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Network technology	TCP/IP
Radio technology	EnOcean (IEC 14543-3-10)
Frequency	868 MHz, optional:, 902 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Data transmission	unidirectional (receive)
Receive channels	no limit
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	typ. 3 W (24 V =)	5 VA (24 V ~)
Enclosure	ABS, light grey
Protection	IP20 according to EN 60529
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Mounting	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
Delivery contents	incl. external transmitting/receiving antenna 2,5 m with magnetic holding, software for configuration (freeware via download)
Notes	magnetic antenna plate recommended to improve radio coverage

» MOUNTING ADVICES

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

The antenna shall be mounted in the centre of a metal steel 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 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 in accordance with the mounting advices and connect the electrical connections.
- Pay attention to the correct polarity of the 24V power supply to the IoT Gateway!
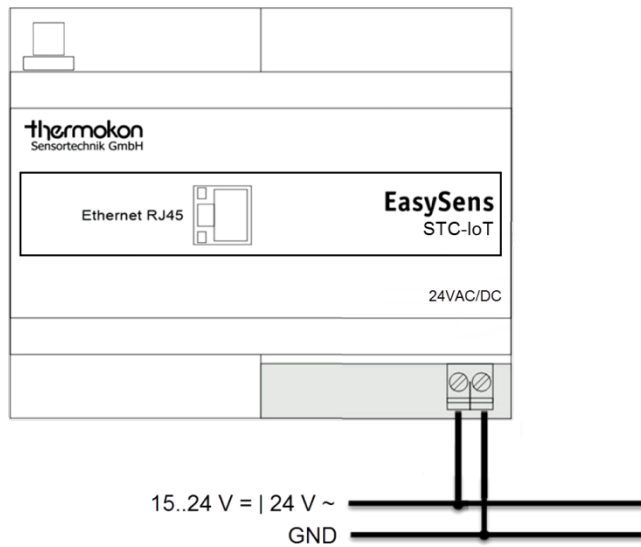
- Connect the STC-IoT to your local network (router). The IoT Gateway supports the Universal Plug and Play Standard (UPnP).
- Open the Windows Explorer.
- Click on "Network" in the left navigation area.
- The "DC-GW / EO-IP STC-Iot" icon appears in the right navigation area under "Other devices".

To integrate the STC-IoT on a local area network (LAN), connect the gateway to a DHCP-enabled router using a standard RJ45 network cable. The PC / Laptop should be able to access the same network. In order to locate the gateway, open the Windows Explorer and click on "Network" in the left navigation area. The gateway should now appear under "other devices". By double-clicking on the icon, your browser opens and you get to the web interface.

The gateway has an integrated web browser interface for uncomplicated commissioning and administration. In order to be able to log on to the IoT Gateway, the admin password must be entered in the login dialog. The password in the factory setting is "admin". The administrator password should be changed later via the web interface.

The manual and documentation are installed locally on the gateway. At the upper right edge of the browser interface a link is stored (Gateway Online Manual).

» APPLICATION

Connection / integration to a building management system

Sensor data is communicated over an IP network to a building management system using a standardized Internet protocol. The data is provided either in the form of a JSON stream (remainder API) or as a row-oriented, comma-separated data (Simple API) from the gateway. Both formats are completely transparent and legible to the user.

GENERAL - What is JSON?

JSON (JavaScript Object Notation) is a formatted text format that is completely independent of programming languages but follows many conventions that include programming from the family of C-based languages (including C, C ++, C #, Java, JavaScript, Perl, Python and many others) are known. JSON is a streamlined data exchange format that is easy to read and write for people and easy to parse (analyze data structures) and generate for machines. It is based on a subset of the common JavaScript programming language.

These features make JSON the ideal format for data exchange.

The structure of the telegrams is standardized for all devices and easy to interpret. The telegrams contain information such as gateway ID, EnOcean ID, friendly ID (freely selectable name / matchcode), time stamp, direction, measured variable, measured value and unit.

Example SR06LCD data as JSON Stream:

```json
"deviceId" : "018FF884",
"friendlyId" : "SR06-LCD-2T",
"functions" : [ {
  "key" : "temperature",
  "value" : 24.80,
  "unit" : "°C",
  "timestamp" : "2017-10-25T16:40:59.479+0100",
  "age" : 707942
```

Alternative: Simple API

Another way to submit the information is in the form of the Simple API. This is a shortened and simplified form of the Rest API, in which all keys and values similar to the CSV format appear separated by a semicolon in a line:

```
telegram;deviceId=0180ADC2;friendlyId=Z12aTempOutsideEast;

timestamp=2017-10-25T17:17:38.185+0100;

direction=from;temperature=20.55[°C]
```

NODE-RED

Node-RED is a visual tool that can be used to quickly implement data flow-oriented processing. Through a simple modular principle, individual function blocks, such as beads, are linked together in a chain. Data flows from one function block to the next, is processed and the result flows to the next one. This results in a variety of possibilities to perform even complex processing.

Node-Red was originally developed by IBM is now open source and is evolving from a thriving community. Additional functions can either be programmed by the user or loaded from a catalog of ready-made functions to the IoT Gateway. Among other things, Node-Red offers ready-made templates for displaying measured values in a variety of formats.Node-Red is installed as an add-on on the gateway.

Node-Red can be extended by the user through additional nodes in the functionality, for example by nodes for cloud connection to MS-Azure, IBM Watson or Amazon Web Services.

> **Attention:**
>
> Node-RED is an open-source application pre-installed on the gateway and is constantly being developed by a community. The user can independently extend the functionality and implement new functions.
>
> For this reason, Thermokon cannot provide support for Node-RED and Node-RED applications developed by the user.

» DIMENSIONS (MM)

60,0

105,0

90,0

thermokon
Sensortechnik GmbH

EasySens
STC-IoT

Ethernet RJ45

24VAC/DC
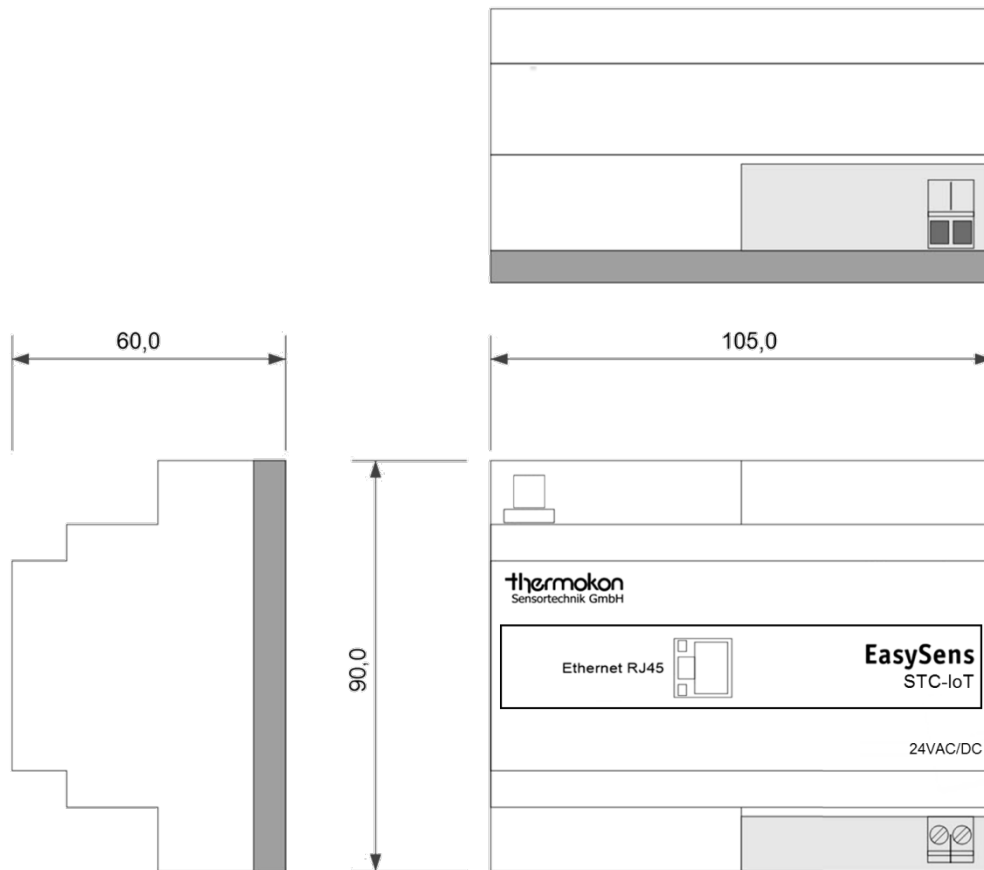
» ACCESSORIES (OPTIONAL)

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 for airConfig/airScan (incl. license)	Item No. 566704