

EnOcean Equipment Profiles

REVISION HISTORY

V	/er.	Editor	Change	Date
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D2-01: Electronic Switches and Dimmers with Local Control

This EEP family shall be used for bidirectional actuators that control electric loads, e.g. for lightning purposes. Switching and dimming is controlled and high-resolution energy measurement is supported. Local Control, either thru a user interface or thru other measures shall be supported on the actuator. This may include other EnOcean enabled devices taught-in to a device belonging to the EEP family, e.g. a simple rocker switch or more sophisticated devices like occupancy sensors with timing control. The proposed EEP family serves up to 30 output channels and allows controlling them either individually or as a bulk. Extension of this EEP family is possible in different ways:

1. A new device with a different feature mix creates a new TYPE within this EEP family

-> new column in following table

2. An additional feature is added and a new device with a new TYPE is created

-> new column and new line in following table

3. Like 2, but EnOcean communication of the EEP family needs to be extended

- -> new column and new line in following table
- -> one or more additional messages need to be defined

For teach-in and teach-out UTE (Universal Uni- and Bidirectional Teach-In Procedure for EEP based Communication) shall be used.

Supported function of Type	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16
No. of output channels	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	4	8	4	2
Switching	Х	х	Х	Х	Х	х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х	х	х	Х	х	Х	Х
Dimming	-	-	Х	х	х	х	-	-	-	х	-	-	-	-	-	-	-	-	-	-	-	-	Х
Dimming configurable	-	-	-	-	х	х	-	-	-	х	-	-	-	-	-	-	-	-	-	-	-	-	Х
Pilot wire	-	-	-	-	-	-	-	-	-	-	-	-	Х	-	-	-	-	-	-	-	-	-	-
Local control	Х	х	Х	Х	Х	х	-	-	Х	Х	х	Х	Х	Х	Х	х	Х	х	х	Х	х	Х	Х
Local control enable/disable	-	-	-	-	Х	Х	-	-	Х	-	Х	Х	Х	Х	Х	Х	-	-	Х	-	-	Х	Х
External Switch / Push Button Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	х	-	-	Х	-	-	Х	Х
External Switch / Push Button Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Х	-	-	Х	-	-	Х	Х
Auto OFF Timer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Х	-	-	х	-	-	Х	Х
Delay OFF Timer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	х	-	-	х	-	-	Х	Х
Taught-in devices enable/disable 2)	-	-	-	-	Х	х	-	-	Х	Х	х	Х	Х	Х	Х	Х	-	-	х	-	-	-	-
User interface day/night mode	-	-	-	-	-	х	-	-	Х	-	х	Х	Х	Х	Х	х	-	-	х	-	-	Х	Х
Over current reporting	-	-	-	-	Х	х	-	-	Х	Х	-	-	Х	-	-	-	-	-	-	-	-	-	-
Over current configurable	-	-	-	-	Х	х	-	-	Х	-	-	-	Х	-	-	-	-	-	-	-	-	-	-
Energy measurement	Х	-	Х	-	Х	х	Х	-	Х	Х	-	Х	Х	-	Х	-	Х	-	-	-	-	-	-
Power measurement	-	-	-	-	Х	х	-	-	Х	Х	-	Х	Х	-	Х	-	-	-	-	-	-	-	-
Measurement Roll Over 1)	Х	-	Х	-	-	-	Х	-	-	-	-	Х	-	-	Х	-	Х	-	-	-	-	-	-
Measurement Auto Scaling 1)	-	-	-	-	Х	х	-	-	Х	Х	-	-	Х	-	-	-	-	-	-	-	-	-	-
Measurement configurable	-	-	-	-	-	х	-	-	Х	х	-	Х	Х	-	х	-	-	-	-	-	-	-	-
Measurement report on query	х	-	х	-	х	х	х	-	х	х	-	Х	Х	-	х	-	х	-	-	-	-	Х	-
Measurement auto reporting	-	-	-	-	Х	х	-	-	Х	Х	-	Х	Х	-	Х	-	-	-	-	-	-	-	-
Default state configurable	-	-	-	-	-	х	-	-	х	х	х	Х	Х	х	х	х	-	-	х	-	-	Х	-
Error level reporting	-	-	-	-	-	х	-	-	Х	Х	-	-	Х	-	-	-	-	-	-	-	-	Х	-
Power Failure Detection	-	-	-	-	-	-	-	-	-	-	х	х	-	-	-	-	-	-	-	-	-	-	-
Power Failure Detection enable/disable	-	-	-	-	-	-	-	-	-	-	х	Х	-	-	-	-	-	-	-	-	-	-	-
Maximum Dimming Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Х
Minimum Dimming Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Х

1) A device may either support Measurement Roll Over or Measurement Auto Scaling.

2) Enable / disable only effects devices that are taught-in to a device belonging to this EEP family; it does not effect communication between a device belonging to this EEP family and any other entity where this device has been taught-in by itself.



RORG	D2	VLD Telegram
FUNC	01	Electronic Switches and Dimmers with Local Control
ТҮРЕ	0C	Type 0x0C

Submitter: AVIDSEN

Description

Intended for heating module with Pilotwire command and Energy Measurement.

Pilot wire includes 6 different modes:

- Off
- Comfort
- Eco
- Anti-freeze
- Comfort-1°C
- Comfort-2°C

Data exchange Direction: bidirectional Addressing: broadcast Communication trigger: event-triggered Communication interval: at each state change / every 5 minutes Trigger event: actuator status change, consumption information change Tx delay: -Rx timeout: -

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

Security Encryption supported: no Security level format: -

Supported command	Type 0x0C
0x1 – Actuator Set Output	х
0x2 – Actuator Set Local	х
0x3 – Actuator Status Query	Х
0x4 – Actuator Status Response	х
0x5 – Actuator Set Measurement	х
0x6 – Actuator Measurement Query	Х
0x7 – Actuator Measurement Response	х
0x8 – Actuator Set Pilot Wire Mode	Х
0x9 – Actuator Pilot Wire Mode Query	Х
0xA – Actuator Pilot Wire Mode Response	х

Telegram Definition

The telegrams corresponding to Command IDs: 0x1, 0x2, 0x3, 0x4, 0x5, 0x6 and 0x7 are already defined in EEP V2.6.2 and do not change.



Submitter: Team

CMD 0x1 - Actuator Set Output

This message is sent to an actuator. It controls switching / dimming of one or all channels of an actuator.



REMARK:

In case an Actuator Set Output message specifies a parameter that is not supported by the addressed device, such device should react as following:

- Channel not supported by device -> ignore message

- Dimming command to switching device -> no change of status

- Dimming command with non-supported speed -> dim with regular speed

RECOMMENDATION:

Dimmers should take things like phase shifting into account to provide dimming based on power consumption (results in brightness for lamps) rather than interpreting percentage values as phase angle only.

Offset	Size	Data	ShortCut	Description	Vali	d Range	Scale	Unit
0	4	Not Used (=	0)					
4	4	Command	CMD	command	Enum:			
		ID		identifier	0x01: ID 01			
8	3	Dim value	DV		Enum:			
					0x00:	Switch to new out	put value	
					0x01:	Dim to new output	t value – dim tim	er 1
					0x02:	Dim to new output	t value – dim tim	er 2
					0x03:	Dim to new output	t value – dim tim	er 3
					0x04:	Stop dimming		
					0x050x07	: not used		
11	5	I/O channel	I/O		Enum:			
					0,000 0,010	Output channel (to	o load)	
					0x000x1D:	All autout also and		
					0x1E:	All output channel device	s supported by u	le
					0x1F:	Input channel (fro	m mains supply)	
16	1	Not Used (=	0)					
17	7	Output value	ov		Enum:			
					0x00:	Output value 0% d	or OFF	
					0x010x64	: Output value 1% t	o 100% or ON	
					0x650x7E	: Not used		
					0x7F:	Output value not v	valid / not applica	able



CMD 0x2 - Actuator Set Local

This message is sent to an actuator. It configures one or all channels of an actuator.

Response Timing: None

RECOMMENDATION:

In case the device implements an internal order for dim timers, this order should be from "dim timer 1" (fast) to "dim timer 3" (slow). The configured time shall always be interpreted for a full range (0 to 100%) dimming.





Offset	Size	Data	ShortCut	Description	Valid Range Scale Unit
0		Taught-in devices	d/e	-	Enum:
					Disable taught-in devices (with different 0b0: EEP)
					Enable taught-in devices (with different 0b1: EEP)
1	3	Not Used (= 0)			
4	4	Command ID	CMD	Command identifier	Enum: 0x02: ID 02
8	1	Over current shut down	ос		Enum:
					Over current shut down: static off 0b0:
					Over current shut down: automatic 0b1: restart
9	1	reset over current shut	RO		Enum:
		down			Reset over current shut down: not active 0b0:
					Reset over current shut down: trigger 0b1: signal
10	1	Local control	LC		Enum:
					0b0: Disable local control
					0b1: Enable local control
11	5	I/O channel	I/O		Enum:
					Output channel (to load) 0x000x1D:
					0x1E: All output channels supported by the device
					0x1F: Input channel (from mains supply)
16	4	Dim timer 2	DT2		Enum:
					0x00: Not used
					Dim timer 2 [0,5 7,5s / steps 0x010x0F: 0,5s]
20	4	Dim timer 3	DT3		Enum:
					0x00: Not used
					Dim timer 3 [0,5 7,5s / steps 0x010x0F: 0,5s]
24	1	User interface	d/n		Enum:
		indication			0b0: User interface indication: day operation
					0b1: User interface indication: night operation
25	1	Power Failure	PF		Enum:
					0b0: Disable Power Failure Detection
					0b1: Enable Power Failure Detection
26	2	Default state	DS		Enum:
					0b00: Default state: 0% or OFF
					0b01: Default state: 100% or ON
					0b10: Default state: remember previous state
28	4	Dim timer 1	DT1		0b11: Not used
20	4				Enum: 0x00: Not used
					Dim timer 1 [0,5 7,5s / steps 0x010x0F: 0,5s]



CMD 0x3 - Actuator Status Query

This message is sent to an actuator. It requests the status of one or all channels of an actuator.

Response Timing:

An Actuator Status Response message shall be received within a maximum of 300ms from the time of transmission of this message. In case no such response is received within this time frame the action shall be treated as completed without result.

	Command ID 03 (CMD)															
				DB	_1							DB	_0			
DB_1.BIT_7 ← 0		6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Bit Offset: 0 → 15	Bit Offset: 0 → 15 0 1 2 3							4 5 6 7			10	11	12	13	14	15
CMD I/O channel																

Offset	Size	Data	ShortCut	Description	Valio	l Range	Scale	Unit
0	4	Not Used (=	0)					
4	4	Command	CMD	Command	Enum:			
		ID		identifier	0x03: ID 03			
8	3	Not Used (=	0)					
11	5	I/O channel	I/O		Enum:			
						Output channel (t	o load)	
					0x000x1D:			
					0x1E:	All output channe device	s supported by t	the
					0x1F:	Input channel (fro	om mains supply)

CMD 0x4 - Actuator Status Response

This message is sent by an actuator if one of the following events occurs:

- Status of one channel has been changed locally
- Message Actuator Status Query has been received

Response Timing:

This message shall be sent within a maximum of 50ms from the time of reception of the Actuator Status Query message.



REMARK 1:

In case an Actuator Status Query message specifies a parameter that is not supported by the device being addresses, such device shall ignore the message and shall not answer using the Actuator Status Response message. REMARK 2:

In case an Actuator Status Query message queries all output channels supported by a device being addresses, such device shall answer per each output channel by using an individual Actuator Measurement Response message.



Offset	Size	Data	ShortCut	Description	Valid Range	Scale Unit
0	1	Power Failure	PF		Enum:	
					Power Failure Detection	n disabled/not
					0b0: supported	
					Power Failure Detection 0b1:	n enabled
1	1	Power Failure	PFD		Enum:	
1	1	Detection	110		Power Failure not dete	cted/not
					0b0: supported/disabled	
					Power Failure Detected	l
					0b1:	
2	2	Not Used (= 0)				
4	4	Command ID	CMD	Command identifier	Enum:	
				identiller	0x04: ID 04	
8	1	Over current switch	oc		Enum:	
		011			Over current switch of 0b0: supported	f: ready / not
					Over current switch of	f: executed
					0b1:	. executed
9	2	Error level	EL		Enum:	
					0b00: Error level 0: hardwa	re OK
					0b01: Error level 1: hardwa	
					0b10: Error level 2: hardwa	
					0b11: Error level not support	ted
11	5	I/O channel	I/O		Enum:	
					0x000x1D: Output channe	
					0x1E: Not applicable	
16	1	Local control	LC			(from mains supply)
10	T	Local control	LC		Enum:	/ not supported
					0b0: Local control disabled , 0b1: Local control enabled	not supported
17	7	Output value	ov		Enum:	
1/	·	output value	~		0x00: Output value ()% or OFF
					0x010x64: Output value 1	
					0x650x7E: Not used	
					0x7F: output value n	ot valid / not set



CMD 0x5 - Actuator Set Measurement

The command defines values at offset 32 and at offset 40 which are the limits for the transmission periodicity of messages. MIT must not be set to 0, MAT \geq MIT.

Response Timing: None

Command ID 05 (CHD) DB_5 DB_4 DB_3 DB_2 DB_2 DB_1 DB_0 DB_5 DB_4 DB_3 DB_2 DB_1 DB_1 DB_5 DB_1 DB_1 DB_5 DB_1 DB_1 DB_5 DB_1 DB_5 DB_1 DB_0 DB_1 DB_1 DB_0 DB_1 <th colsp

Offset	Size	Data	ShortCut	Description	Valid Range	Scale	Unit
0	4	Not Used (= 0)		•			
4	4	Command ID	CMD	Command identifier	Enum: 0x05: ID 05		
8	1	Report measurement	RM		Enum:		
					Report mease 0b0: only		
					Report measu 0b1: auto reportin		ry /
9	1	Reset measurement	RE		Enum:		
					Reset measu 0b0:	rement: not a	active
					Reset measu 0b1: signal	rement: trigg	er
10	1	Measurement mode	e/p		Enum:		
					0b0: Energy meas	urement	
					0b1: Power measu	irement	
11	5	I/O channel	I/O		Enum:		
					0x000x1D: load)	ut channel (to	
						tput channels	
						orted by the d	
					mains	channel (from supply)	
16	4	Measurement delta to be reported (LSB)	MD_LSB		04095	04095	N/A
20	1	Not Used (= 0)					
21	3	Unit	UN		Enum:		
					0x00: Ener	gy [Ws]	
						gy [Wh]	
						gy [KWh]	
						er [W]	
						er [KW]	
24	8	Monguroment delte to be	MD MCD		0x050x07: Not u	-	NI/A
24	-	Measurement delta to be reported (MSB)	MD_MSB		04095	04095	N/A
32	8	Maximum time between two	MAT	Measurement	Enum:		_
		subsequent actuator messages		Response messages [10s]	1255:		5
		meesugee		[100]		102550	_
10		Minimum time between t	MIT	M	0: Reserved		
40	8	Minimum time between two subsequent actuator	MIT	Measurement Response messages	Enum:		
		messages		[s]	1255:	s 1255	
					Di Docorried		
					0: Reserved		

Measurement delta to be reported



CMD 0x6 - Actuator Measurement Query

This message is sent to an actuator. The actuator replies with an Actuator Measurement Response message.

Response Timing:

An Actuator Message Response message shall be received within a maximum of 300ms from the time of transmission of this message. In case no such response is received within this time frame the action shall be treated as completed without result.

	Command ID 06 (CMD)															
	DB_1 DB_0															
DB_1.BIT_7 ← 0		6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Bit Offset: 0 → 15	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			a	1D				qu		ľ(O	cha	nne				

Offset	Size	Data	ShortCut	Description	Valio	d Range	Scale	Unit
0	4	Not Used (=	0)					
4		Command ID		Command identifier	Enum: 0x06:ID 06			
8	2	Not Used (=	0)					
10	1	Query	qu		Enum: 0b0: Query e 0b1: Query p			
11	5	I/O channel	I/O		Enum: 0x000x1D: 0x1E: 0x1F:	Output channel (1 All output channed device Input channel (fre	ls supported by t	

CMD 0x7 - Actuator Measurement Response

This message is sent by an actuator if one of the following events occurs:

- Measurement results trigger an automated transmission (see Actuator Set Measurement message)
- Message Actuator Measurement Query has been received

Response Timing:

This message shall be sent within a maximum of 50ms from the time of reception of the Actuator Measurement Query message.



REMARK 1:

In case an Actuator Measurement Query message specifies a parameter that is not supported by the device



addressed, such device shall ignore the message and shall not answer using the Actuator Measurement Response message.

REMARK 2:

In case an Actuator Measurement Query message queries all output channels supported by a device being addresses, such device shall answer per each output channel by using an individual Actuator Measurement Response message.

Offset	Size	Data	ShortCut	Description	Valid R	tange	Scale	Unit
0	4	Not Used (= 0)						
4	4	Command ID	CMD	Command identifier	Enum:			
					0x07: ID 07			
8	3	Unit	UN		Enum:			
					0x00:	Energy [Ws]		
					0x01:	Energy [Wh]		
					0x02:	Energy [KWh	ו]	
					0x03:	Power [W]		
					0x04:	Power [KW]		
					0x050x07	: Not used		
11	5	I/O channel	I/O		Enum:			
						Output chan	nel (to load	1)
					0x000x1D:			
					0x1E:	Not applicabl	e, do not u	ise
					0x1F:	Input channe supply)	el (from ma	ains
16	32	Measurement value (4 bytes)	MV	DB3 = MSB / DB0 = LSB	0429496729	5		N/A

CMD 0x8 - Actuator Set Pilot Wire Mode



Offset	Size	Data	ShortCut	Description	Valid Range <mark>Scale</mark> Unit
0	4	Not Used (= 0)			
4	4	Command ID	CMD	Command identifier	Enum:
					0x08: ID 08
8	5	Not Used (= 0)			
13	3	Pilotwire mode	PM		Enum:
					0x00: Off
					0x01: Comfort
					0x02: Eco
					0x03: Anti-freeze
					0x04: Comfort-1
					0x05: Comfort-2



CMD 0x9 - Actuator Pilot Wire Mode Query



Offset	Size	Data	ShortCut	Description	Valid Range	Scale Unit
0	4	Not Used (=	0)			
4	4	Command ID	CMD	Command identifier	Enum:	
					0x09: ID 09	

CMD 0xA - Actuator Pilot Wire Mode Response



Offset	Size	Data	ShortCut	Description	Valid Range <mark>Scale</mark> Unit
0	4	Not Used $(= 0)$			
4	4	Command ID	CMD	Command identifier	Enum:
					0x0A: ID 0A
8	5	Not Used $(= 0)$			
13	3	Pilotwire mode	PM		Enum:
					0x00: Off
					0x01: Comfort
					0x02: Eco
					0x03: Anti-freeze
					0x04: Comfort-1
					0x05: Comfort-2



CMD 0xB - Actuator Set External Interface Settings

Command ID 0B (CMD)

Bit Offset OB OB

Offset	Size	Data	ShortCut	Description	Valid R	tange	Scale	Unit
0	4	Not Used (= 0)		-				
4	4	Command ID	CMD	Command identifier	Enum:			
					0x0B: ID 0B			
8	3	Not Used (= 0)		I				
11	5	I/O channel	I/O		Enum:			
					0x000x1D:	Output channe	el (to load	d)
					0x1E:	All output char by the device	nnels sup	ported
					0x1F:	Input channel supply)	(from m	ains
16	16	Auto OFF Timer	AOT	Timer to automatically set	Enum:			
				OFF output channel when it is set ON	0x0000:	Timer deactivated	đ	
					0x00010xFF		0.1	6553.4 s
					0xFFFF:	Does not modify sav value	ed	
32	16	Delay OFF	DOT	Delay timer before setting	Enum:			
		Timer		output channel to OFF value received by radio cmd	0x0000:	Timer deactivated	d	
				cina	0x00010xFF	FE:	0.1	6553.4 s
					0xFFFF:	Does not modify sav value	ed	
48	2	External	EBM	External interface mode	Enum:			
		Switch/Push			0b00:Not a	pplicable		
		Button			0b01: Exteri	nal Switch		
					0b10: Exteri	nal Push Button	1	
					0b11: Auto (detect		
50	1	2-state switch	SWT	Switching state	Enum:			
					0b00: Chang	ge of key state	sets ON	or OFF
						fic ON/OFF posi		
						hen contacts ar		
					OFF w	hen contacts a	re open.	
51	5	Not Used (= 0)						



CMD 0xC - Actuator External Interface Settings Query

	Со	mr	na	nd	ID	0	С	(C	MD)						
				DB	_1							DB	_0			
DB Bit	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
						C	1D					I	/0	Cha	nne	I

Offset	Size	Data	ShortCut	Description	Valio	l Range	Scale	Unit
0	4	Not Used (=	0)					
4	4	Command	CMD	Command	Enum:			
		ID		identifier	0x0C: ID 0C			
8	3	Not Used (=	0)					
11	5	I/O channel	I/O		Enum:			
					0x000x1D:	Output channel (to	o load)	
					0x1E:	All output channel device	s supported by t	he
					0x1F:	Input channel (fro	m mains supply)	



CMD 0xD - Actuator External Interface Settings Response

Command ID 0D (CMD)

Offset	Size	Data	ShortCut	Description	Valid Range	Sca	le	Unit
0	4	Not Used (= 0)		-	_	I	I	
4	4	Command ID	CMD	Command identifier	Enum:			
					0x0D: ID 0D			
8	3	Not Used (= 0)						
11	5	I/O channel	I/O		Enum:			
					0x000x1D:	channel (to	load)	
					0x1E: Not app	licable		
					0x1F: Input ch supply)	annel (from	n mains	
16	16	Auto OFF Timer	AOT	Timer to automatically set	Enum:			
				OFF output channel when it is set ON	0x0000: Time deac	r tivated		
					0x00010xFFFE:		0.165	53.4 s
					0xFFFF: Does modi value	fy saved		
32	16	Delay OFF	DOT	Delay timer before setting	Enum:			
		Timer		output channel to OFF value received by radio	0x0000: Time deac	r tivated		
				cmd	0x00010xFFFE:		0.165	53.4 s
					0xFFFF: Does modi value	fy saved		
48	2	External	EBM	External interface mode	Enum:			
		Switch/Push			0b00: Not applicable			
		Button			0b01: External Switch			
					0b10: External Push E	Button		
					0b11: Auto detect			
50	1	2-state switch	SWT	Switching state	Enum:			
					0b00: Change of key			F
					0b01: Specific ON/OF			
					ON when conta OFF when cont			
51	5	Not Used (= 0)			of the which cont	acts are ope		
51	J	not useu (≡ 0)						



CMD 0xF / ECID 0x00 - Actuator Set Dimming Limits

This message is sent to the actuator. It controls the maximum and minimum brightness of the channel output. If the actuator receives an out of range dimming value or an error command, the following actions should be performed:

- Channel not supported by device -> ignore the message
- Set dimming minimum value is less than 0% -> The minimum value is set to 0%
- Set dimming maximum value greater than 100% -> The maximum value is set to 100%

Command ID **0xF** / Ext. CID **0x00**

Data Byte				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
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
Data						CN	1D					EC	ID						I/O									N	1AX	/						P	MIN	V		

Size	Data	ShortCut	Description	Valid	Range	Scale	Unit
4	Not Used (= 0)						
4	Command ID	CMD		Enum:			
				0xF: ID F			
8	Extended Command	ECID		Enum:			
	ID			0x00: ID 00	—		
5	I/O Channel	I/O		Enum:			
				(Output channel (†	to load)	
				0x000x1D:			
						els supported b	by the
				0x1F: I	Reserved		
4	Not Used (= 0)						
		MAXV		Enum:			
·					Reserved		
						lue	
1	Not Used (= 0)						
		MINV		Enum:			
				0x000x63:	Set minimum val	ue	
				0x640x7F: 1	Reserved		
	4 4 5 5 4 7	 4 Not Used (= 0) 4 Command ID 8 Extended Command ID 5 I/O Channel 5 I/O Channel 4 Not Used (= 0) 7 Maximum Value 1 Not Used (= 0) 	4 Not Used (= 0) 4 Command ID CMD 8 Extended Command ID ECID 5 I/O Channel I/O 4 Not Used (= 0)	4Not Used (= 0)4Command IDCMD8Extended Command IDECID5I/O ChannelI/O5I/O ChannelI/O4Not Used (= 0)7Maximum ValueMAXV1Not Used (= 0)	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	4 Not Used (= 0) 4 Command ID CMD Enum: 0xF: ID F 8 Extended Command ID ECID Enum: 0x00: ID 00 5 I/O Channel I/O Enum: 0x000x1D: Output channel (notput channel	4 Not Used (= 0) 4 Command ID CMD Enum: 0xF: ID F 8 Extended Command ID ECID Enum: 0x00: ID 00 5 I/O Channel I/O Enum: 0x000x1D: Output channel (to load) 0x000x1D: 6 Ox1E: All output channels supported to device 7 Maximum Value MAXV Enum: 0x00: Reserved 0x010x64: Set maximum value 0x650x7F: Reserved 1 Not Used (= 0) MINV Enum: 0x000x63: Set minimum value



CMD 0xF / ECID 0x01 - Actuator Dimming Limits Query

	Co	mm	and	d ID	0)	cF /	Ex	t. (CID	0x	01													
Data Byte				DB	_2							DB	_1							DB	_0			
DB Bit	7	6	5	4	з	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Bit Offset	0	0 1 2 3 4 5 6								9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Data CMD							1D					EC	ID						I/O					

Offset	Size	Data	ShortCut	Description	Valio	l Range	Scale	Unit
0	4	Not Used (= 0)			_			
4	4	Command ID	CMD		Enum: 0xF: ID F	-		
8	-	Extended Command ID	ECID		Enum: 0x01: ID 01			
16	5	I/O Channel	I/O		Enum: 0x000x1D: 0x1E: 0x1F:	Single channel (t All output channe device Reserved		/ the
21	3	Not Used (= 0)						



CMD 0xF / ECID 0x02 - Actuator Dimming Limits Response

	Command ID 0xF / Ext. CID 0x02																																							
Data Byte	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	з	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
Data			CMD ECID						I/O						MAXV								MINV																	

Offset	Size	Data	ShortCut	Description	Valio	l Range	Scale	Unit
0	4	Not Used (= 0)		_				
4	4	Command ID	CMD		Enum: 0xF: ID F	-		
8	8	Extended Command ID	ECID		Enum: 0x02: ID 02			
16	5	I/O Channel	I/O		Enum:			
					0x000x1D:	Output channel (to load)	
					0x1E:	All output channe device	els supported b	by the
					0x1F:	Reserved		
21	4	Not Used (= 0)						
25	7	Maximum Value	MAXV		Enum:			
					0x00:	Reserved		
					0x010x64	: Set maximum va	lue	
					0x650x7F	: Reserved		
32	1	Not Used (= 0)						
33	7	Minimum Value	MINV		Enum:			
					0x000x63	: Set minimum val	ue	
					0x640x7F	: Reserved		