System Specification

Generic Profiles - Appendix

V 1.0

San Ramon, CA, USA, June 20, 2013

Preamble

This system specification is in the status PRELIMINARY.

For further details refer to the system specification Generic Profiles, section 1.4, please.

Executive Summary

Generic Profiles are the successor of EnOcean Equipment Profiles and target the short comings of it. Both EnOcean Equipment Profiles and Generic Profiles describe the data communication of products utilizing The EnOcean Radio Protocol and Generic Profiles enable manufacturers to develop interoperable products. The strength of Generic Profiles is to enable devices to have self-described communication.

New products can be developed without submission of its profile to the EnOcean Alliance.

This Appendix is tied intrinsically to the Generic Profiles system specification. Both documents MUST be applied in combination.

Version control

Ver.	Editor	Change	Date
1.0	MH	Document finalised, approved by BoD (Jul 30, 2013) and TWG (Aug 22, 2013)	Aug 22, 2013

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1. Generic Profiles Appendix

1.1. About this document

This document defines the variable lists, which are used in the Generic Profiles Specification and best use case practices. The process of Generic Profiles and usage of the following definitions is described in the Generic Profiles Specification.

This Appendix is intrinsically tied to the Generic Profiles system specification. Both documents MUST be applied in combination.

Additions to the following definitions have to be submitted to the EnOcean Alliance Technical Working Group (TWG) for approval. The EAC (EEP Approval Committee) will review the changes requested and revise if so required; submitters will be supported with questions and requests.

Whenever a planned product cannot be described sufficiently with the existing definitions an additional definition MUST be made. To secure interoperability within a wide range of different devices only definitions within the valid version of this document have to be applied for product implementation.

1.2. Remote Management

Bidirectional devices with Generic profiles are required to provide additional information about their application and so enable a reasonable commissioning during installation and maintenance. Therefore Remote Management is used to fetch additional information about the device and configure it.

Generic Profile based devices that are continuously powered should support a minimum feature set from the EnOcean Remote Management specification – all RMCC Commands. In addition to the Remote Management Control Commands (RMCC) such devices should support Remote Procedure Calls (RPC) defined in Remote Commissioning Specification.

Minimal required features from Remote Commissioning Specification:

- operations to control Teach-in process
- operations to access and read link table

In case any new RPC definition will be required, it shall be handled in accordance with the standardization process of the EnOcean Alliance TWG and defined within the System Specification on Remote Commissioning.

NOTE:

Remote Management Specification is available here:
http://www.enocean.com/fileadmin/redaktion/pdf/tec_docs/RemoteManagement.pdf

Remote Commissioning Specification is available here:

http://www.enocean-alliance.org/en/home/

1.3. Signal types

In this chapter the signal types for all channel types are described. There are signal type definitions for channel type:

- Data
- Flag
- Enumeration
- Teach-in information

1.3.1. Signal type Data

Signal Type			
8 bits	Data		
00000000	=	Reserved	N/A
00000001	=	Acceleration	m / s²
00000010	=	Angle	°
00000011	=	Angular velocity	rad / s
00000100	=	Area	m²
00000101	=	Concentration	ppm
00000110	=	Current	A
00000111	=	Distance	m
00001000	=	Electric field strength	V / m
00001001	=	Energy	J
00001010	=	Number	N/A
00001011	=	Force	N
00001100	=	Frequency	Hz
00001101	=	Heat flux density	W / m²
00001110	=	Impulse	Ns
00001111	=	Luminance intensity	lux
00010000	=	Magnetic field strength	A / m
00010001	=	Mass	kg
00010010	=	Mass density	kg / m³
00010011	=	Mass flow	kg / s
00010100	=	Power	W
00010101	=	Pressure	Pa
00010110	=	Relative humidity	%
00010111	=	Resistance	Ω
00011000	=	Temperature	°C
00011001	=	Time	s
00011010	=	Torque	Nm
00011011	=	Velocity	m / s
00011100	=	Voltage	V
00011101	=	Volume	m³
00011110	=	Volumetric Flow	m³ / s
00011111 - 11111111	=	Reserved	N/A

TABLE 1.1: SIGNAL TYPE 'DATA'

1.3.2. Signal type Flag

Signal Type			
8 bits	Flag		
00000000	=	Reserved	N/A
00000001	=	Automatic / manual	(1) automatic; (0) manual
00000010	=	Button pressed	(1) pressed; (0) not pressed
00000011	=	Button changed	(1) change; (0) no change
00000100	=	Day / night	(1) day; (0) night
00000101	=	Down "-"	(1) down; (0) no change
00000110	=	General alarm	(1) alarm; (0) manual
00000111	=	Heat / cool	(1) heat; (0) cool
00001000	=	High / low	(1) high; (0) low
00001001	=	Occupancy	(1) occupied; (0) unoccupied
00001010	=	On / off	(1) on; (0) off
00001011	=	Open / closed	(1) open; (0) closed
00001100	=	Power alarm	(1) alarm; (0) no change
00001101	=	Start / stop	(1) start; (0) stop
00001110	=	Up "+"	(1) up; (0) no change
00010000 - 11111111	=	Reserved	N/A

TABLE 1.2: SIGNAL TYPE 'FLAG'

1.3.3. Signal type Enumeration

For the signal type 'Enumeration' the values and ranges are defined for every single enumeration. When using the enumeration channel type in Teach-in request message, the resolution description from Table 3.3: Resolution 'data' and 'enumeration' has to be applied. The range definition in the table below has only an informative character.

Signal Type					
8 bits		Enumeration	Range	Values	Use
00000000	=	Reserved		N/A	
00000001	=	Multipurpose		Defined by application	
00000010	=	Building Mode	0..2	0 = Building in use 1 = Building not used 2 = Building protection	global
00000011	=	Occupancy Mode	0..3	0 = Occupied 1 = Standby 2 = Not occupied	global
00000100	=	HVAC Mode	0..6	0 = Auto 1 = Comfort 2 = Standby 3 = Economy 4 = Building Protection	HVAC
00000101	=	Changeover Mode	0..3	0 = Auto 1 = Cooling Only 2 = Heating Only	HVAC
00000101 - 11111111	=	Reserved			

*TABLE **1**.3: SIGNAL TYPE 'ENUMERATION'*

The signal type *multipurpose (0b00000001)* is dedicated to manufacturer or application specific enumeration channel types. The values and range of the *multipurpose enumeration* can vary between products and manufacturers. Such an enumeration has to fulfill at least one of these criteria:

- is not likely to be reused by other application or manufacturer
- is very specific for a given application or manufacturer
- has different reasons not to be added as interoperable enumeration to this document

The values and range of the *multipurpose enumeration* have to be described in the product documentation of the product applying it.

1.3.4. Signal Type Teach-in information

Signal Type			
8 bits	Teach-in information		
			Length
00000000	=	Reserved	N/A
00000001	=	Inbound Channels description following	0 bytes
00000010	=	Product ID	4 bytes
00000011	=		
00000100	=		
00000101	=		
00000110	=		
00000111	=		
00001000	=		
00001001	=		
00001010	=		
00001011	=		
00001100	=		
00001101	=		
00001110	=		
00010000 - 11111111	=	Reserved	N/A

TABLE1.4: SIGNAL TYPE 'TEACH-IN INFORMATION'

The Length information is used in the channel definition of the Teach-in information channel type during Teach-in process as indicator how many bytes of data will follow. Details to channel definition can be found in chapter 4.3.2 Channel definition.

Product ID is defined to be a unique reference to a device type (not devices them self). Manufacturers can use this filed to identify different types of devices in the field and effectively improve the plug & play capabilities. A common platform to share Product ID definition and device meta-data will be defined. The rules of usage will be defined the TWG.