

EnOcean Equipment Profiles

REVISION HISTORY

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

Copyright © EnOcean Alliance Inc. (2019). All rights reserved.

The information within this document is the property of the EnOcean Alliance and its use and disclosure are restricted. Elements of the EnOcean Alliance specifications may also be subject to third party intellectual property rights, including without limitation, patent, copyright or trademark rights (such a third party may or may not be a member of the EnOcean Alliance.)

The EnOcean Alliance is not responsible and shall not be held responsible in any manner for identifying or failing to identify any or all such third party intellectual property rights. This document and the information contained herein are provided on an “as is” basis and the EnOcean Alliance disclaims all warranties express or implied, including but not limited to

- (1) any warranty that the use of the information herein will not infringe any rights of third parties (including any intellectual property rights, patent, copyright or trademark rights, or
- (2) any implied warranties of merchantability, fitness for a particular purpose, title or non-infringement.

In no event will the EnOcean Alliance be liable for any loss of profits, loss of business, loss of use of data, interruption of business, or for any other direct, indirect, special or exemplary, incidental, punitive or consequential damages of any kind, in contract or in tort, in connection with this document or the information contained herein, even if advised of the possibility of such loss or damage. All Company, brand and product names may be trademarks that are the sole property of their respective owners.

The above notice and this paragraph must be included on all copies of this document that are made.

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

System Specification



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

D2-14: 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: -

System Specification

Parameters applied by EEP family members:

Each member of the family transports at least one or more parameters in 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	Valid Range	Scale	Unit
Message ID	MSGID	8	Message ID	0 ... 255		
Temperature	TMP8	8	Temperature	0 ... 250	Linear, range sensor (TYPE) dependent	°C
			Status of Temperature Sensor	Enum: 251 ... 254: Reserved 255: Error		
Temperature	TMP9	9	Temperature	0 ... 500	Linear, range sensor (TYPE) dependent	°C
			Status of Temperature Sensor	Enum: 501 ... 510: Reserved 511: Error		
Humidity	HUM	8	rel. Humidity (linear)	0 ... 200	0 ... 100	%
			Status of Humidity Sensor	Enum: 201 ... 254: Reserved 255: Error		
Illumination	ILL	17	Illumination (linear)	0 ... 100,000	0 ... 100,000	lx
			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		
VOC	VOC	8	VOC in CO2 equivalents (linear)	0 ... 250	0 ... 2,000	ppm/e
			TVOC (linear)	0 ... 250	0 ... 1,150	ppb
			Status of VOC Sensor	Enum: 251 ... 254: Reserved 255: Error		
CO2	CO2	8	CO2 (linear)	0 ... 250	Sensor dependent, e.g. 0 ... 2,000	ppm
			Status of CO2 Sensor	Enum: 251 ... 254: Reserved 255: Error		

System Specification

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

System Specification

CO Alarm	COA	1	CO Alarm status	Enum: 0: CO Alarm non-activated 1: CO Alarm activated		
		1	Sensor fault mode status	Enum: 0: Sensor Fault mode non-activated 1: Sensor Fault mode activated		
		1	CO Alarm Condition analysis: Maintenance	Enum: 0: Maintenance OK 1: Maintenance not done		
		1	CO Alarm Condition analysis: Humidity	Enum: 0: Humidity range OK 1: Humidity range NOK		
		1	CO Alarm Condition analysis: Temperature	Enum: 0: Temperature range OK 1: Temperature range NOK		
		8	Time since last maintenance	0 ... 250	0 ... 250	Week
				Enum: 251 ... 254: Reserved 255: Error		
Remaining Product Life Time	RPLT	8	Countdown time until product end of life	0 ... 250	Product dependent, e.g. 0 ... 250	Month
				Enum: 251 ... 254: Reserved 255: Error		
Hygrothermal Comfort Index	HCI	2	Comfort Index based on temperature and humidity	Enum: 0: Good 1: Medium 2: Bad 3: Error		
T/Hum. Indoor Air Analysis	IAQTH	3	Indoor Air quality analysis based on temperature and humidity	Enum: 0: Optimal air range 1: Dry Air range 2: High humidity range 3: High temperature and humidity range 4: Temperature or Humidity out of analysis range 5 ... 6: Reserved 7: Error		
CO Indoor Air Analysis	IAQCO	2	Indoor Air quality analysis based on CO	Enum: 0: Good 1: Medium 2: Bad 3: Error		

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:

Type	0x00	0x01	0x02	0x03	0x04	0x05
Temperature Sensor, TMP9	0...50	0...50		0...50	0...50	0...50
Humidity Sensor, HUM	X	X		X	X	X
Illumination Sensor, ILL					X	X
VOC Sensor [CO2-equiv.], VOC			0...2000	0...2000		0...2000
Freely Programmable Button A, BA		X				
Freely Programmable Button B, BB		X				

Type	0x06	0x07	0x08	0x09	0x0A
Temperature Sensor, TMP9		0...50	0...50	0...50	0...50
Humidity Sensor, HUM		X	X	X	X
Illumination Sensor, ILL			X		X
VOC Sensor [CO2-equiv.], VOC				0...2000	0...2000
CO2 Sensor, CO2	0...2000	0...2000	0...2000	0...2000	0...2000

Type	0x0B	0x0C	0x0D	0x0E	0x0F	0x10
Temperature Sensor, TMP9	0...50		0...50	0...50	0...50	0...50
Humidity Sensor, HUM	X		X	X	X	X
VOC Sensor [CO2-equiv.], VOC			0...2000	0...2000		0...2000
VOC Sensor, TVOC	0...1150					
CO2 Sensor, CO2				0...2000		
CO2 Sensor, CO2		0...5000				
Barometer Sensor, BAR					X	
Room Occupancy Sensor, PR						X
Freely Programmable Button A, BA			X	X		

Autonomous devices (indoor):

Type	0x1A	0x1B	0x1C	0x1D
Temperature Sensor, TMP9	0...50	0...50	0...50	0...50
Humidity Sensor, HUM	X	X	X	X
Illumination Sensor, ILL		X		X
Energy Storage Status, ES	X	X	X	X
Barometer Sensor, BAR			X	X

Type	0x30	0x31
Temperature Sensor, TMP8	0...50	0...50
Humidity Sensor, HUM	X	X
Smoke Alarm, SMA	X	
CO Alarm, COA		X
CO Sensor, CO		0...1000
Energy Storage Status, ES	X	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):

Type	0x20	0x21	0x22	0x23	0x24
Temperature Sensor, TMP9	-40...60	-40...60	-40...60	-40...60	
Humidity Sensor, HUM	X		X		
Illumination Sensor, ILL	X			X	X
Energy Storage Status, ES	X	X	X	X	X

System Specification

RORG	D2	VLD Telegram
FUNC	14	Multi Function Sensors
TYPE	24	Outdoor Sensor for Illumination and Energy Storage

Submitter: Perfactory

For the parameter ES (energy storage) applies: manufacturers / devices which would like to indicate a percentage value it is recommended to handle this in the user manual of the device, respectively an application note.

TYPE 0x24 - Outdoor sensor for Illumination and Energy Storage

Data Byte	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
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
Data	ILL																ES							

Offset	Size	Data	ShortCut	Description	Valid Range	Scale	Unit
0	17	Illumination	ILL	Illumination (linear) ----- Status of Illumination Sensor	Enum: 0...100000: 100001...131070: Reserved 131071: Error		lx
17	2	Energy Storage	ES	Energy Storage Status	Enum: 0: High 1: Medium 2: Low 3: Critical		
19	5	Not Used (= 0)					