*System Specification*

**EnOcean Equipment Profiles**

**REVISION HISTORY**

| Ver. | Editor | Change | Date |
|------|--------|--------|------|
| 2.6.8 | NM | Last xml edition of the EEP-Specification | Dec 31, 2017 |

The EnOcean Alliance "EnOcean Equipment Profiles definitions" are available free of charge to companies, individuals and institutions for all non-commercial purposes (including educational research, technical evaluation and development of non-commercial tools or documentation.)

This specification includes intellectual property („IPR") of the EnOcean Alliance and joint intellectual properties („joint IPR") with contributing member companies.  No part of this

specification may be used in development of a product or service for sale without being a participant or promoter member of the EnOcean Alliance and/or joint owner of the appropriate joint IPR.

These errata may not have been subjected to an Intellectual Property review, and as such, may contain undeclared Necessary Claims.

EnOcean Alliance Inc.
2400 Camino Ramon, Suite 375
San Ramon, CA 94583
USA
Graham Martin
Chairman & CEO EnOcean Alliance

# D2-11: Bidirectional Room Operating Panel

**TYPE 01,02,03,04,05,06,07,08** *Submitter: Thermokon Sensortechnik GmbH*

**TYPE 20** *Submitter: Menred GmbH*

**EEP Family Table:**

| Supported Function ... of Type | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 20 |
|---|---|---|---|---|---|---|---|---|---|
| Temperature Measurement | X | X | X | X | X | X | X | X | - |
| Setpoint | X | X | X | X | X | X | X | X | - |
| Humidity Measurement | - | X | - | X | - | X | - | X | - |
| Fan Speed | - | - | X | X | X | X | - | - | - |
| Occupancy | - | - | - | - | X | X | X | X | - |
| Air Condition / FanCoil | - | - | - | - | - | - | - | - | X |
| Floor Heating | - | - | - | - | - | - | - | - | X |
| Fan Ventilation | - | - | - | - | - | - | - | - | X |
| Temperature Sensor | - | - | - | - | - | - | - | - | X |
| Humidity Sensor | - | - | - | - | - | - | - | - | - |
| Blind | - | - | - | - | - | - | - | - | - |
| Dimming | - | - | - | - | - | - | - | - | - |
| PIR | - | - | - | - | - | - | - | - | - |
| LUX | - | - | - | - | - | - | - | - | - |

For the types 0x01, 0x03, 0x05, 0x07 the value of DB3 at message type C will be 0 = not available.
For the types 0x01, 0x02, 0x07, 0x08 the value of DB0.3 … DB0.1 at message type B and C will be 7 = not available.
For the types 0x01, 0x02, 0x03, 0x04 the value of DB0.0 at message type C has to be 0 = not used.

| RORG | D2 | VLD Telegram |
|---|---|---|
| FUNC | 11 | Bidirectional Room Operating Panel |
| TYPE | 02 | Type 0x02 (description: see table) |

*Submitter: Thermokon Sensortechnik GmbH*

<u>Data exchange</u>
Direction: bidirectional (Smart-Ack)
Addressing: broadcast and addressed
Communication trigger: event- & time-triggered
Communication interval: time-triggered (configurable at the device) & event-triggered
Trigger event: keypress
Tx delay: -
Rx timeout: -

Teach-in
Teach-in method: Smart-Ack teach-in without repeater

Security
Encryption required: no
Security level format: -

Product Description
The device represented by this EEP is a "Bidirectional Room Operating Panel with Display". It is powered by solar cell.

It may be equipped with the following features (for details please see the EEP-Family table below):

- Temperature Sensor

- Humidity Sensor

- Temperature Setpoint Adjustment

- Fan Speed Adjustment

- Occupancy-State Adjustment

For pairing the bidirectional "Smart Ack Teach-In without repeater" method is used.

The device transmits the actual sensor values periodically (default: 1000 s) or on the event keypress.

Temperature Sensor, Humidity Sensor
The environmental sensors are updated periodically (adjustable, default: 100 s) and, if there is a change, the updated values will be send immediately.

The Smart Ack functionality will be used for setting display symbols like "window open, heating/cooling, occupancy state" or for overwriting parameters like setpoint, fan speed or occupancy state which are stored at the device.

**Communication flow, triggered by a keystroke (first keystroke within inactive state, display state is off):**
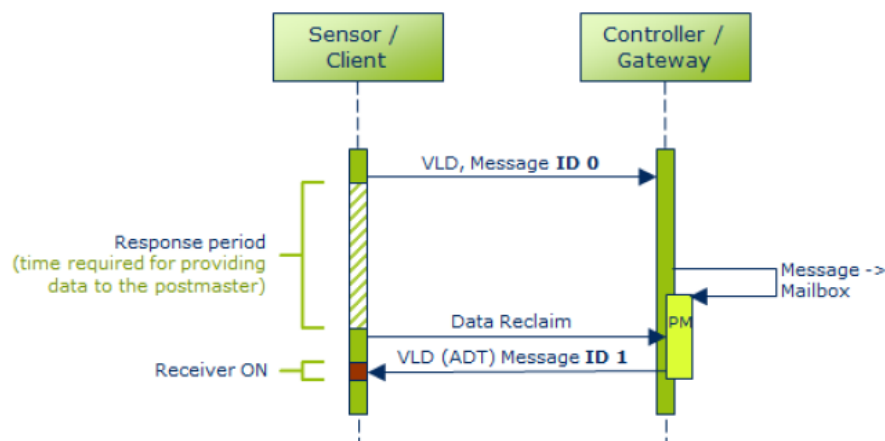
## Communication flow, triggered by an event like temperature- and or humidity change or heartbeat:
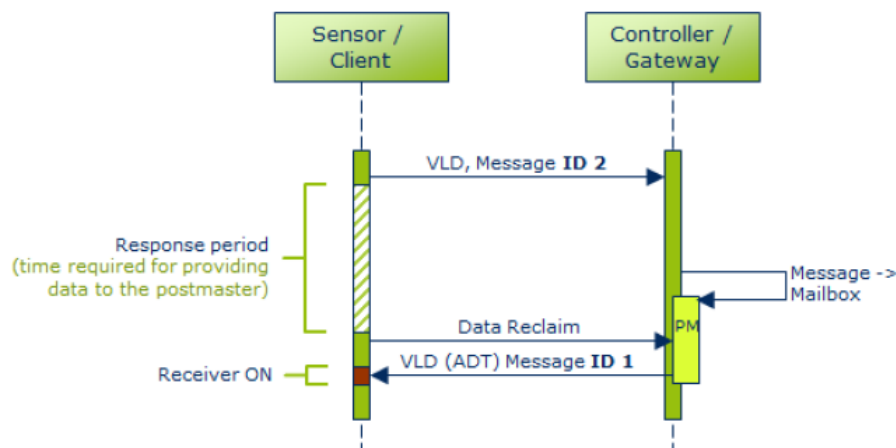


## Message type A / ID 0 (First switch press after sleep-mode, request new data)

Direction: Sensor -> Gateway

**Bit 0.7** indicates which setpoint type is actual used at the device. The difference is made at the visualization of the setpoint (real temperature setpoint (24.5°C) or setpoint shift (+ 3.0°C)) and this information is needed for interpreting the value of DB2 at Message Type C (ID2).
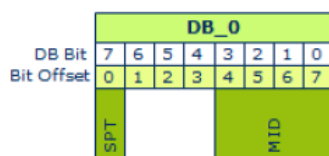


| Offset | Size | Data | ShortCut | Description | Valid Range | Scale | Unit |
|--------|------|------|----------|-------------|-------------|-------|------|
| 0 | 1 | Setpoint type | SPT | Setpoint type actual used by the device (temperature correction / temperature setpoint) | Enum:<br>0: Temperature correction<br>1: Temperature setpoint | | |
| 1 | 3 | Not Used (= 0) | | | | | |
| 4 | 4 | Message ID | MID | Message Type A, ID-0 | Enum:<br>0: ID-0<br>1: ID-1<br>2: ID-2<br>3...15: Reserved | | |

## Message type B / ID 1 (Override device parameter, reply to data request)

Direction: Gateway -> Sensor

**Bit 3.7** may be used for setting new setpoint type at the device. If no change is needed mirroring Bit 0.7 of the last received Message Type A is required.

**Byte 2** may be used for overwriting the actual setpoint shift at the device (i.e. for resetting the setpoint shift at the evening to default value). If no change is needed mirroring Byte 2 of the last received Message-Type C is required.

**Byte 1** may be used for setting new basesetpoint at the device. If no change is needed mirroring Byte 1 of the last received Message-Type C is required.

**Bit 0.7 ... 0.4** may be used for setting new valid setpoint shift at the device. If no change is needed mirroring Bit0.7 ... 0.4 of the last received Message-Type C is required.

| Offset | Size | Data | ShortCut | Description | Valid Range | | Scale | Unit |
|---|---|---|---|---|---|---|---|---|
| 0 | 1 | Set Setpoint type | SPT | Set setpoint type to be used by the device | Enum: | | | |
| | | | | | 0: | Temperature correction | | |
| | | | | | 1: | Temperature setpoint | | |
| 1 | 1 | Display heating symbol | DHS | Set/Clear heating symbol at the display | Enum: | | | |
| | | | | | 0: | Heating symbol off | | |
| | | | | | 1: | Heating symbol on | | |
| 2 | 1 | Display cooling symbol | DCS | Set/Clear cooling symbol at the display | Enum: | | | |
| | | | | | 0: | Cooling symbol off | | |
| | | | | | 1: | Cooling symbol on | | |
| 3 | 1 | Display "window open" symbol | SSW | Set/Clear "window open" symbol at the display | Enum: | | | |
| | | | | | 0: | "Window open" symbol off | | |
| | | | | | 1: | "Window open" symbol on | | |
| 4 | 4 | Message ID | MID | Message Type B, ID-1 | Enum: | | | |
| | | | | | 0: | ID-0 | | |
| | | | | | 1: | ID-1 | | |
| | | | | | 2: | ID-2 | | |
| | | | | | 3...15: Reserved | | | |
| 8 | 8 | Temperature correction | OSO | Override Setpoint offset (linear, min. - ... max. +) (valid temperature correction) | 0...255 | | according to **COA** | K |

| 16 | 8 | Basesetpoint | BSP | Set basesetpoint for visualization of the temperature setpoint | Enum: |
|----|---|--------------|-----|------|------|
| | | | | | 0...14: Reserved |
| | | | | | 15...30: 15...30 °C |
| | | | | | Reserved 31...255: |
| 24 | 4 | Valid temperature correction | COA | Set valid temperature correction | Enum: |
| | | | | | 0: Reserved |
| | | | | | 1: K -1...1 |
| | | | | | 2: K -2...2 |
| | | | | | 3: K -3...3 |
| | | | | | 4: K -4...4 |
| | | | | | 5: K -5...5 |
| | | | | | 6: K -6...6 |
| | | | | | 7: K -7...7 |
| | | | | | 8: K -8...8 |
| | | | | | 9: K -9...9 |
| | | | | | 10: K -10...10 |
| | | | | | 11...15: Reserved |
| 28 | 3 | Fan Speed | OFS | Override actual Fan Speed | Enum: |
| | | | | | 0: Auto |
| | | | | | 1: Speed 0 |
| | | | | | 2: Speed 1 |
| | | | | | 3: Speed 2 |
| | | | | | 4: Speed 3 |
| | | | | | 5...6: Reserved |
| | | | | | 7: Not available |
| 31 | 1 | Occupancy State | OOS | Override actual Occupancy State | Enum: |
| | | | | | 0: State Unoccupied |
| | | | | | 1: State Occupied |

## Message type C / ID 2 (Transmit actual data)

Direction: Sensor -> Gateway

**Bit 5.7** indicates which setpoint type is actual used at the device. The difference is made at the visualization of the setpoint (real temperature setpoint (24.5 °C) or setpoint shift (+ 3.0 °C)) and this information is needed for interpreting the value of DB2.

**Byte 4** transmits the actual measured temperature.

**Byte 2** transmits the actual setpoint shift. How to interpret this value is a combination of Bit 5.7, Byte 1 and Bit 0.7 … 0.4.
If the actual setpoint type is setpoint shift, then the value of Byte 2 only represents the scaled valid setpoint shift at Bit 0.7 … 0.4.
If the setpoint type is temperature setpoint, then the temperature setpoint is calculated as sum of the internal basesetpoint at Byte 1 and the scaled valid setpoint shift at Bit 0.7 … 0.4, transmitted at Byte 2.

**Byte 1** transmits the actual, at the device stored, basesetpoint.

**Bit 0.7 … 0.4** transmits the actual valid, at the device stored, setpoint shift.

| | DB_5 | | | | | | | | DB_4 | | | | | | | | DB_3 | | | | | | | | DB_2 | | | | | | | | DB_1 | | | | | | | | DB_0 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DB Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Bit Offset | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| | SPT | TT | | MID | | | | | TEMP | | | | | | | | HUMI | | | | | | | | SP | | | | | | | | IBS | | | | | | | | BSP | | | | | FS | | OS |

| Offset | Size | Data | ShortCut | Description | Valid Range | Scale | Unit |
|---|---|---|---|---|---|---|---|
| 0 | 1 | Setpoint type | SPT | Setpoint type actual used by the device (temperature correction / temperature setpoint) | Enum:<br>0: Temperature correction<br>1: Temperature setpoint | | |
| 1 | 2 | Telegram Type | TT | Telegram Trigger | Enum:<br>0: Heartbeat<br><br>1: Change of temperature- or humidity value<br>2: User caused parameter change | | |
| 3 | 1 | Not Used (= 0) | | | | | |
| 4 | 4 | Message ID | MID | Message Type C, ID-2 | Enum:<br>0: ID-0<br>1: ID-1<br>2: ID-2<br>3…15: Reserved | | |
| 8 | 8 | Temperature | TEMP | Temperature | 0…255 | 0…+40 | °C |
| 16 | 8 | Humidity | HUMI | Humidity | 0…250 | 0…+100 | %rH |
| 24 | 8 | Setpoint offset | SP | Setpoint shift, linear (refers to valid setpoint shift at DB0.7 … DB0.4) | 0…255 | according to **BSB** | K |

| 32 | 8 | Basesetpoint | IBS | Internal basesetpoint, required for setpoint type "temperature setpoint" | Enum: |
|----|---|--------------|-----|------------------------------------------|-------|
| | | | | | 0...14: Reserved |
| | | | | | 15...30: °C 15...30 |
| | | | | | 31...255: Reserved |
| 40 | 4 | Valid temperature correction | BSB | Valid temperature correction | Enum: |
| | | | | | 0: Reserved |
| | | | | | 1: K -1...1 |
| | | | | | 2: K -2...2 |
| | | | | | 3: K -3...3 |
| | | | | | 4: K -4...4 |
| | | | | | 5: K -5...5 |
| | | | | | 6: K -6...6 |
| | | | | | 7: K -7...7 |
| | | | | | 8: K -8...8 |
| | | | | | 9: K -9...9 |
| | | | | | 10: K -10...10 |
| | | | | | 11...15: Reserved |
| 44 | 3 | Fan Speed | FS | Fan Speed | Enum: |
| | | | | | 0: Auto |
| | | | | | 1: Speed 0 |
| | | | | | 2: Speed 1 |
| | | | | | 3: Speed 2 |
| | | | | | 4: Speed 3 |
| | | | | | 5...6: Reserved |
| | | | | | 7: Not available |
| 47 | 1 | Occupancy State | OS | Occupancy State | Enum: |
| | | | | | 0: State Unoccupied |
| | | | | | 1: State Occupied |