SR06 LCD

Wireless surface mounting room operating unit with LCD display, temperature sensor and optional humidity sensor

thermokon Sensortechnik GmbH

Datasheet

Subject to technical alteration
Date Issue: 01.02.2016

Application

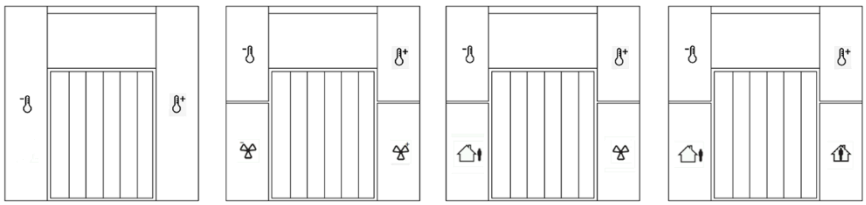
The room sensor is designed for temperature and (optional) humidity detection, local set point and fan speed adjustment for room control in buildings. The sensor transmits its measured values wirelessly to the corresponding receivers, which process the information respectively to the centralized control unit. The configuration is done via a serial interface.

The room sensor can be integrated into various switch designs programs of the indoor installation range. It is compatible to the following designs with 55 mm x 55 mm inserts:

BERKER	S1, B3, B7 glass	**JUNG**	A500, AS500, Aplus, Acreation
GIRA	Standard55, E2, Event, Esprit	**MERTEN**	M-Smart, M-Arc, M-Plan
Siemens	Delta-Profil, Delta-Line, Delta-Style, Delta-Miro		

Types available

SR06 LCD	2T	Wireless sensor, measuring temperature,	2 buttons
SR06 LCD rH	2T	Wireless sensor, measuring temperature and rel. humidity,	2 buttons
SR06 LCD	4T	Wireless sensor, measuring temperature,	4 buttons
SR06 LCD rH	4T	Wireless sensor, measuring temperature and rel. humidity,	4 buttons



SR06 LCD 2T … 4T **Typ 1** **…** 4T **Typ 2** **…**4T **Typ 3**

Colours available: pure white brilliant (standard), aluminium or anthracite

Security Advice – Caution

The installation and assembly of the device 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.

Guidelines for Devices with Solar Energy Storage

Due to the energy-optimized EnOcean radio technology used in ”EasySens®“ wireless sensors, the devices can work without batteries and self-charge themselves using electric energy generated by integrated solar cells. This makes the devices almost maintenance free and environmentally sound due to not having to replace batteries.

For optimum use, the device should be mounted in a location with sufficient ambient brightness. Minimum illumination of 200 lx (artificial light or ambient) is required for at least 3 to 4 hours each day. (The health and safety regulations at work require a minimum illumination of 500 lx for office workplaces).

The solar cell should be mounted facing towards the window direction if possible. If the device has a temperature sensor, then even periodic direct sun radiation should be avoided due to incorrect false temperature readings.

The mounting position should be selected so that the device will not be obstructed in the future: for example by placement areas, additional furniture or roll-fronted cupboards.

The sensor is supplied in an operational state. If the sensor has been stored in darkness for longer periods, the internal solar energy storage will most likely need to be recharged. This would normally happen automatically during commissioning or during initial start up in ambient light. If the initial charge is not sufficient, the sensor will reach its full operating state up to 3 to 4 days, if the requirements for minimum illumination per day are met. The sensor will then transmit continuously in darkness as specified f (2/3 days on factory default telegram timing). Depending on the application it is also possible for the devices to operate in darker rooms (with brightness <100 lx) by using the battery back-up option. Batteries to be used are listed in accessories.

The operating time when using batteries will depend on the transmission frequency as well as the component aging and the self-discharge of the battery. Standard operating time will be 5-10 years on factory default telegram timing. Changing of the device from solar to battery operation is done automatically by simply adding a battery to the device.

Remarks to Room Sensors

Location and Accuracy of Room Sensors

The room sensor should be mounted in a suitable location for measuring accurate room temperature. The accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important, that the back plate is completely flush to the wall so that there is sufficient circulation of air through the vents in the cover, otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. The temperature sensor should not be covered by furniture or other objects. Mounting next to doors (due to draught) or windows (due to colder outside wall) should be avoided.

Surface and Flush Mounting

The measuring result is influenced by the thermal characteristics of the wall. A solid concrete wall responds to thermal fluctuations within a room in a much slower than a light-weight structure wall. Room temperature sensors installed in flush-mounted boxes have a longer response time to thermal variations. In extreme cases they detect the radiant heat of the wall even if the air temperature in the room is lower for example. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is the smaller the deviations limited in time are.

Information about EasySens® (radio) / airConfig general usage

Basic information about EasySens® radio and about general usage of our airConfig software, please download from the following link

http://www.thermokon.de/ftp/info/Information_Radio_airConfig_en.pdf

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:

http://www.thermokon.de/download-archive/Kataloge_Preise_Infos/Allg.%20Dokumente/Informationen/SmartACK-Info_en.pdf

Technical Data

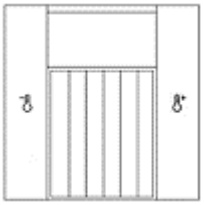
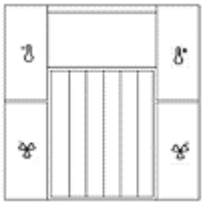
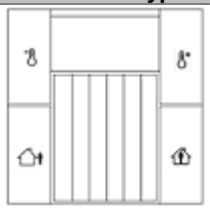
Measuring values		temperature, humidity (optional)
Radio technology		EnOcean, (IEC 14543-3-10)
Frequency		868 MHz
Power supply		solar cell, energy buffer, maintenance-free optional: backup battery CR1632
Measuring range temperature		0..+40 °C
Measuring range humidity		0..100% rH non-condensing
Accuracy temperature		±0,4 K (typ. at 21 °C)
Accuracy humidity		±5% between 30..70% rH (typ. at 21 °C)
Measuring interval		WakeUp time = 100 sec. (default), heartbeat cycle = 10x configured via AirConfig or SR06ConfigSW
Switch ranges Berker		B3, B7 glass, S1
Switch ranges Gira		E2, Esprit, Event, Standard55
Switch ranges Jung		A creation, A500, AS500, Aplus
Switch ranges Merten		M-Arc, M-Plan, M-Smart
Switch ranges Siemens		Delta-Profil, Delta-Line, Delta-Style, Delta-Miro
Control function		fan stages, set point, occupancy signal
No. of buttons	2T 4T	2 4
Display		LCD 29x12 mm, monochromatic (optional)
Set point range		+15..+30 °C ± 10 °C
Enclosure		PC V0, pure white brilliant, aluminium or anthracite
Protection		IP20 according EN 60529
Ambient condition		0..+40 °C
Weight		50 g
Mounting		To be mounted flat onto the surface using adhesive foil or screws
Notes		the devices are supplied with a battery compartment for a coin cell, the devices are supplied with a charged energy buffer (rechargeable via USB), for configuration an optional adapter cable is required

Overview of airConfig selectable 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/.

Overview supported EEPs

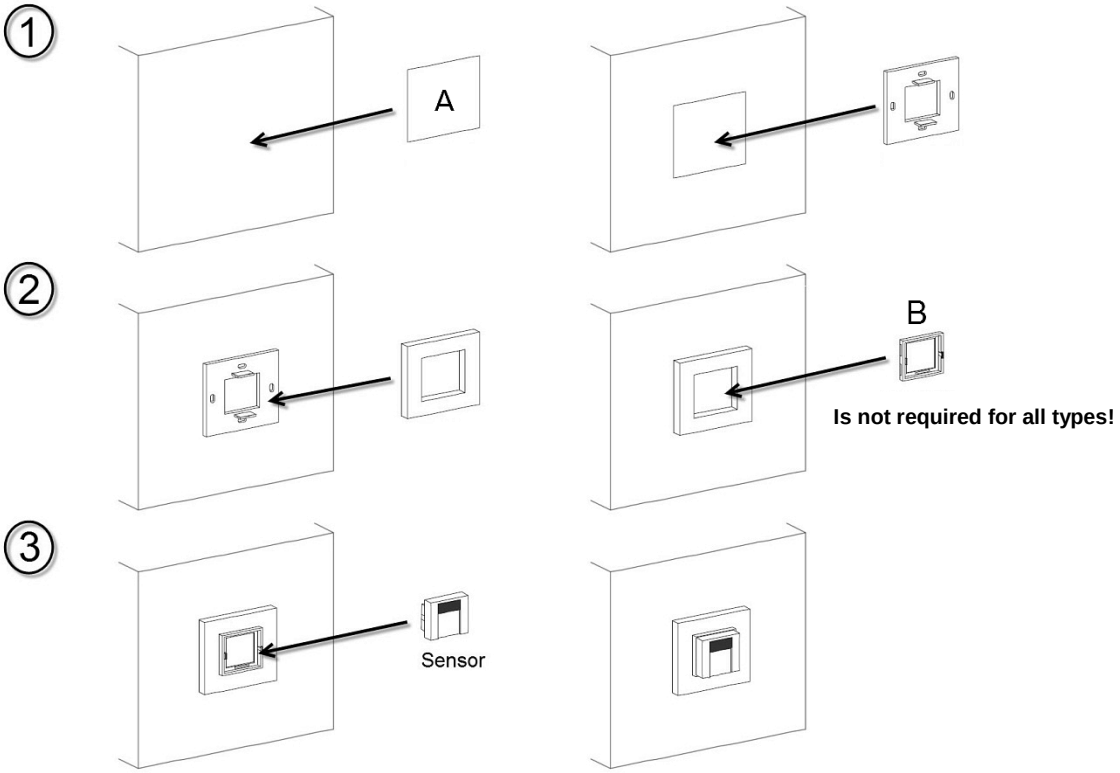
	2T / 2T rh	4T / 4T rh Typ 1	4T /4T rh Typ 2	4T /4T rh Typ 3
				
	**A5-10-03:** temperature, set point	**A5-10-04:** temperature, set point, fan stages	**A5-10-01:** temperature, set point, occupancy, fan stages	**A5-10-05:** temperature, set point, occupancy
	**A5-10-12:** temperature, humidity, set point	**A5-10-22:** temperature, humidity, set point, fan stages	**A5-10-23:** temperature, humidity, set point, occupancy, fan stages	**A5-10-10:** temperature, humidity, set point, occupancy
SmartACK	**D2-11-01** **D2-11-02 (+ rH)*** temperature, *humidity, set point	**D2-11-03** **D2-11-04 (+ rH)*** temperature, *humidity, set point, fan stages	**D2-11-05** **D2-11-06 (+ rH)*** temperature, *humidity, set point, fan stages, occupancy	**D2-11-07** **D2-11-08 (+ rH)*** temperature, *humidity, set point, fan stages

Mounting Advices

(1) Base plate attachment:
Installation is made by gluing the sensor base plate to the smooth wall surface by means of the adhesive tape (A) included. If required, the base plate can also be fixed by means of raw plugs and screws.

(2) Attach frame:
The respective switch program frame is clipped onto the base plate together with the intermediate frame (B) (optional accessory).

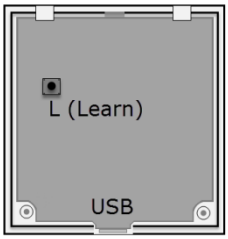
(3) Sensor attach:
Finally, the sensor is clipped into the frame centre.



Commissioning

After delivery the room operating unit might be in default shipping mode, in which case press the learn button for 3 seconds on the rear of the device.

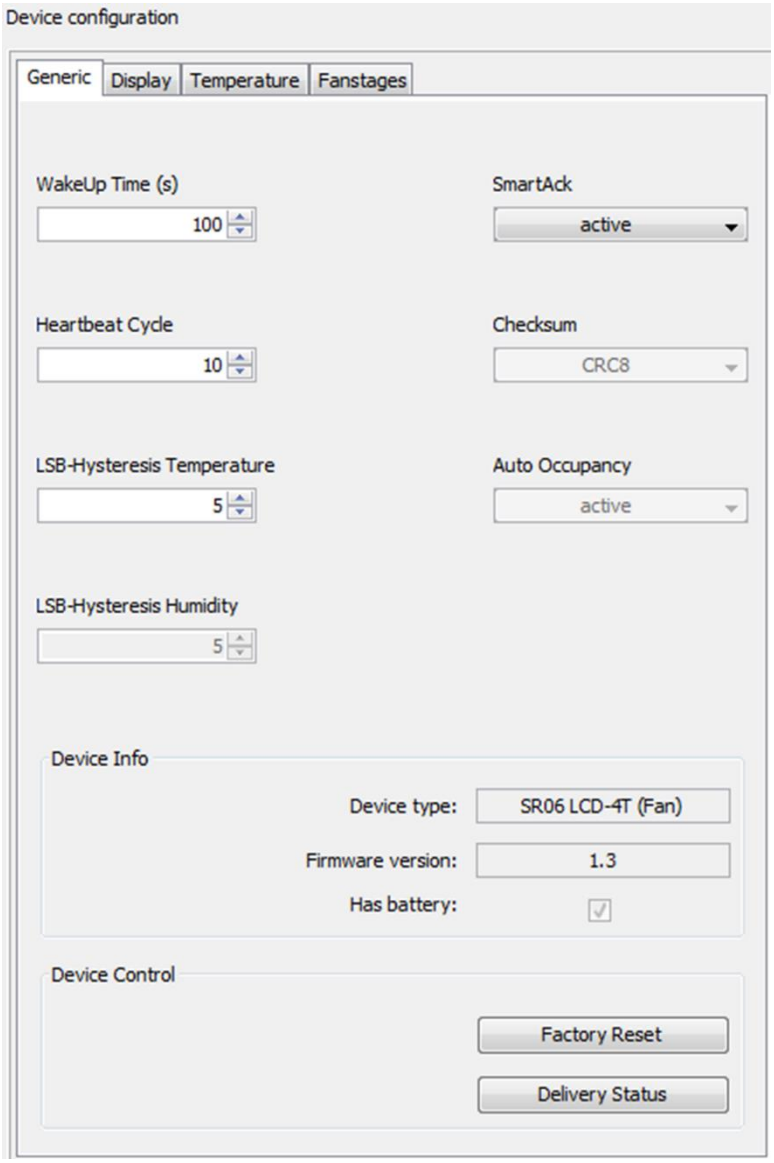
In order to ensure correct evaluation of the measured values by the receiver, it is necessary to have the devices learned in by the receiver. This is done automatically by means of a “learn button” at the back side of the sensor or manually by input of the 32bit sensor ID and a special “learning procedure” between sender and receiver. The respective details are described in the corresponding software documentation for the receiver.



Reverse side of the PCB

The sensor´s set-up (Display LCD, set point adjustment ...) can be conducted with the configuration software.

Configuration via airConfig



Generic

WakeUp Time (s)
The WakeUp time defines the time between two successive measurements.

Heartbeat Cycle
Defines the maximum number of wake ups without transmitting the temperature in case of no temperature change. Receivers monitor this interval to detect missing sensor signals.

LSB-Hysterese Temperature/Humidity
Defines the minimum temperature change required since the last transmission to send a new telegram.

SmartACK
The option enables bi-directional communication to allow the BMS to send data to the sensor or to set back the settings.

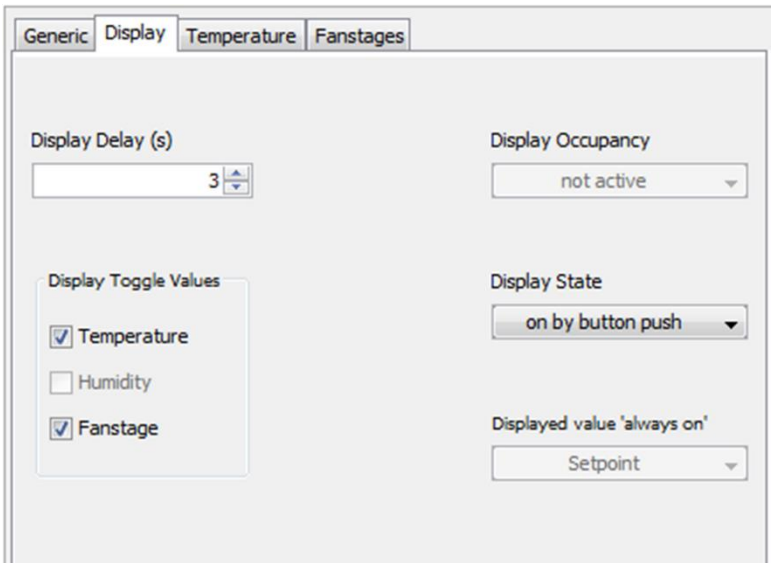
Checksum
1st generation of receivers do not support the checksum type CRC8. In order to work with legacy receivers the easy checksum can be configured.

Auto Occupancy
Devices which display the room occupancy will switch to occupied upon pressing any button, when auto occupancy is enabled

Device Info
Information about type, firmware version and existing battery will be shown.

Device Control
The device can be set back to factory default settings or for further shipment in delivery state.

Display



Display Delay (s)
Defines the duration of time the display will remain on after the last action. (1-6 sec)

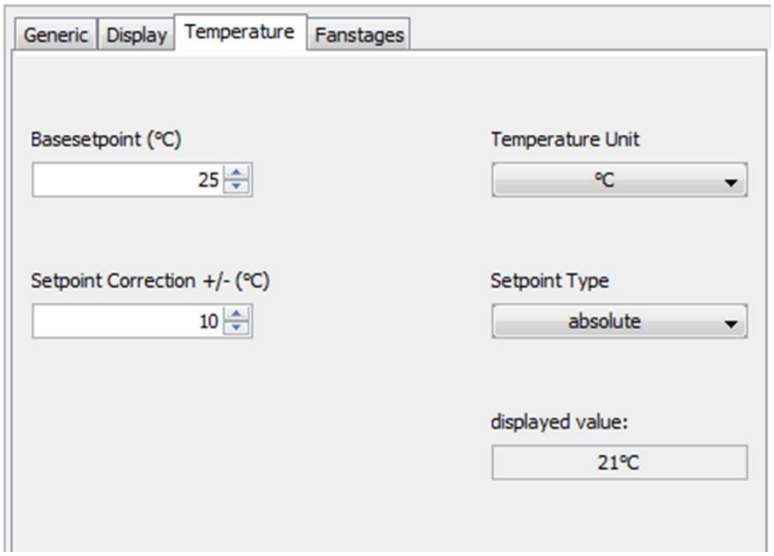
Display Toggle Values
An alternating display of multiple serial messages of the actual values is selectable and is activated by holding the button. The values will appear successively after the display wakeup.

Display Occupancy
The display can only be on permanently if a battery is inserted. Without battery the display will be activated by pressing a button.

Display State
The display can only be on permanently if a battery is inserted. Without battery the display will be activated by pressing a button.

Displayed value “always on”
Use the drop-down menu to choose which value shall be shown when the display is activated permanently.

Temperature



Basesetpoint
Can be selected from 15..+30 °C. Basic set point defines the centre of the set point range.

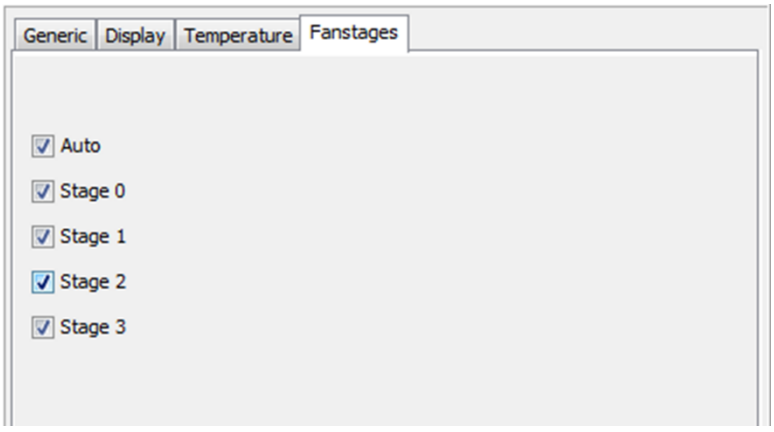
Setpoint Correction +/- (°C)
Defines range by which the set point can be increased/decreased. Ranges from ±0,5..±10 °C.

Temperature Unit
If required the dimensional unit can be set to Celsius or Fahrenheit to display the temperature set point and room temperature

Setpoint Type
The displayed set point can be specified as absolute or the relative value.
Absolute = Basic Set point ± Set point Shift
Relative = Set point Shift

Displayed value
An example of the shown value.

Fanstages



Fanstages
The settings contain the parameter for controlling a fancoil up to 3 fan stages and an automatic fan control mode.

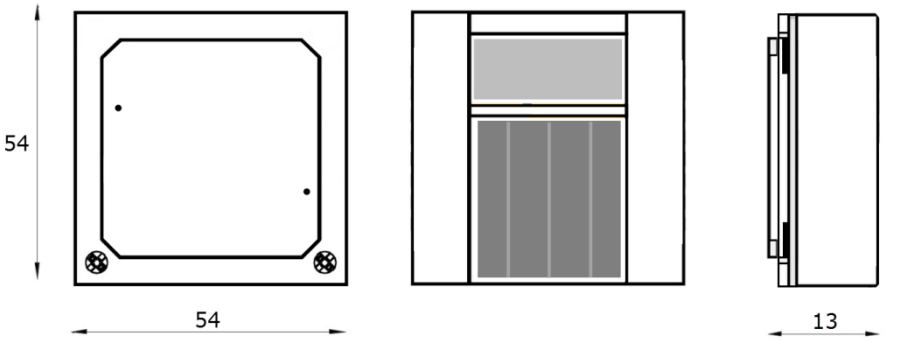
SR06 LCD Config SW

An additional configuration possibility is available via a separate configuration tool.

For configuration of the SR06 LCD with SR06 Config SW a programming interface is required, which is not included in the delivery.

The software description can be found in the download area of our webpage:

Dimensions (mm)



Accessories (optional)

Coin cell CR1632	Item No. 597814
Programming interface for configuration and charging	Item No. 597838