

EnOcean Equipment Profiles

REVISION HISTORY

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

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enocean°alliance No Wires. No Batteries. No Limits.

System Specification

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EnOcean Equipment Profiles



D2-14: Multi Function Sensors

TYPE 00 ... 24 Submitter: Perfactory

TYPE 30 ... 31 Submitter: Nexelec

Description:

Indoor Smarthome Multisensor

These EEPs describe a family of smarthome multi-functional sensors with optional Touch Button devices. Each device/member of the family is equipped with a different set of sensors to measure ambient environmental parameters, e.g. temperature, humidity, light level etc.

Some family-members are equipped with buttons in addition to the sensors. The response to pressing a button can be defined freely.

Sensor fault mode status (COA / SMA):

A smoke sensor failure prevents operation of a smoke / CO alarm signal. The smoke / CO sensor is supervised and a failure activates this flag.

Smoke Alarm Condition analysis:

The smoke alarm might be activated by improper environmental conditions like dust, humidity, etc. The product will activate flags if some of these conditions are observed at the moment of alarm activation.

- Maintenance: the flag is set if there is a lack of maintenance
- Temperature: the flag is set if the temperature may cause the alarm
- Humidity: the flag is set if the relative humidity may cause the alarm

!!! An activated flag doesn't mean that there is no smoke. It is dangerous to suspect a false alarm as the smoke preceding the onset of the flames are toxic and may cause you to lose consciousness: despite the absence of flames, a fire may blaze up in a few minutes. Nexelec recommends to analyse the environmental condition of a smoke alarm after the disappearance of the smoke alarm signal.

CO Alarm Condition analysis:

The CO alarm might be activated by improper environmental conditions like dust, humidity, etc. The product will activate flags if some of these conditions are observed at the moment of alarm activation.

- Maintenance: the flag is set if there is a lack of maintenance
- Temperature: the flag is set if the temperature may cause the alarm
- Humidity: the flag is set if the relative humidity may cause the alarm

!!! An activated flag doesn't mean that there is no CO. It is dangerous to suspect a false alarm. Nexelec recommends to analyse the environmental condition of a CO alarm after the disappearance of the CO alarm signal.

EEP Properties defined by the submitter:

Data exchange

Direction: unidirectional Addressing: broadcast

Communication trigger: event- & time-triggered

Communication interval: According to configuration ((non-)autonomous operation, battery status, etc.)

Trigger event: change of value (configuration-dependent) over threshold

Tx delay: -Rx timeout: -

Teach-in

Teach-in method: Universal teach-in (UTE)

Security

Encryption supported: no Security level format: -

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Parameters applied by EEP family members:

Each member of the family transports at least one or more parameters it its messages as defined later. The parameters are defined in the following table; these are the "building blocks" of the telegrams.

| Name | ShortCut Size Description MSGID 8 Message ID | | | Valid Range | Scale | Unit | | | | | |
|----------------|--|--|------------------------------------|--|---|-------|--|--|--|--|--|
| Massace ID | MCCID | | Massace ID | 0 255 | | | | | | | |
| Message ID | MSGID | 8 | message ID | 0 255 | | | | | | | |
| Temperature | TMP8 | Temperature 0 250 Linear, rang sensor (TYP dependent | | | | | | | | | |
| remperature | TMPO | 0 | Status of Temperature Sensor | Enum: 251 254: Reserved | | | | | | | |
| | | | | 255: Error | | | | | | | |
| T | TMDO | | Temperature | 0 500 | Linear, range sensor (TYPE) dependent | °c | | | | | |
| Temperature | TMP9 | 9 | Status of | Enum: | | | | | | | |
| | | | Temperature Sensor | 501 510: R | eserved | | | | | | |
| | | | | 511: Error | | | | | | | |
| | | | rel. Humidity (linear) | 0 200 | 0 100 | % | | | | | |
| Humidity | ним | 8 | Status of Humidity Sensor | Enum: 201 254: R 255: Error | | | | | | | |
| | | | | 233. [110] | | | | | | | |
| | | | Illumination (linear) | | | | | | | | |
| Illumination | ILL | 17 | Status of Illumination Sensor | Enum: 100,001 131,070: Reserved | | | | | | | |
| | | | | 131,071: Error | | | | | | | |
| Energy Storage | ES | 2 | Energy Storage Status | Enum: 0: High 1: Medium 2: Low 3: Critical | | | | | | | |
| | | | | 3. Critical | | | | | | | |
| | | | VOC in CO2 equivalents (linear) | 0 250 | 0 2,000 | ppm/e | | | | | |
| voc | VOC | 8 | TVOC (linear) | 0 250 | 0 1,150 | ppb | | | | | |
| VOC | VOC | 8 | Status of VOC Sensor | Enum: 251 254: R | eserved | | | | | | |
| | | | 211001 | 255: Error | | | | | | | |
| CO2 | CO2 | 9 | CO2 (linear) | 0 250 | Sensor dependent, e.g. 0 2,000 | ppm | | | | | |
| CO2 | CO2 | 8 | Status of CO2 Sensor | | | | | | | | |



| со | со | 8 | CO (linear) | 0 200 Sensor dependent, e.g. 0 1,000 ppm | | | | | | | | |
|-------------|----------|---|-------------------------------|--|--|--|--|--|--|--|--|--|
| CO | 100 | 8 | | Enum: | | | | | | | | |
| | | | Status of CO Sensor | 201 254: Reserved | | | | | | | | |
| | | | | 255: Error | | | | | | | | |
| | | | | | | | | | | | | |
| | | | Barometer (linear) | 0 500 600 1,000 hPa | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| Barometer | BAR | 9 | Status of Barometer Sensor | 501 510: Reserved | | | | | | | | |
| | | | Daronieter Sensor | 511: Error | | | | | | | | |
| | <u>'</u> | | • | | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | | 0: Present | | | | | | | | |
| Presence | PR | 2 | I + | 1: Not present | | | | | | | | |
| | | | | 2: Not detectable | | | | | | | | |
| | | | | 3: Presence Detector error | | | | | | | | |
| | _ | | | | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | Button A | 0: Button A released | | | | | | | | |
| Button A | BA | 2 | | 1: Button A pressed | | | | | | | | |
| | | | | 2: Reserved | | | | | | | | |
| | | | | 3: Button A error (state not detectable) | | | | | | | | |
| | | | | (State not detectable) | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | | 0: Button B released | | | | | | | | |
| Button B | BB | 2 | Button B | 1: Button B pressed | | | | | | | | |
| Dutton D | | _ | | 2: Reserved | | | | | | | | |
| | | | | 3: Button B error (state not detectable) | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | 1 | Smoke Alarm status | 0: Smoke Alarm non-activated | | | | | | | | |
| | | - | Sillotto Atlantii Status | 1: Smoke Alarm activated | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | 1 | Sensor fault mode | 0: Sensor Fault mode non-activated | | | | | | | | |
| | | - | status | 1: Sensor Fault mode activated | | | | | | | | |
| | | | Smoke Alarm | Enum: | | | | | | | | |
| | | 1 | Condition analysis: | 0: Maintenance OK | | | | | | | | |
| | | - | Maintenance | 1: Maintenance not done | | | | | | | | |
| Smoke Alarm | SMA | | Smoke Alarm | Enum: | | | | | | | | |
| | | 1 | Condition analysis: | 0: Humidity range OK | | | | | | | | |
| | | | Humidity | 1: Humidity range NOK | | | | | | | | |
| | | | Smoke Alarm | Enum: | | | | | | | | |
| | | 1 | Condition analysis: | 0: Temperature range OK | | | | | | | | |
| | | | Temperature | 1: Temperature range NOK | | | | | | | | |
| | | | | 0 250 0 250 Week | | | | | | | | |
| | | | Time since last | Enum: | | | | | | | | |
| | | 8 | maintenance | 251 254: Reserved | | | | | | | | |
| | | | | 255: Error | | | | | | | | |
| | | | | | | | | | | | | |



| | | | | Enum: | | | | | | | | |
|---------------------------|-------|---|------------------------------------|------------------------------------|------------------|-------|--|--|--|--|--|--|
| | | 1 | CO Alarm status | 0: CO Alarm n | | | | | | | | |
| | | | | 1: CO Alarm a | ctivated | | | | | | | |
| | | | Sensor fault mode | Enum: | | | | | | | | |
| | | 1 | status | 0: Sensor Fault mode non-activated | | | | | | | | |
| | | | Status | 1: Sensor Fault mode activated | | | | | | | | |
| | | | CO Alarm | Enum: | | | | | | | | |
| | | 1 | Condition analysis: | 0: Maintenand | e OK | | | | | | | |
| | | | Maintenance | 1: Maintenand | e not done | | | | | | | |
| CO Alarm | COA | | CO Alarm | Enum: | | | | | | | | |
| | | 1 | Condition analysis: | 0: Humidity ra | nge OK | | | | | | | |
| | | | Humidity | 1: Humidity ra | | | | | | | | |
| | | | 00.41 | Enum: | go ivo k | | | | | | | |
| | | 1 | CO Alarm Condition analysis: | 0: Temperatur | re range OK | | | | | | | |
| | | 1 | Temperature | 1: Temperatur | | | | | | | | |
| | | | Tomperature | - | | Week | | | | | | |
| | | | | 0 250 | 0 250 | Week | | | | | | |
| | | 8 | Time since last maintenance | Enum: | | | | | | | | |
| | | | maintenance | 251 254: Re | eserved | | | | | | | |
| | | | | 255: Error | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | Product | | | | | | | |
| Daniel de | | | County down the c | 0 250 | dependent, | Month | | | | | | |
| Remaining Product Life | RPLT | 8 | ountdown time Intil product end | | e.g. 0 250 | | | | | | | |
| Time | RPLI | | of life | Enum: | | | | | | | | |
| | | | | 251 254: Reserved | | | | | | | | |
| | | | | 255: Error | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | Comfort Index | 0: Good | | | | | | | | |
| Hygrothermal | HCI | 2 | based on | 1: Medium | | | | | | | | |
| Comfort Index | | _ | temperature and | 2: Bad | | | | | | | | |
| | | | humidity | 2: Bad 3: Error | | | | | | | | |
| | | | | J. LITOI | | | | | | | | |
| | | | | F | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | | 0: Optimal air | | | | | | | | |
| | | | Indoor Air quality | 1: Dry Air rang | | | | | | | | |
| T/Hum, Indoor | | | analysis based on | 2: High humid | | | | | | | | |
| Air Analysis | IAQTH | 3 | temperature and | | rature and humic | | | | | | | |
| | | | humidity | | e or Humidity ou | t of | | | | | | |
| | | | | analysis range | | | | | | | | |
| | | | | 5 6: Reserve | ed | | | | | | | |
| | | | | 7: Error | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | Enum: | | | | | | | | |
| | | | Indoor Air quality | 0: Good | | | | | | | | |
| CO Indoor Air | IAQCO | 2 | analysis based on | 1: Medium | | | | | | | | |
| Analysis | | | co | 2: Bad | | | | | | | | |
| | | | | 3: Error | | | | | | | | |
| | | | | 51 21131 | | | | | | | | |

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System Specification

EEP Family Tables:

Each line in the Family Table describes a parameter which is part of the message(s) of the marked Family Members (= column in the table / TYPE).

Line Powered devices:

| Туре | 0x00 | 0x01 | 0x02 | 0x03 | 0x04 | 0x05 |
|----------------------------------|------|------|-------|-------|------|-------|
| Temperature Sensor, TMP9 | 050 | 050 | | 050 | 050 | 050 |
| Humidity Sensor, HUM | Χ | Χ | | X | X | Х |
| Illumination Sensor, ILL | | | | | X | Х |
| VOC Sensor [CO2-equiv.], VOC | | | 02000 | 02000 | | 02000 |
| Freely Programmable Button A, BA | | X | | | | |
| Freely Programmable Button B, BB | | X | | | | |

| Туре | 0x06 | 0x07 | 0x08 | 0x09 | 0x0A |
|------------------------------|-------|-------|-------|-------|-------|
| Temperature Sensor, TMP9 | | 050 | 050 | 050 | 050 |
| Humidity Sensor, HUM | | X | Χ | X | Χ |
| Illumination Sensor, ILL | | | Х | | Х |
| VOC Sensor [CO2-equiv.], VOC | | | | 02000 | 02000 |
| CO2 Sensor, CO2 | 02000 | 02000 | 02000 | 02000 | 02000 |

| Туре | 0x0B | 0x0C | 0x0D | 0x0E | 0x0F | 0x10 |
|----------------------------------|-------|-------|-------|-------|------|-------|
| Temperature Sensor, TMP9 | 050 | | 050 | 050 | 050 | 050 |
| Humidity Sensor, HUM | X | | Χ | X | X | X |
| VOC Sensor [CO2-equiv.], VOC | | | 02000 | 02000 | | 02000 |
| VOC Sensor, TVOC | 01150 | | | | | |
| CO2 Sensor, CO2 | | | | 02000 | | |
| CO2 Sensor, CO2 | | 05000 | | | | |
| Barometer Sensor, BAR | | | | | X | |
| Room Occupancy Sensor, PR | | | | | | X |
| Freely Programmable Button A, BA | | | X | X | | |

Autonomous devices (indoor):

| Туре | 0x1A | 0x1B | 0x1C | 0x1D |
|---------------------------|------|------|------|------|
| Temperature Sensor, TMP9 | 050 | 050 | 050 | 050 |
| Humidity Sensor, HUM | Χ | X | X | X |
| Illumination Sensor, ILL | | X | | X |
| Energy Storage Status, ES | Χ | X | X | X |
| Barometer Sensor, BAR | | | X | X |

| Туре | 0x30 | 0x31 |
|-----------------------------------|------|-------|
| Temperature Sensor, TMP8 | 050 | 050 |
| Humidity Sensor, HUM | X | X |
| Smoke Alarm, SMA | X | |
| CO Alarm, COA | | X |
| CO Sensor, CO | | 01000 |
| Energy Storage Status, ES | Х | X |
| Remaining Product Life Time, RPLF | 120 | 120 |
| Hygrothermal Comfort Index, HCI | X | X |
| T/Hum. Indoor Air Analysis, IAQTH | X | X |
| CO Indoor Air Analysis, IAQCO | | X |

Autonomous devices (outdoor):

| Туре | 0x20 | 0x21 | 0x22 | 0x23 | 0x24 |
|---------------------------|-------|-------|-------|-------|------|
| Temperature Sensor, TMP9 | -4060 | -4060 | -4060 | -4060 | |
| Humidity Sensor, HUM | Х | | Х | | |
| Illumination Sensor, ILL | Χ | | | X | X |
| Energy Storage Status, ES | X | X | Χ | X | X |

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| RORG | D2 | VLD Telegram |
|------|----|---|
| FUNC | 14 | Multi Function Sensors |
| TYPE | 0E | Sensor for Temperature, Humidity, VOC, CO2 and Button A, line-powered |

Submitter: Perfactory

TYPE **0x0E** – Sensor for Temperature, Humidity, VOC, CO2 and Button A, line-powered

| Data Byte | | | | DB | _4 | | | | | DB_3 | | | | | | | | DB_2 | | | | | | | DB_1 | | | | | | | | |
|-----------------|-----|----|----|----|------|----|----|----|---|------|----|----|----|----|----|----|----|------|----|----|----|----|----|----|------|----|----|-----|----|----|----|----|--|
| 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 | |
| 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 | |
| Data | | | | | тмр9 |) | | | | | | | HU | JM | | | | | | | VC | С | | | | 7 | | CO2 | | | | 1 | |
| · · · · · · · · | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i | | | | DB | _0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DB Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit Offset | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data | CO2 | В | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Offset | Size | Data | ShortCut | Description | Valid Range So | ale Unit |
|--------|------|-------------|----------|---|--|---------------|
| 0 | 9 | Temperature | TMP9 | Temperature (linear) Status of Temperature Sensor | 050 501510: Reserved | °C |
| 9 | 8 | Humidity | ним | Rel. Humidity (linear) Status of Humidity Sensor | 511: Error Enum: 0200: 0100 201254: Reserved 255: Error | % |
| 17 | 8 | voc | voc | VOC in CO2 equivalents (linear) Status of VOC Sensor | | ppm/e |
| 25 | 8 | CO2 | CO2 | CO2 (linear) Status of CO2 Sensor | Enum: 0250: 02000 251254: Reserved 255: Error | ppm) |
| 33 | 2 | Button A | ВА | Button A | Enum: 0: Button A released 1: Button A pressed 2: Reserved 3: Button A error (state no | t detectable) |
| 35 | 5 | Not Used (= | 0) | | | • |

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