



1661P01, 1661P02

DESIGO™ RXC

## Gateway EnOcean/LonWorks

## RXZ95.1/LON

For use with:

- DESIGO RXC
- Devices / systems with LONWORKS® communication

- **Wireless receiver with LONWORKS® interface FTT10A**
- **Evaluation of up to 16 EnOcean room units**
- **Operating voltage AC / DC 24 V**

### Validity

This data sheet is valid for devices with index B and higher.

For devices with index A see [CM2N1661en\\_02](#).

## Use

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With the RXC room controllers, wireless room units can be used in place of the QAX3x standard room units. One of the wireless technologies used is EnOcean. Here, the **room unit** is powered by a solar cell. A battery is only needed if light conditions are poor.

The **gateway** requires a separate AC / DC 24 V supply (not in the scope of delivery).

Integration of the EnOcean room units (QAX9x.x) into the system is made via the RXZ95.1/LON EnOcean/LONWORKS gateway. It handles up to 16 EnOcean room units. The telegrams received via radio are converted to LONWORKS standard network variables (SNVT).

## Type summary

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| Product number | Stock number | Designation              |
|----------------|--------------|--------------------------|
| RXZ95.1/LON    | S55842-Z100  | Gateway EnOcean/LONWORKS |

An external antenna is included in the delivery.

## Ordering

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When ordering, please give quantity, designation, product number and stock number.  
When ordering, please give, Product number and Stock number.

*Example:*

**10 Gateways EnOcean/LONWORKS, RXZ95.1/LON, S55842-Z100**

## Equipment combinations

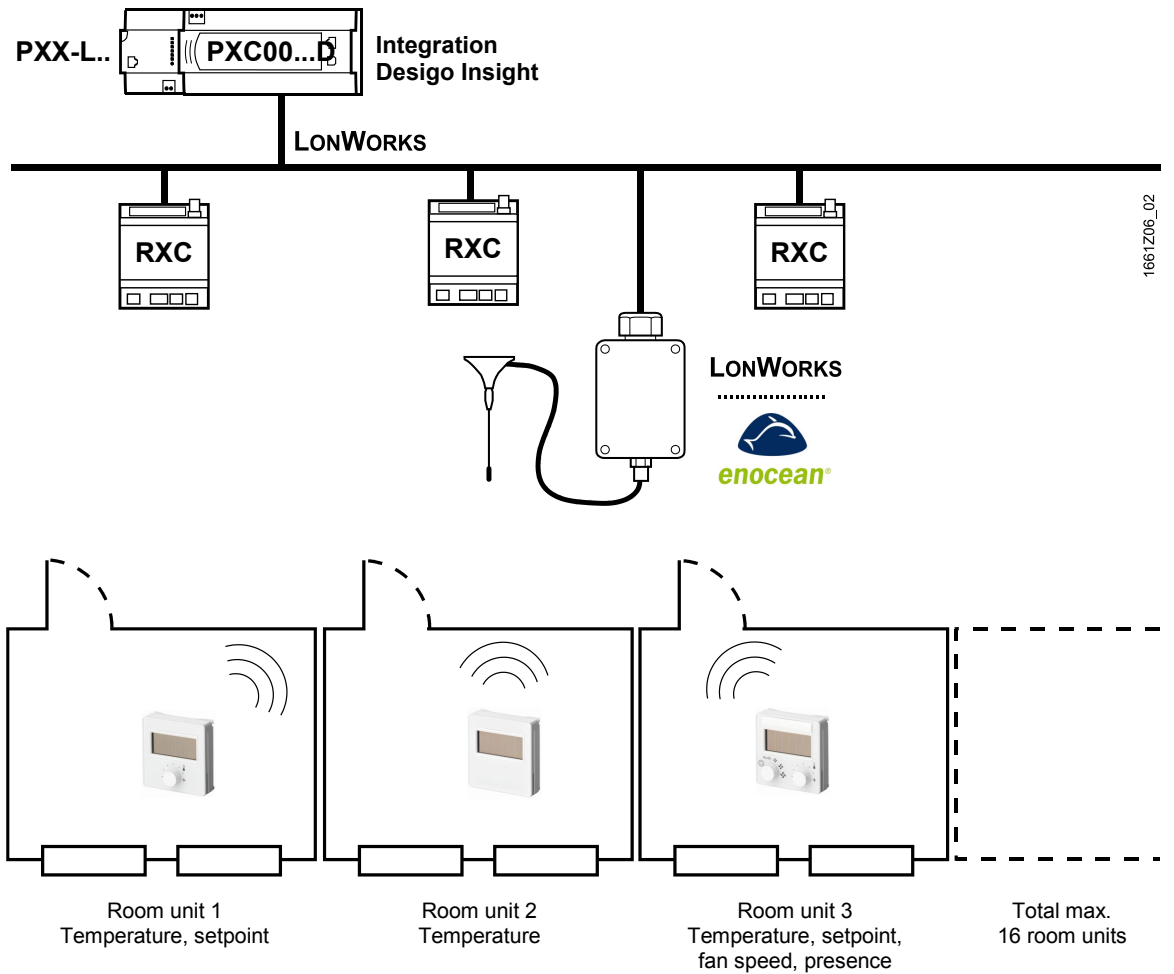
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EnOcean room units

| Product number | Stock number | Designation   |
|----------------|--------------|---|
| QAX95.1        | S55623-H100  | Wireless and battery-less room unit with EnOcean interface (temperature sensor)   |
| QAX96.1        | S55623-H101  | Wireless and battery-less room unit with EnOcean interface (temperature sensor with setpoint adjuster)  |
| QAX95.4        | S55623-H104  | Wireless and battery-less room unit with EnOcean interface (temperature sensor)   |
| QAX96.4        | S55623-H105  | Wireless and battery-less room unit with EnOcean interface (temperature sensor with setpoint adjuster)  |
| QAX97.4        | S55623-H106  | Wireless and battery-less room unit with EnOcean interface (temperature sensor with setpoint adjuster, freely programmable button and 2-stage switch) |
| QAX98.4        | S55623-H108  | Wireless and battery-less room unit with EnOcean interface (temperature sensor with setpoint adjuster, freely programmable button and 5-stage switch) |

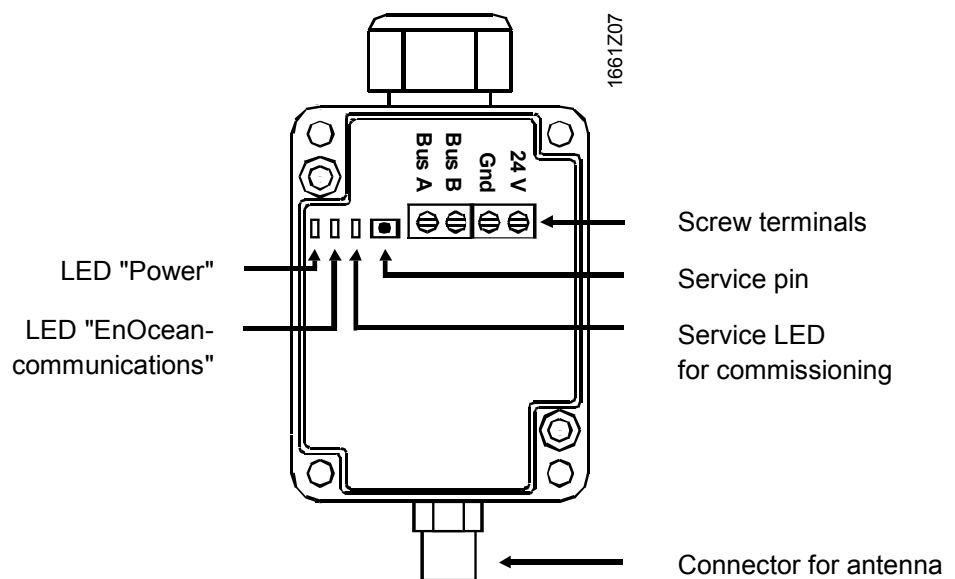
Note The RXZ95.1/LON can be used in all systems with LONWORKS communication

## Topology



Integration of EnOcean room units into DESIGO RXC

## Mechanical design



## System requirements

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**Software LNS PlugIn** Thermokon\_LNS\_PlugIn-FT5000 (Template: srca\_16\_1\_01)

*Functions:*

Monitoring and configuration gateway / room units

For use with RXT10 tool or standard LNS tool

**Device resource files:** The device resource files contain information about supplier-specific configuration parameters and network variables (UNVTs and UCTPs).  
**Thermokon\_DRF24.exe**

Prerequisite for installation is LONMARK® resource files version 13.00 or, alternatively, LonMARK resource file API version 2.3 (bothersome installation).

**LONWORKS application** srca\_16\_1\_01.XIF; .NXE; .XFB; .XIF; .PDF (if SRC-FTT plug-in is not used)

**Software source / documentation**

- LNS plug-in, device resource files, LONWORKS application:  
Download from the DESIGO RX intranet:  
[https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des\\_ra\\_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads](https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des_ra_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads)
- Plug-In: Thermokon LNS Plug-In\_x.x.xxxx.xxxxx\_setup.exe  
Download from [www.thermokon.de/en/media-downloads.html](http://www.thermokon.de/en/media-downloads.html)
- LONMARK resource files version 13.00:  
Download from [http://www.lonmark.org/technical\\_resources/resource\\_files/](http://www.lonmark.org/technical_resources/resource_files/)

## Environment for engineering tool

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**Integration of QAX95.x/QAX96.x:** The RXT10 tool or a standard LNS tool can be used.

**Integration of QAX97.x/QAX98.x:** A standard LNS tool must be used.

## Limitations

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- With a DESIGO system, it is not possible to integrate additional EnOcean products, such as buttons, presence detectors, etc., via the RXZ95.1/LON gateway with the RXT10 tool.

Reason:

In the gateway, temperature and setpoint adjustment are available as static network variables. However, additional functions are configured dynamically, and the RXT10 does not support dynamic network interfaces.

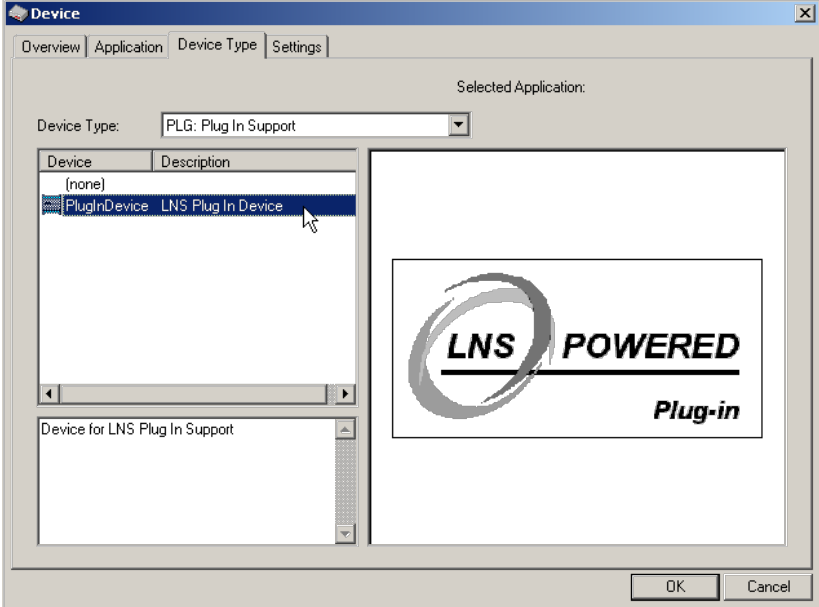
- RXT10 does not support the multifunctional button of the QAX97.4 und QAX98.4 room units.
- For technological reasons, the control performance of an RXC... room controller in connection with an EnOcean room unit is inferior to that with a standard QAX3x room unit

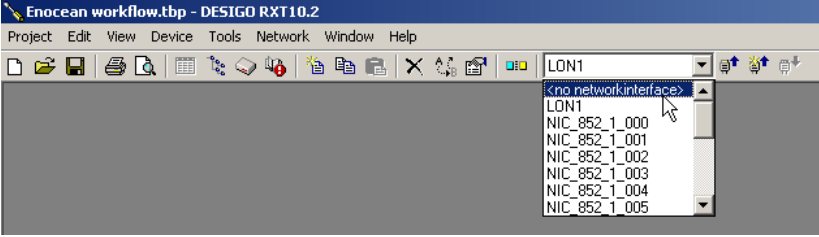
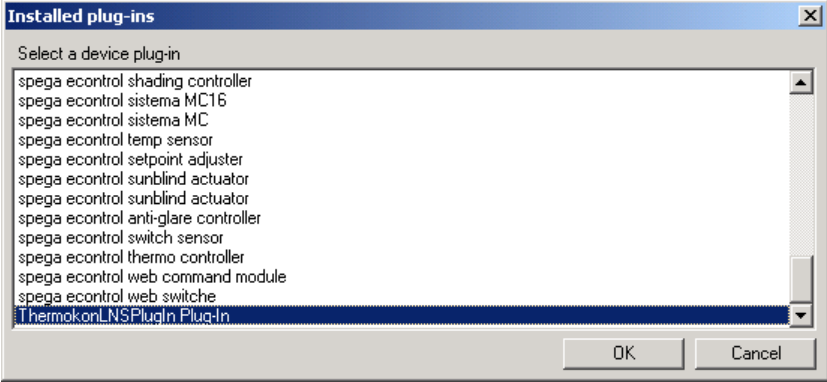
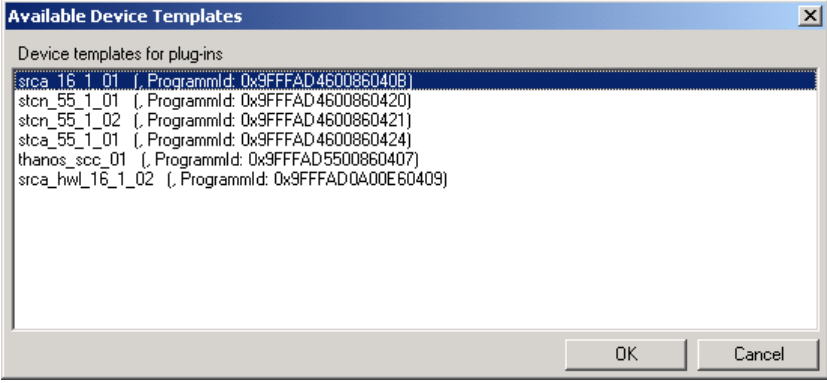
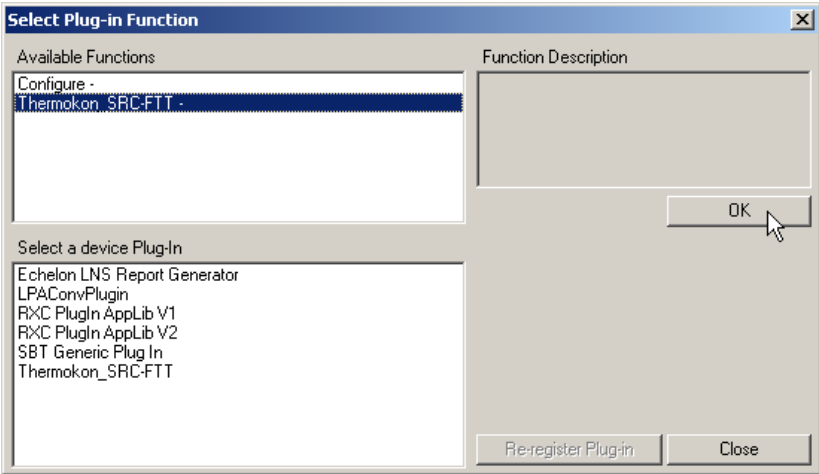
**Infrastructure**

- Basis:** PC with DESIGO infrastructure  
RXT10 version 4 or higher
- Note:** The following components must be installed in the order indicated.
- Step 1:** Installation of LONMARK resource files version 13.00 or higher  
**Source:** [http://www.lonmark.org/technical\\_resources/resource\\_files/](http://www.lonmark.org/technical_resources/resource_files/)
- Step 2:** Installation of device resource files:  
**Source:** Download from the DESIGO RX intranet:  
[https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des\\_ra\\_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads](https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des_ra_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads)
- Step 3:** Installation of Thermokon plug-in  
**Source:** Download from the DESIGO RX intranet:  
[https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des\\_ra\\_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads](https://intranet.for.siemens.com/org/bt/en/business/products-systems/bacs/desigo/ra/des_ra_qax/Pages/des-ra-units.aspx?tabcardname=qax95%20/%20qax96%20/%20qax97%20/%20qax98#Downloads)

**Engineering with RXT10 and LNS plug-in**

Set up the gateway with the RXT10 tool by following the standard procedure for integration of third-party devices (for details, refer to User Manual RXT10, CM110669).

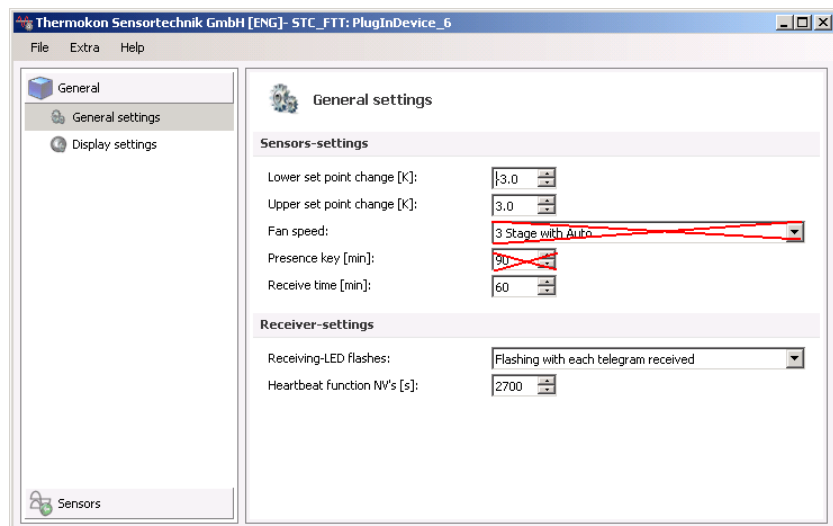
| Step | Procedure   |
|------|---|
| 1    | <p><b>Device &gt; Add</b></p> <p>Select tab <b>Device Type</b>.<br/>From menu <b>Device Type</b>, select <b>PLG: Plug In Support</b>.<br/>On the "Device" list, highlight <b>PlugInDevice</b>.</p>  |
| 2    | <p>Select tab <b>Overview</b> and enter the location.<br/>Confirm by clicking <b>OK</b>.</p>  |

| Step | Procedure  |
|------|--|
| 3    | <p>RXT: Select &lt;no networkinterface&gt;</p>  <p><b>Network &gt; Connect (Attached offnet)</b></p>   |
| 4    | <p><b>Device &gt; Configure &gt; ThermokonLNSPlugIn.Plug-In &gt; OK</b></p>  <p>Select device template "srca_16_1_01" &gt; OK</p>  <p>Confirm message by selecting <b>YES</b>.</p> <p>Select function "<b>ThermokonLNSPlugIn Device Configuration</b>" &gt; Click <b>OK</b>.</p>  <p>Confirm message by selecting <b>YES</b>.</p> |

| Step | Procedure |
|------|-----------|
|------|-----------|

5a

Configure the gateway:  
Select tab **General settings**:



**Receive time:**

Function not available with the RXT10

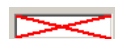
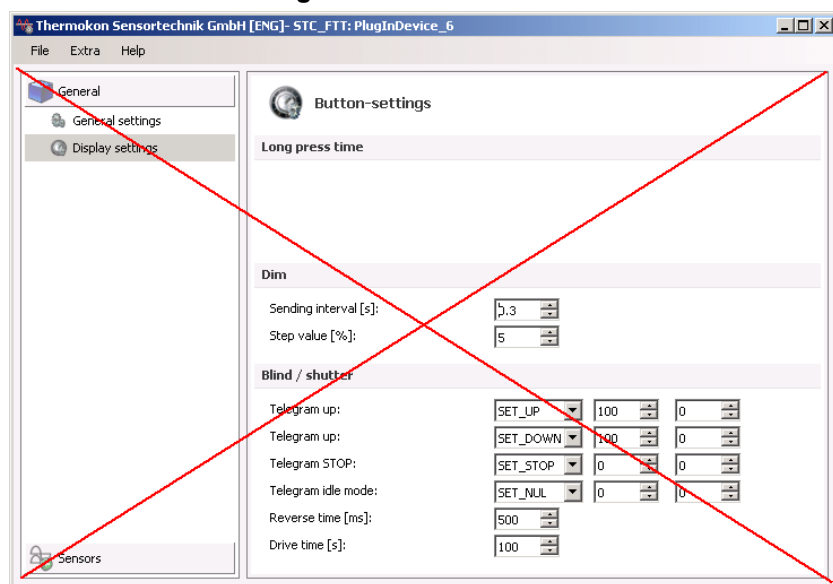
For monitoring the RF link to the room unit (optional)

**Sending interval:**

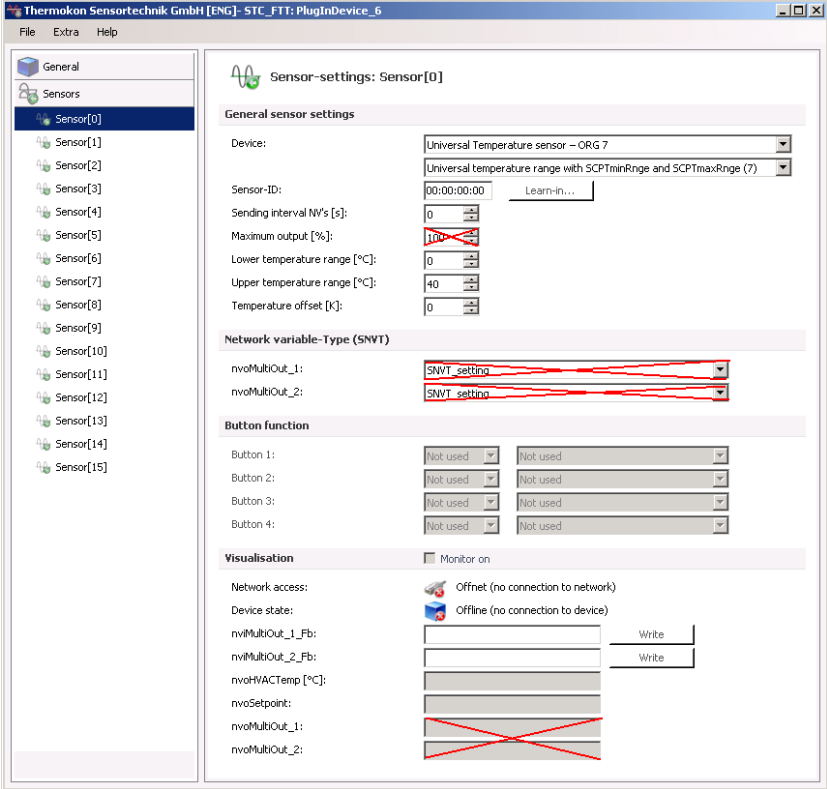

Recommendation: Same as RXC ⇒ Default **2700 [s]** (45 min)

5b

Configure the gateway:  
select tab **Switch settings**:



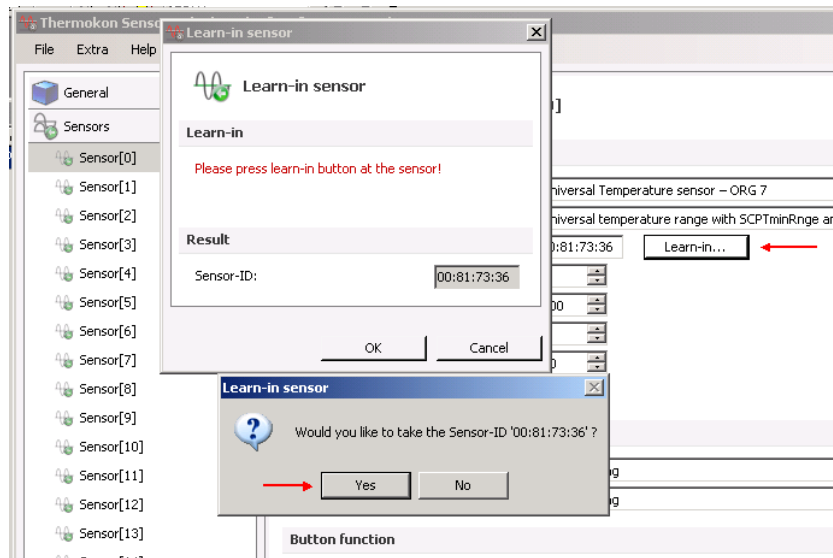
Functions not available with the RXT10

| Step                    | Procedure  |                         |                       |                   |                   |                 |              |                  |                 |                   |
|-------------------------|--|-------------------------|-----------------------|-------------------|-------------------|-----------------|--------------|------------------|-----------------|-------------------|
| 5c                      | <p>Configure the gateway:<br/>select tab <b>Sensor 1...16</b>:</p>  <p> Function not available with the RXT10.</p> <p><b>Device:</b> For room units QAX95.x, QAX96.x, select setting 7</p> <p><b>SensorID:</b> For offline engineering, the EnOcean ID of the room unit can be entered here, if desired. Normally, it is learned-in online (with connection to the network, see step 10).</p> <p><b>SCPTmaxSendTime:</b> Heartbeat room unit<br/>Recommendation: Same as RXC ⇨ Default <b>2700 [s]</b> (45 min)</p> <p><i>Note relating to SCPTmaxSendTime:</i><br/>With the default setting of 0.0 s (OFF) and in the event the RF link breaks down (faults, no light, etc.), the temperature value in the RXC will change to "invalid" when the heartbeat has elapsed. When using a setting greater than 0.0 s, the temperature value received last will be transmitted.</p> |                         |                       |                   |                   |                 |              |                  |                 |                   |
| 6                       | <p>&gt; <b>Apply</b><br/>(Question "...transmit to device?": Answer with <b>YES</b>)<br/><b>Network &gt; Disconnect</b> (Attached offnet)</p>  |                         |                       |                   |                   |                 |              |                  |                 |                   |
| 7                       | <p>Make RXT10 bindings:</p> <table border="0"> <thead> <tr> <th data-bbox="603 1809 730 1843"><i><b>Datapoint</b></i></th> <th data-bbox="890 1809 1007 1843"><i><b>Gateway</b></i></th> <th data-bbox="1145 1809 1251 1843"><i><b>RXC</b></i></th> </tr> </thead> <tbody> <tr> <td data-bbox="603 1845 842 1879">Room Temperature:</td> <td data-bbox="890 1845 1107 1879">nvoHVACTemp_x ⇨</td> <td data-bbox="1145 1845 1374 1879">nviSpaceTemp</td> </tr> <tr> <td data-bbox="603 1881 788 1915">Setpoint Offnet:</td> <td data-bbox="890 1881 1107 1915">nvoSetpoint_x ⇨</td> <td data-bbox="1145 1881 1401 1915">nviSetpointOffset</td> </tr> </tbody> </table>   | <i><b>Datapoint</b></i> | <i><b>Gateway</b></i> | <i><b>RXC</b></i> | Room Temperature: | nvoHVACTemp_x ⇨ | nviSpaceTemp | Setpoint Offnet: | nvoSetpoint_x ⇨ | nviSetpointOffset |
| <i><b>Datapoint</b></i> | <i><b>Gateway</b></i>  | <i><b>RXC</b></i>       |                       |                   |                   |                 |              |                  |                 |                   |
| Room Temperature:       | nvoHVACTemp_x ⇨  | nviSpaceTemp            |                       |                   |                   |                 |              |                  |                 |                   |
| Setpoint Offnet:        | nvoSetpoint_x ⇨  | nviSetpointOffset       |                       |                   |                   |                 |              |                  |                 |                   |
| 8                       | <p><b>Network &gt; Connect</b> (online)</p>  |                         |                       |                   |                   |                 |              |                  |                 |                   |
| 9                       | <p><b>Assign devices and install</b></p>   |                         |                       |                   |                   |                 |              |                  |                 |                   |

| Step | Procedure |
|------|-----------|
|------|-----------|

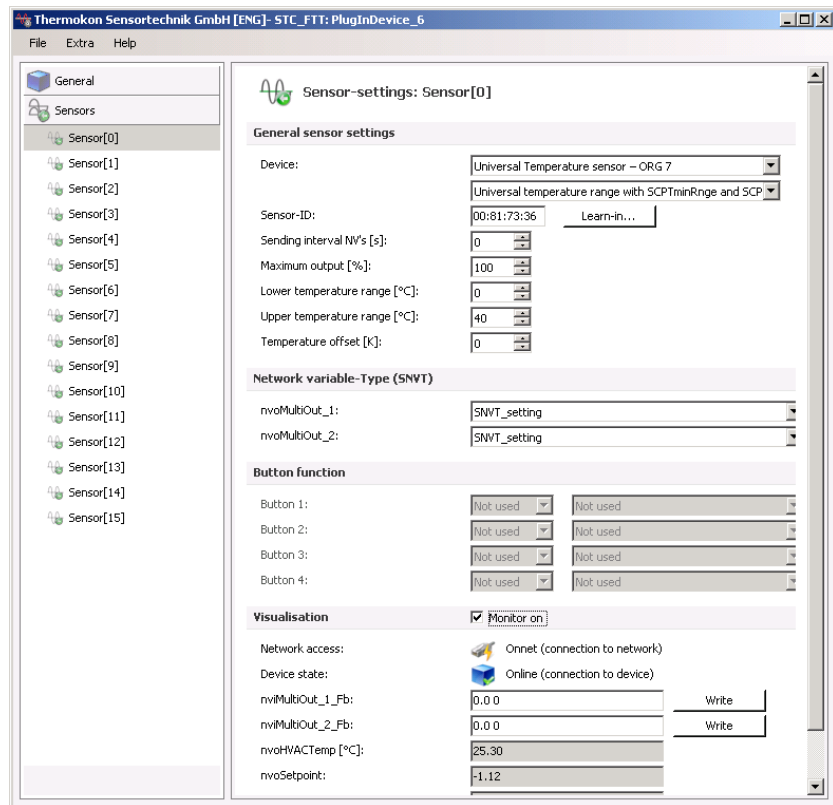
10

**Learn-in the room units:**  
 Open Plug-in (Device > Configure > ThermokonLNSPlugIn Device Configuration > OK > YES  
 Click button next to SensorID  
 > **Learn-in** > Press button on the room unit



11

Function check gateway / room unit:



### Infrastructure

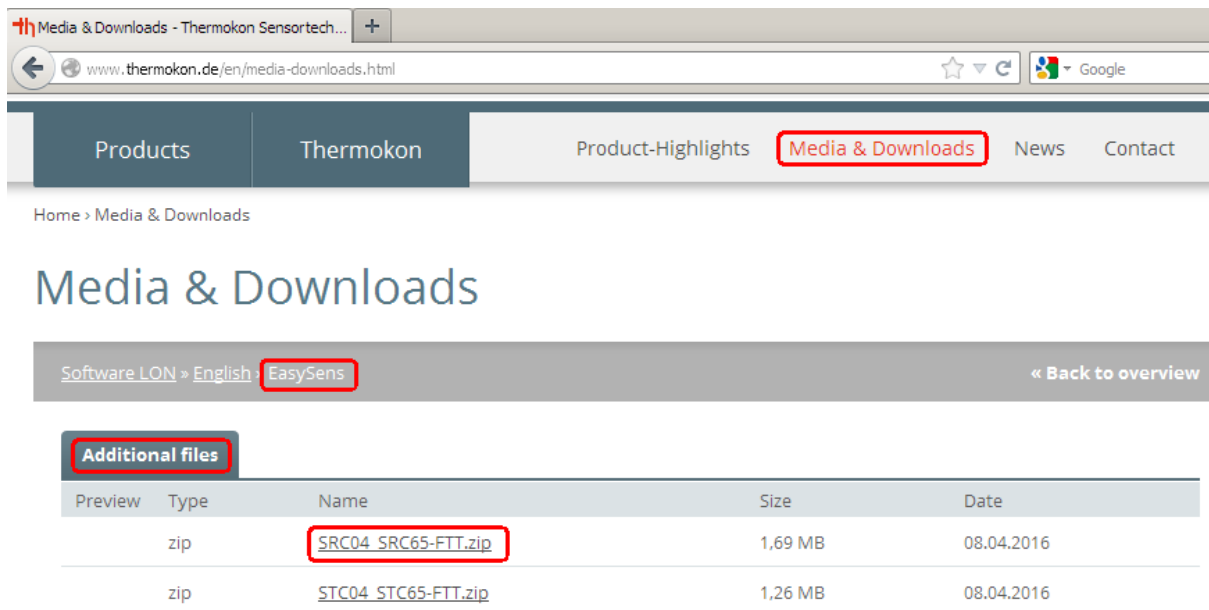
Basis: PC with DESIGO infrastructure  
RXT10 version 4 or higher

Step: Download:  
SRC04\_SRC65-FTT.zip

*Extract and save LON application:*

..\2\_LON-Software\1\_deutsch\EasySens, Funk-Empfangsmodule\SRC04\_SRC65-FTT\srca\_16\_1\_01\srca\_16\_1\_01.XIF (.apb; .nxe; .xfb; .xif)

Source: [www.thermokon.de/en/media-downloads.html](http://www.thermokon.de/en/media-downloads.html)



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www.thermokon.de/en/media-downloads.html

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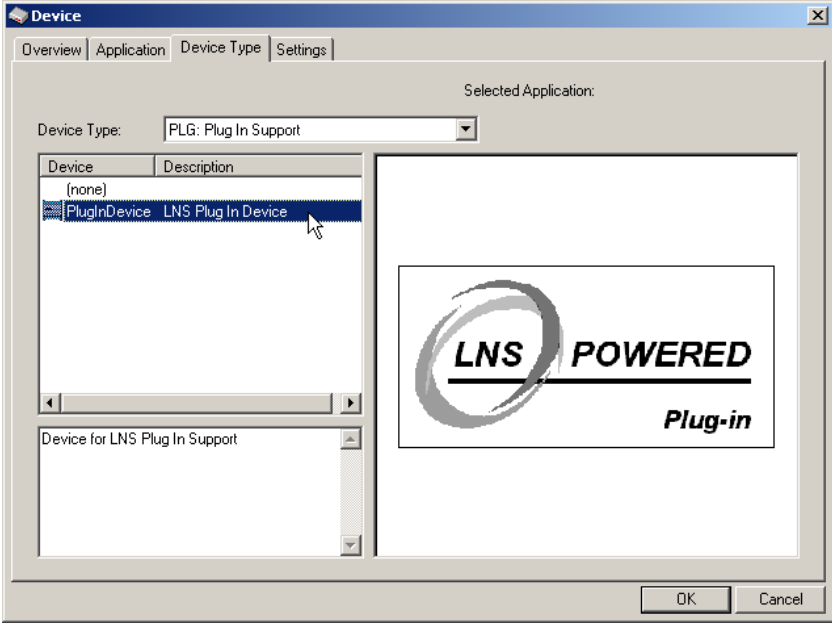
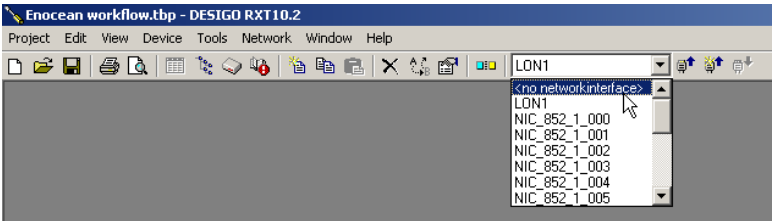
## Media & Downloads

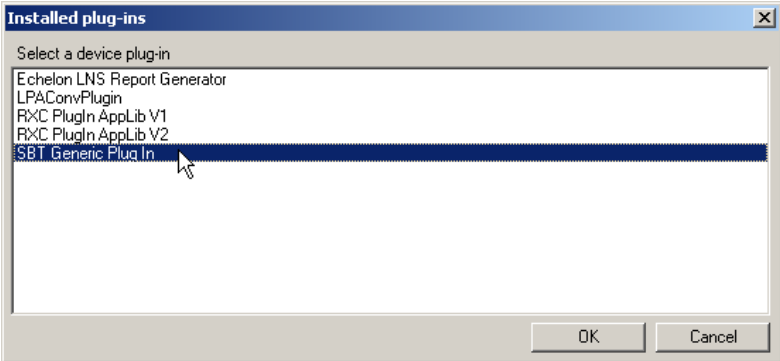
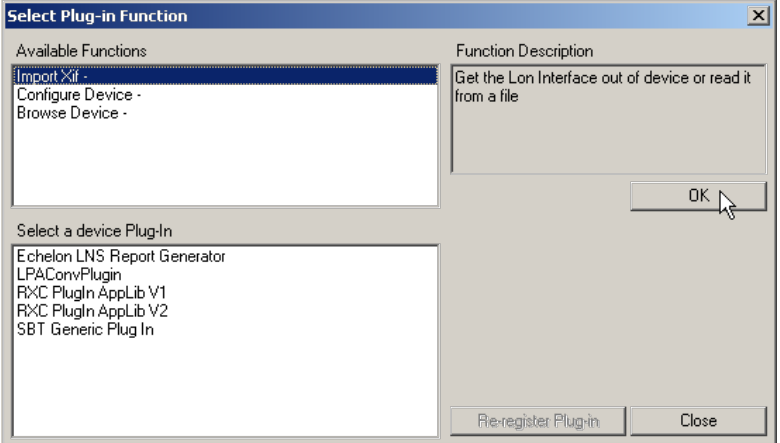
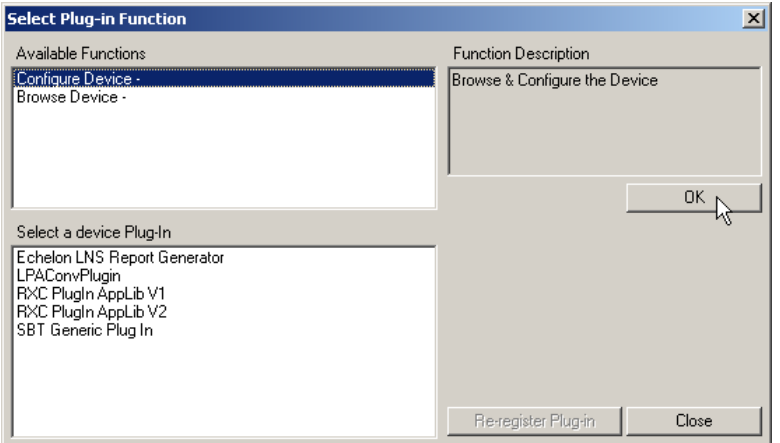
Software LON » English » **EasySens** « Back to overview

**Additional files**

| Preview | Type | Name                       | Size    | Date       |
|---------|------|----------------------------|---------|------------|
|         | zip  | <b>SRC04_SRC65-FTT.zip</b> | 1,69 MB | 08.04.2016 |
|         | zip  | STC04_STC65-FTT.zip        | 1,26 MB | 08.04.2016 |

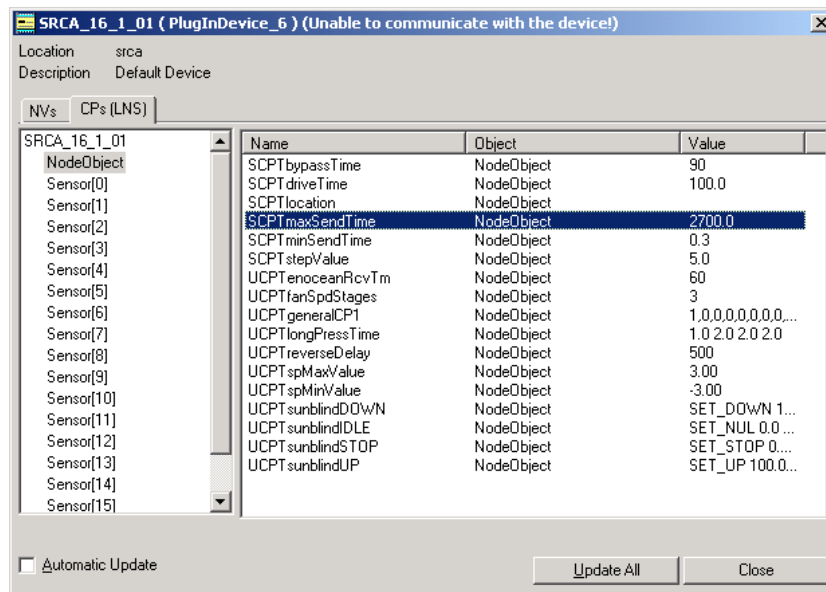
Set up the gateway with the RXT10 tool by following the standard procedure for integration of third-party devices (for details, refer to User Manual RXT10, CM110669).

| Step            | Procedure  |
|-----------------|--|
| <p><b>1</b></p> | <p><b>Device &gt; Add</b><br/>                     Select tab <b>Device Type</b>.<br/>                     From selection menu <b>Device Type</b>, select <b>PLG: Plug In Support</b>.<br/>                     On the "Device" list, highlight <b>PlugInDevice</b>.</p>  |
| <p><b>2</b></p> | <p>Select tab <b>Overview</b> to enter the location. Confirm by clicking <b>OK</b>.</p>  |
| <p><b>3</b></p> | <p><b>RXT: Select &lt;no networkinterface&gt;</b></p>  <p><b>Network &gt; Connect (Attached offnet)</b></p>  |

| Step | Procedure  |
|------|--|
| 4    | <p data-bbox="603 152 1206 185"><b>Device &gt; Configure &gt; SBT Generic Plug In &gt; OK</b></p>  <p data-bbox="603 562 991 595"><b>Select function Import XIF &gt; OK</b></p>  <p data-bbox="603 1059 1297 1093">&gt; <b>Read XIF File &gt; Select path for srca_16_1_01.XIF &gt; OK</b></p> <p data-bbox="603 1104 903 1137">&gt; <b>Select Plug-in &gt; Close</b></p> |
| 5    | <p data-bbox="603 1144 1430 1178"><b>Device &gt; Configure &gt; OK (depending on plug-in: Configure Device)</b></p>    |

| Step | Procedure |
|------|-----------|
|------|-----------|

**6** Configure the gateway:  
Select **Node Object**

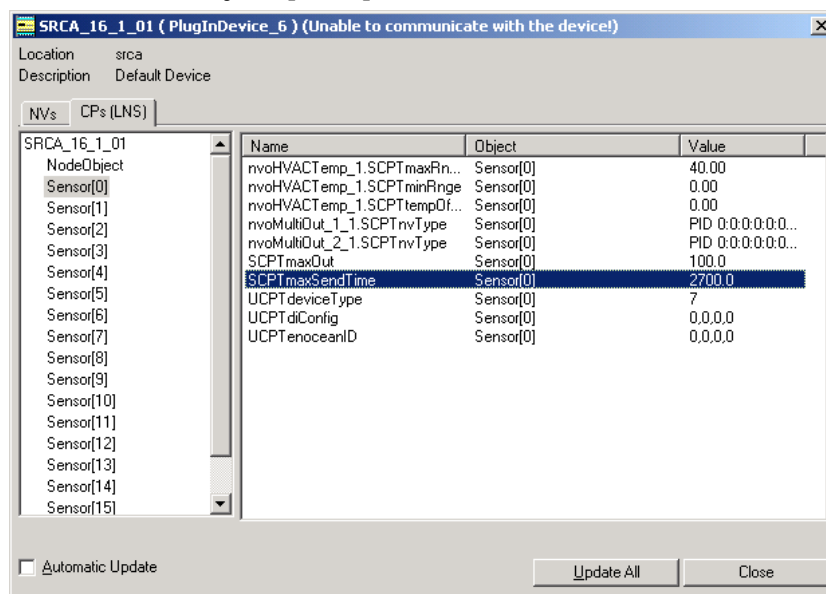


**SCPTmaxSendTime:** Sending interval LONWORKS  
Recommendation: Same as RXC ⇔  
Default **2700 [s]** (45 min)

**UCPTenoceanRcvTm:** Receive time  
For monitoring the RF link to the room unit (optional)

**UCPTspMax/MinValue:** Setpoint Offset (± 3 K, default)

**7** Configure the gateway:  
Select **Sensor Object [0...15]**

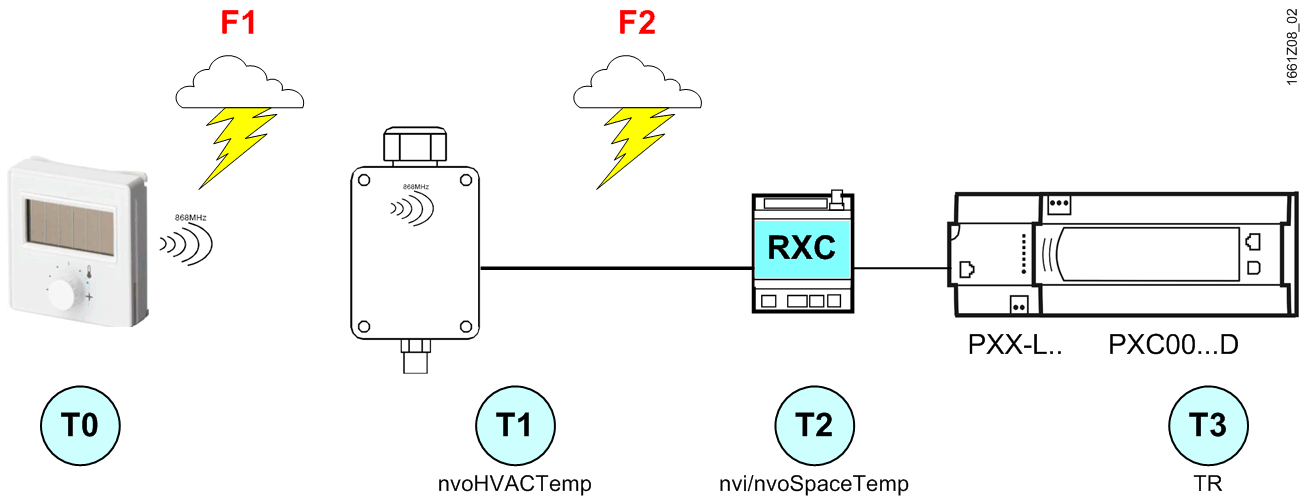


**...SCPTmax/minRnge:** Measuring range of temperature sensor  
[0...40 °C, default]

**SCPTmaxSendTime:** Sending interval LONWORKS  
Recommendation: Same as RXC ⇔  
Default **2700 [s]** (45min)







**F1:**  
Gateway receives no telegrams from the room unit

**Possible causes:**

- ⇒ Room unit exhausted ⇒ poor light conditions  
Check documentation on room unit
- ⇒ RF link faulty ⇒ distance, interference emitters  
Check documentation on room unit
- ⇒ Room unit not / incorrectly learned-in in the gateway (SensorID)
- ⇒ Room unit faulty

**Impact on the system:**

When UCPTenoceanRcvTm has elapsed, nvoAlarmSensor is set (evaluation optional).

- T0** --
- T1** Last valid value from T0; otherwise 0.0 °C
- T2** With SCPTmaxSendTime ⇒ T1  
Without SCPTmaxSendTime ⇒ invalid (327.7 °C) after RXC heartbeat has elapsed (60 min)
- T3** Ditto; if 0.0 °C ⇒ frost alarm

**F2:**  
RXC receives no LONWORKS telegrams from the gateway

**Possible causes:**

- ⇒ Gateway has no power (power\_fail)
- ⇒ Bus interruption
- ⇒ Error in configuration of gateway
- ⇒ Gateway faulty

**Impact on the system:**

- T0** --
- T1** --
- T2** Invalid (327.7 °C) after RXC heartbeat has elapsed (60 min)  
*power\_fail gateway:*  
nvo\_temp\_p = 0.0 °C until room unit sends again (up to approx. 20 min.)  
Ohne SCPTmaxSendTime ⇒ T2 = last valid T2  
SCPTmaxSendTime < approx. 20 min ⇒ T2 = 0.0 °C (**frost alarm**)  
SCPTmaxSendTime > approx. 30 min ⇒ T2 = last valid T2
- T3** Ditto; at 0.0 °C ⇒ **frost alarm**

**F10:**  
**Power\_up / Power\_fail**  
**system**

***Impact on the system:***

- T0** --
- T1** All temperatures = 0.0 °C after Power\_fail / Power\_up.  
Room unit sends current temperature after about 20 to 30 minutes.
- T2** RXC polls the gateway (0.0 °C) and sends value to the system.
- T3** **Frost alarm** (0.0 °C). This state continues until all EnOcean room units have transmitted a valid temperature. This takes about 20 to 30 min, but may take longer than an hour should short breakdowns occur.  
If a room unit does not send (e.g. exhausted), frost alarm is maintained until that room unit sends as well.

With each simultaneous power failure of the RXC and the gateway, the system triggers frost alarm for 20 to 30 minutes. The same applies to power-up.

## Mounting

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The devices are supplied in an operational status.

Installation is made by means of anchors and screws (not included) to the smooth wall surface, or by means of screws to an installation socket .

For operation a separate external 868 MHz receiving antenna is required (included in delivery).

### Notes for the radio reception

- The antenna with magnet foot should be mounted on the center of a 180 mm x 180 mm metal plate (galvanized sheet steel).
- In rooms the antenna should be mounted 1 m below the ceiling.
- The antenna should be vertically aligned downwards.
- Minimal distance to the wall: 90 mm.
- Distance to other transmitters (e.g. GSM / DECT/ wireless LAN / EnOcean etc.): min. 2 m.
- The antenna cable shall be routed in an electric conduit.
- Avoid crushing of the antenna cable.  
The minimal bend radius of the cable is 50mm.
- As for the cable installation, avoid the use of an active pull-up device, otherwise the sheathing or on the connectors may be damaged.

For details on positioning of the EnOcean room units, refer to data sheet CM2N1660.

## Commissioning

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Wireless room units are sending time or event controlled telegrams to the gateway. The gateway verifies the incoming telegrams and outputs them directly via its LONWORKS interface.

Each telegram allows a precise allocation and consists of the format: type of the telegram, data, sender ID (32bit).

### EnOcean connection

In order to assure a correct evaluation of the measuring values by the gateway, it is necessary to have the devices learned-in by the gateway. This is done automatically by means of a "learn button" at the room unit (or manually by input of the 32bit sensor ID) and a special "learning" procedure between room unit and gateway.

For details, refer to the data sheet of the EnOcean room units, CM2N1660.

### LonWorks commissioning

In order to press the service pin, the lid must be opened.

## Disposal


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The devices are considered electronics devices for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

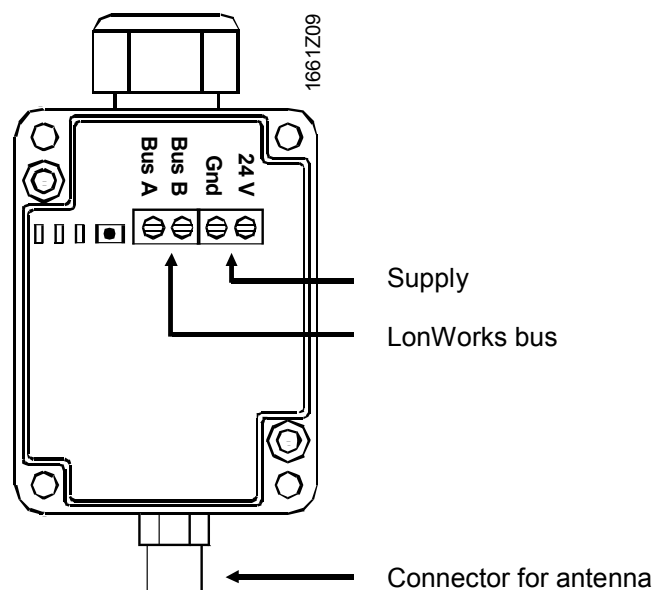
- Dispose of the devices through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

## Technical data

|                                     |   |  |  |
|-------------------------------------|---|--|--|
| General device data                 | Operating voltage   | DC 15...24 V<br>AC 24 V +/- 10%                            |  |
|                                     | Power consumption   | 0.5W / 0.82VA  |  |
|                                     | Interface   | LONWORKS Transceiver FTT, free topology                    |  |
|                                     | Antenna connector   | FME female   |  |
|                                     | Antenna (included in delivery)  | External antenna with magnetic stand                       |  |
|                                     | Terminals   | Screw terminals max. 1,5 mm <sup>2</sup>                   |  |
|                                     | Cable entry   | M20 for 1 cable max. D = 8 mm<br>or 2 cables max. D = 7 mm |  |
| Housing protection                  | Mounting  | Wall mounting  |  |
|                                     | Protection  | IP42 to EN60529  |  |
| Ambient conditions                  | Temperature   | -20...60 °C  |  |
|                                     | Humidity  | max. 70 % r.h. non-condensing                              |  |
| Standards, directives and approvals | Product standard  | EN 50090   | Home and building electronic systems (HBES)                                      |
|                                     | Electromagnetic compatibility (Applications)  |  | For use in residential, commercial, light-industrial and industrial environments |
|                                     | EU conformity (CE)  |  | CM2T1661xx *)  |
|                                     |  Reduction of hazardous substances |  | 2002/95/EC   |
| Enclosure                           | Material  | ABS  |  |
|                                     | Color   | white, similar to RAL9010                                  |  |
| Weight                              | Without / with packaging  | 173 g / 248 g  |  |

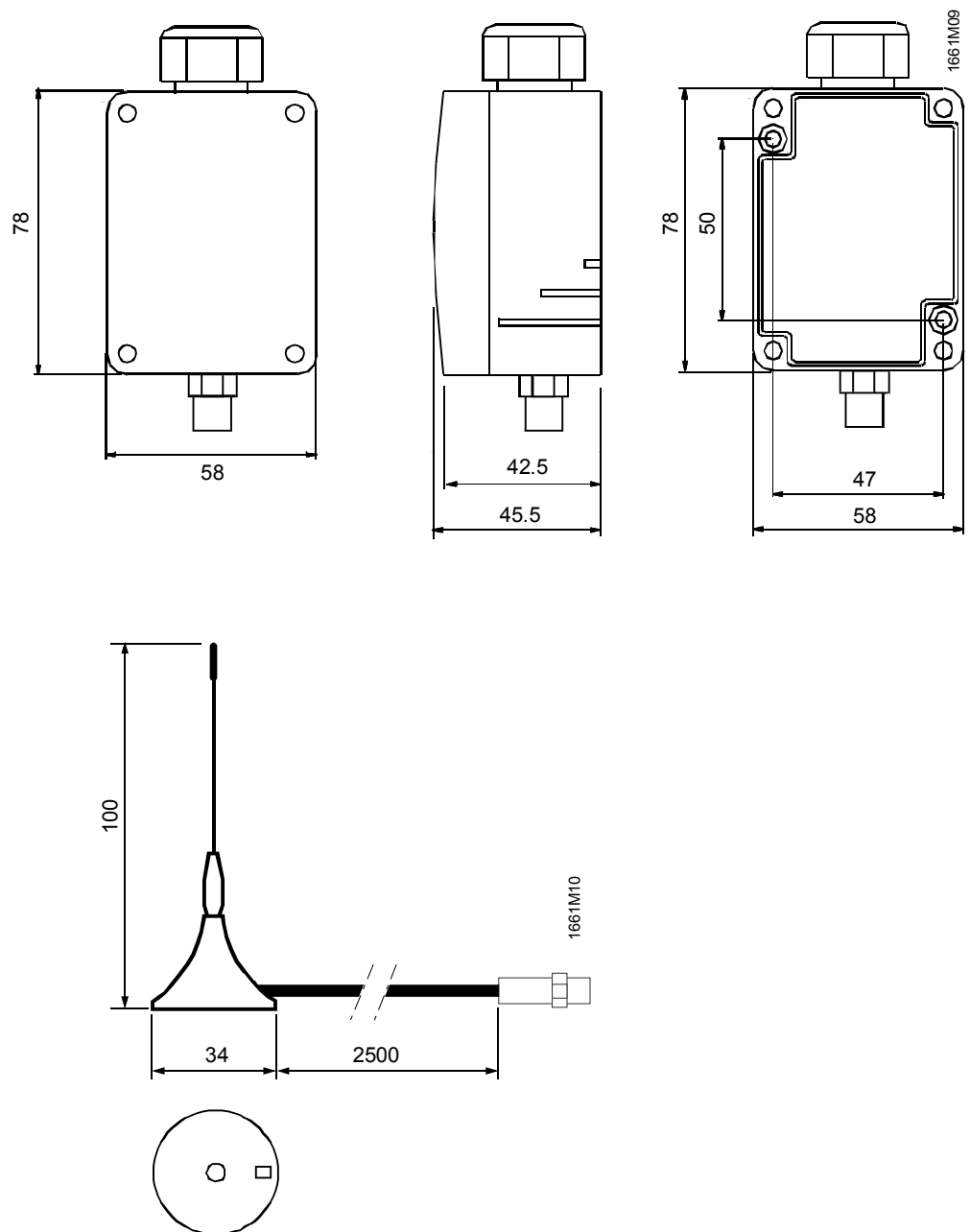
\*) The documents can be downloaded from <http://siemens.com/bt/download>.

## Connection terminals



## Dimensions

Dimensions in mm



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Siemens Switzerland Ltd.  
Building Technologies Division  
International Headquarters  
Gubelstrasse 22  
6301 Zug  
Switzerland  
Tel. +41 41-724 24 24  
[www.siemens.com/buildingtechnologies](http://www.siemens.com/buildingtechnologies)

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Delivery and technical specifications subject to change