» STC-dS

EnOcean to digitalSTROM gateway/transceiver

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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dS READY

»APPLICATION

The STC-dS gateway extends a digitalSTROM system by components with EnOcean radio technology, in particular sensors, heating valves and rocker switches. The STC-dS is connected to the digitalSTROM server via an Ethernet network link.

»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/.

» TECHNICAL DATA

Network technology	digitalSTROM (dS)
Radio technology	EnOcean (IEC 14543-3-10), transmission power <10 mW
Frequency	868 MHz
Antenna	external transmitting/receiving antenna with magnetic holding
Power supply	external power supply via USB micro, 5 V =/1 A
Power consumption	typ. 3.2 W (5 V =)
Enclosure	PC, ABS, white
Protection	IP20 according to EN 60529
Connection electrical	USB micro, RJ45 (8P8C) 10/100 MBit/s Ethernet
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Weight	ca. 86 g
Delivery content	external power supply, incl. external transmitting/receiving antenna 2,5 m with magnetic holding, network cable 1,5 m
Notes	magnetic antenna plate recommended to improve radio coverage

» 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.

» COMPATIBILITY LIST (OVERVIEW OF THE SUPPORTED RADIO TELEGRAMS)

EEP	Description	Devices
D5-00-01	single input contact / window contact	SRW01, thanos SR, SR65 DI
F6-02-01 (F6-02-xx/F6-03-xx)	rocker switch	SR-MDS Solar, SR65-DI, Handsender
F6-04-01	key card switch	SR-KCS, SR65-DI
F6-10-00	window contact / handle	SRG01
A5-02-xx	temperature	SR04, SR07, SR65 T
A5-04-xx	temperature and humidity	SR04 rH, SR07 rH, SR65 rH
A5-06-xx	illumination intensity	SR65 Li, SR-MDS Solar
A5-07-01	occupancy control, supply voltage monitor	SR-MOC, SR-MOW, SR-MDS Solar, SR65-DI
A5-07-03	occupancy control, supply voltage monitor, 10-bit illumination intensity	SR-MDS Solar
A5-10-01..0D,10..17,22,23	temperature, humidity, set point, fan speed control, occupancy control, day/night control (depending on the type of the device)	SR04, SR06 (LCD), SR07, thanos SR
A5-08-01	illumination intensity 0..510lx, temperature 0..+51°C, occupancy	SR-MDS, SR-MDS Solar
A5-20-01	Autonomous / battery powered actuator	SAB05 / SAB+

» MOUNTING ADVICE

1. Mount the device at a suitable location. The device contains an Enocean radio interface which does not work at all or does not work properly when the device is mounted within metallic enclosures (such as fuse box).

2. Connect the device to the same local network where the digitalSTROM server is also connected to. The device receives the IP configuration via DHCP. To install firmware updates, the local network must also provide access to the internet.

3. Connect power (5V DC) to the USB micro power connector (5V USB power supply included).

4. The red "*POWER*" LED (at short edge of the device) should be on whenever power is applied.

5. The green "*BUSY*" Activity-LED will flicker during startup of the device, but then stays off as soon as the device is fully ready for operation, only with occasional short flashes indicating activity (such as receiving a signal from a sensor or button).

» CONFIGURATION

The connection to the digitalSTROM-System is automatic. The digitalSTROM server (Version 1.9 or newer) and the Gateway only need to be connected to the same local IP network. Preferably, use a regular Ethernet switch to connect dSS and STC-dS and *not* directly the ports of routers of the internet service provider, as unfortunately, those often block part of the network traffic (IP multicast) causing dSS connection to fail. Using the web interface, a network expert may set static IP/gateway/DNS configuration when required.

Webinterface:

The device itself does not have user interface elements; all configuration is done via the builtin web interface. As soon as the device has been recognized by the digitalSTROM system, the digitalSTROM web configurator ("*Advanced View*", "*Hardware*" tab, List of "*Meters*") will show an entry per device class (EnOcean, hue). Via the context menu the web interface of the STC-dS gateway can be opened in a new browser window/tab. In addition, the web interface can be reached directly from the "Bonjour" bookbark menu in Bonjour enabled web browsers (Safari).

Log in password:

The web interface is proteced from unauthorized access by a login. The user name is "*vdcadmin*", and the default password is also "*vdcadmin*". It is strongly recommended to change the password (on the "System" tab in the STC-dS web interface).

Updating the Firmware:

To make sure the device has up-to-date firmware, it is recommended to perform a firmware upgrade as a first step:

- 1. Device needs to be powered and ready for use, and needs to have access to the internet via local network with DHCP.
- 2. Open the web interface of the STC-dS gateway.
- 3. In the "System" tab, press the "Check for firmware update" button.
- 4. If a new firmware version is available, it will be displayed an can be installed by pressing the "Update now" button.
- 5. Installation takes 1-3min, depending on the speed of the internet connection. During the entire update process, the green "BUSY" LED is steadily on. After firmware update is complete, the device will restart automatically. ! Do not disconnect power during firmware update! Otherwise, the system software might get damaged and the device needs to be replaced. Interrupts in the internet connection however are not critical but may just abort the update process and require that the update must be started again.

Adding or removing EnOcean Buttons:

- 1. Open the web interface, "Devices" tab
- 2. Press the "Device learn in/out.." button.
- 3. Withing 20 seconds, bring an EnOcean rocker switch near the P44- DSB-E (less tha 30cm, best is just touching the devices) 4. Operate the EnOcean button
- 5. A message appears indicating when the button was added or (when already connected before) removed from the system. ! Using the "Learn buttons w/o proximity check.." button it is possible to add buttons from distance. You need to make sure that no other EnOcean button is operated accidentally within the radio range of the system, as these would be falsely added or removed. Therefore using this feature in environments with many EnOcean devices this expressedly not ecommended. ! EnOcean rocker switches appear in the digitalSTROM konfigurator as two (with 4 rockers: four) independent up/down digitalSTROM buttons. ! EnOcean switches with a single rocker are technically 2-rocker switches as well (only the changeable plastic cap is different), so these also appear as 2 digitalSTROM buttons in the system.

Adding or removing other EnOcean components or hue bridge:

- 1. Use the component's documentation to find out how learn-in is triggered for the device. Some devices have a special "learn" button, others have a marked spot where a magnet needs to be held close to activate learn-in. For the hue bridge, the center button triggers the learn in and out.
- 2. Open the web interface, "Devices" tab
- 3. Press the "Device learn in/out.." button.
- 4. Within 20 seconds, trigger the learn activity at the component.
- 5. A message appears indicating when the component was added or (when already connected before) removed from the system. If no message appears, the component may not (yet) be supported by the P44-DSB-E, or the radio distance to the component is too high or obstructed by shielding walls (concrete, metal) etc.

Evaluator Devices:

- Evaluator devices allow you to to evaluating a set of conditions involving one or multiple sensor values to derive a yes/no-type signal to the digitalSTROM system. The status of the signal provided by such a device can be used to trigger user defined states or actions in the event responder. An evaluator device is a virtual device, only existing in the STC-dS software.

Creating a new Evaluator Device

- open the STC-dS web interface - from digitalSTROM Configurator (advanced view) → Hardware tab under Meters → right-click on a STC-dS entry, then choose Open configuration interface. From the top bar, choose the Devices tab
- In the STC-dS Sensor Evaluators row, press the + Evaluator button
- choose the type of evaluator. For triggering an action in digitalSTROM scene responder, binary input is the right choice (simulated two way button may be useful for simple cases like switching a light in a room e.g. depending on a light sensor) Give the evaluator device a name. You can change the name later in the digitalSTROM configurator, but it is helpful to have a name from the beginning
- Press the create evaluator button
- Now the evaluator device is created and will appear as a black joker device with a single binary input (like an AKM with only one input) in digitalSTROM shortly. However, to make use of the evaluator you need to configure it in the on/off condition editing editor dialog. This dialog opens automatically after creating a new evaluator - but you can open it again any time later from the device info box (press i-button of the device, then choose Edit on/off conditions. Please see next paragraph about how to configure the evaluator.

1. **Select the sensors you want to evaluate**

   From the popup, select sensor(s) you want to base the evaluation on. The sensors appear in the table with a default variable name (Sensor1,2,3…) Optionally change the name of the sensor variable to something that is more informative (the name will be used in the on/off expression, see below) Click the *Remove* link to remove a unused sensor from the list.

2. **Define the "on" and "off" conditions**

   Enter conditions (mathematical/boolean expressions, see below) defining when to make the evaluator to signal "on" and "off" states to digitalSTROM. Optionally, define a time (in number of seconds) for which the condition must be met minimally without interruption to make the evaluator change state. For example, you might not want a illumination sensor to trigger light because of a quickly passing shadow, but only if the illumination stays low for a few minutes. The condition is considered met when the expression evaluation result is greater than 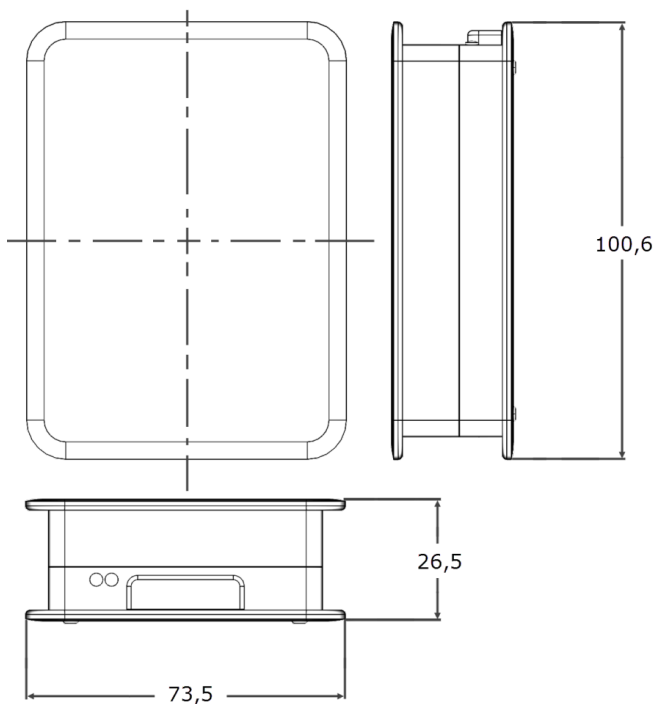zero. The expression can make use of: • Variable names to refer to sensor values, like "Sensor1" and "T1" in the example above.

   - plain numbers (but no measurement units!)
   - Calculations using mathematical operators: **+, -, *, /** (with precedence, * and / evaluate before +/-)
   - Comparisons **=, !=, > , <, >=, <=** and logical operators **&** (and), **|** (or)
   - Parantesized subexpressions

   Notes:

   Make sure your "on" and "off" conditions make sense in that only one of them should be true at a given time, not both. Otherwise, the state of the evaluator will be unpredictable. Usually it is a good idea to *not* use the same trigger value for a sensor for both switching on and off. For example, if you want the heating to go on in a room when it becomes below 19 degree, you might use "T1<19" as "on" condition. As "off" condition, you should *not* use "T1>19", but something like "T1>20.5". If you took "T1>19", the evaluator could start oscillating quickly between on and of when the temperature in the room is just around 19 degrees.

3. **Test the conditions**

   At any time, you can press the *Save + Check Expressions* button. This will check your expression for errors (displayed in red) and display current sensor values and expression results (green). If sensors have just been added or the STC-dS has just been restarted, some sensors might not have got time to communicate yet, so the sensor value will be *undefined* and the expression will show a message reading *variable x has no known value yet*. You can still save the evaluator - once the sensor has sent a value the expression will work. In doubt, just wait until the sensor has sent a value (usually ~10min for EnOcean sensors) and then check again.

»DIMENSIONS (MM)

»ACCESSOIRES (OPTIONAL)

Antenna extension 10 m	Item No. 257206
Antenna extension 20 m	Item No. 257213
Antenna holder form L, 180x180 mm	Item No. 255097
Rawl plugs and screws	Item No. 102209