

Flat v2 & Flat 55 v2

1/2/4/6-Button Capacitive Touch Panel

1/2/4-Button 55x55mm Capacitive Touch Panel

**ZVIF1V2 / ZVIF2V2 / ZVIF4V2 / ZVIF6V2
ZVIF55X1V2 / ZVIF55X2V2 / ZVIF55X4V2**

Application Programme Version: [1.8]
User Manual Version: [1.8]_a

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DOCUMENT UPDATES

Version	Changes	Page(s)
[1.8]_a	Changes in the application program: <ul style="list-style-type: none">- Optimisation of the heartbeat, temperature probe, thermostat, binary inputs, proximity sensor and brightness modules.	-
[1.5]_c	Minor changes in the document.	-
[1.5]_b	New device: Flat 55 v2	-
	Minor changes in the document.	-

1 INTRODUCTION

1.1 FLAT V2 / FLAT 55 V2

Flat v2 and Flat 55 v2 are KNX **multifunction capacitive touch switch** from Zennio with proximity sensor, luminosity sensor and backlighted buttons.

They are offered at a **reduced size** and **weight**, with one, two, four or six capacitive touch buttons for Flat v2, and **one, two or four** for Flat 55 v2 (according to the user's needs) with LED backlight to confirm the press of the buttons as well as showing states. Flat 55 v2 are designed to be installed in standard mechanism boxes with 55x55 frames.

Flat v2 / Flat 55 v2 is a fully customisable solution for the control of rooms where user control of air conditioning systems, lighting, blinds, scenes, etc. is required.

The versatility offered by the functionality of buttons is complemented by the **two** built-in **analogue/digital inputs**, the **internal temperature sensor** (only in Flat v2) and the **thermostat** function, as well as an elegant and **fully customisable design of the front glass** – customers can choose their button icons, texts and colours and even personalise the background with their pictures, logos, etc.

The most outstanding features of Flat v2 / Flat 55 v2 are:

- **Fully customisable** design of the front glass.
- **1 / 2 / 4 / 6** (only in Flat v2) **touch buttons**, which can operate as individual or pair controls:
- **Horizontally or vertically-oriented** configuration (only available for the two-button and six-button models).
- **Light indicator (LED)** for every button.
- **Buzzer** for an audible acknowledgement of user actions (with the possibility of disabling it either by parameter or by object).
- Possibility of **locking / unlocking the touch panel** through binary orders or scenes.

- **Welcome Back object** (binary or scene) which is sent to the KNX bus when a pulsation is detected after a certain period (configurable) of inactivity.
- Built-in **temperature sensor** (only in Flat v2).
- **Ambient luminosity sensor** for brightness automatic adjustment.
- **Proximity sensor** for quick start.
- **Two analogue/digital inputs** (for motion detectors, temperature probes, additional switches, etc.).
- **Thermostat** function.
- **Heartbeat** or periodical “still-alive” notification.

1.2 INSTALLATION

Figure 1 and 2 shows the connection outline of Flat v2 and Flat 55 v2 respectively:

1. Temperature Probe.
2. KNX Connector.
3. Programming LED.
4. Programming Button.
5. Fixing Clips.
6. Input Connectors.
7. Touch Buttons.
8. Proximity and Luminosity Sensors.

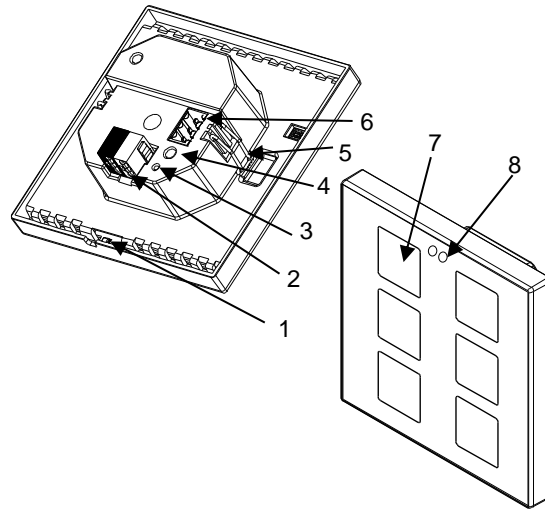


Figure 1 Schematic diagram of Flat v2.

1. Frame (sold separately).
2. Metal leveling plate.
3. KNX Connector
4. Programming LED.
5. Programming Button.
6. Fixing Clips.
7. Input Connectors.
8. Touch Buttons.
9. Proximity and Luminosity Sensors.

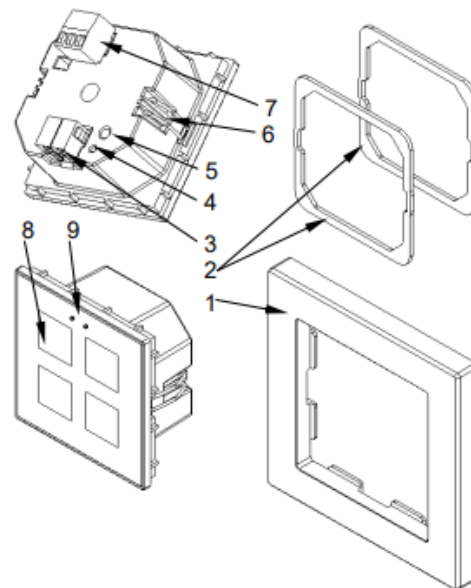


Figure 2 Schematic diagram of Flat 55 v2

Flat v2 / Flat 55 v2 is connected to the KNX bus through the built-in terminal (2 / 3). An external DC power supply is not needed.

A short press on the **programming button** (4 / 5) will make the device enter the programming mode. The **programming LED** (3 / 4) will then light in red. On the contrary, if this button is held while the device gets connected to the bus, the device will enter the **safe mode**. In such case, the programming LED will blink in red colour.

For detailed information about the technical features of Flat v2 / Flat 55 v2, as well as on security and installation procedures, please refer to the device **Datasheet**, bundled within the device packaging and also available at www.zennio.com.

1.3 START-UP AND POWER LOSS

After download or device reset it is necessary to **wait for about 2 minutes without performing any action** in order to make it possible a proper calibration of:

- Proximity sensor.
- Luminosity sensor.
- Button presses.

For a correct calibration of the proximity and brightness sensors it is recommended not to remain too close or place anything less than 50cm approximately and do not hit with direct light to the device during this time.

2 CONFIGURATION

After importing the corresponding database in ETS and adding the device into the topology of the project, the configuration process begins by entering the Parameters tab of the device.

2.1 GENERAL

In order to allow the device to perform the desired functions, a number of options must be parameterized, either related to its **general behaviour** or to **advanced features**.

2.1.1 CONFIGURATION

In the "Configuration" tab, the general settings are displayed.

ETS PARAMETERISATION

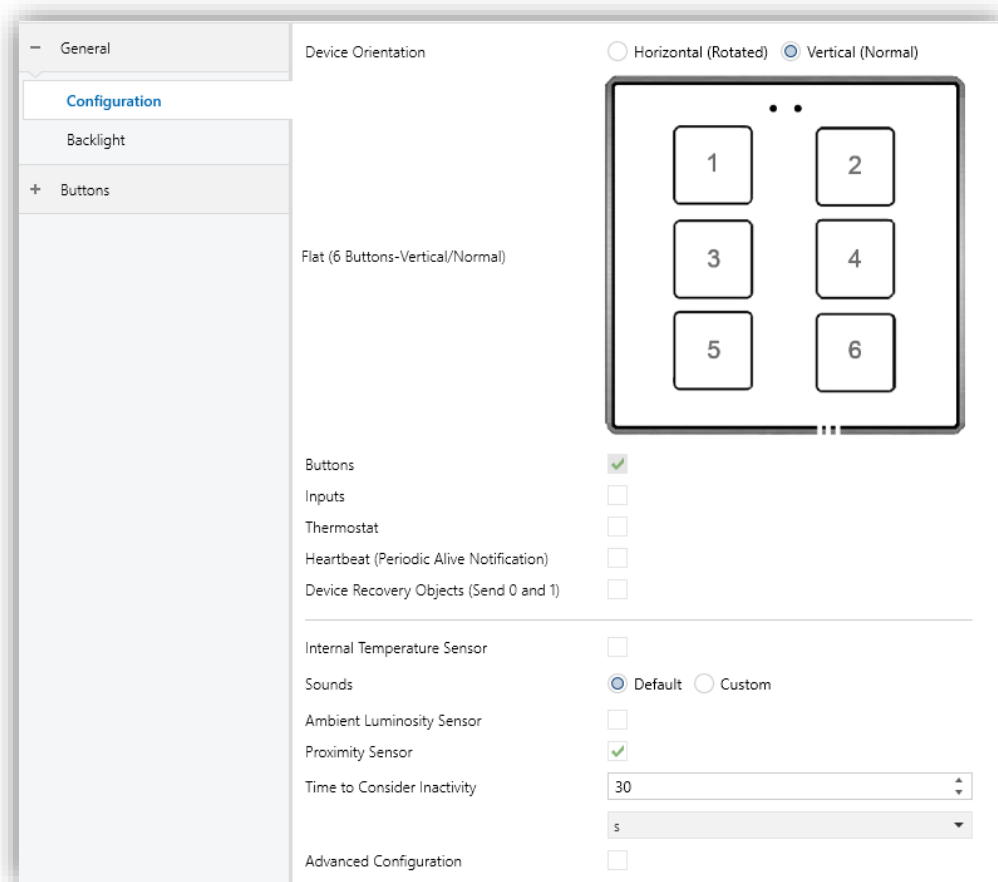


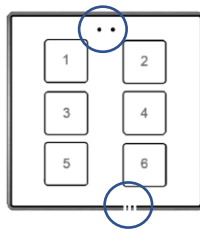
Figure 3 Main configuration.

The following parameters are shown:

- **Device Orientation** [[Vertical \(Normal\)](#)¹/[Horizontal \(Rotated\)](#)]: allows assigning a **horizontal** or **vertical** orientation to the device, making it easier to identify the push-buttons during the configuration process (ETS will show a figure with the final distribution of the push-buttons). To prevent inconsistency in the configuration, please note the following criterium:

Vertical (normal):

Temperature probe hole (only in Flat v2) on the right of the bottom side and the sensors on the middle of the top side.



Horizontal (rotated):

Temperature probe hole (only in Flat v2) on the top of the right side and sensors on the middle of the left side.

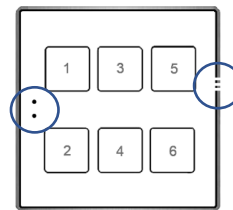


Figure 4 Orientation.

- **Buttons** [[enabled](#)]: read-only parameter to make it evident that the “Buttons” tab is always enabled in the tab tree on the left. See section 2.2 for details.
- **Inputs** [[disabled/enabled](#)]: enables or disables the “Inputs” tab in the tree on the left, depending on whether the device will or will not be connected any external accessories. See section 2.3 for details.
- **Thermostat** [[disabled/enabled](#)]: enables or disables the “Thermostat” tab in the tree on the left. See section 2.4 for details.
- **Heartbeat (Periodic Alive Notification)** [[disabled/enabled](#)]: incorporates a one-bit object to the project (“**[Heartbeat] Object to Send ‘1’**”) that will be sent periodically with value “1” to notify that the device is still working (*still alive*).

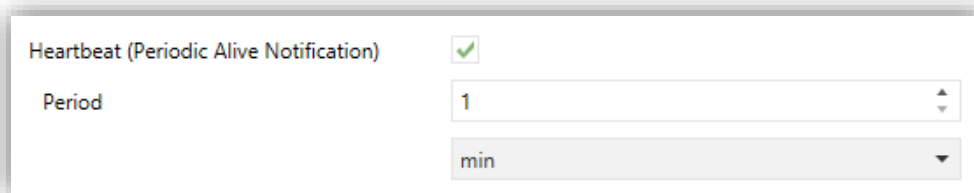


Figure 5. Heartbeat.

¹ The default values of each parameter will be highlighted in blue in this document, as follows: [[default](#)]rest of options].

Note: *the first sending after download or bus failure takes place with a delay of up to 255 seconds, to prevent bus overload. The following sendings march the period set.*

- **Device Recovery Objects (Send 0 and 1)** [*disabled/enabled*]: this parameter lets the integrator activate two new communication objects (“**[Heartbeat] Device Recovery**”), which will be sent to the KNX bus with values “0” and “1” whenever the device begins operation (for example, after a bus power failure). It is possible to parameterise a certain **delay** [*0...255*][s] to this sending.

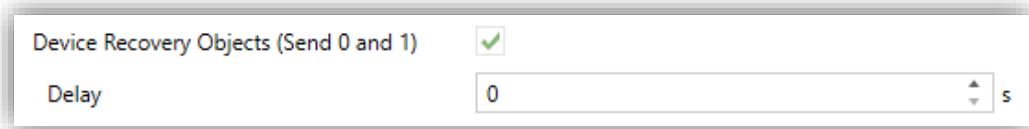


Figure 6. Device Recovery Objects.

Note: *After download or bus failure, the sending takes place with a delay of up to 6,35 seconds plus the parameterised delay, to prevent bus overload.*

- **Internal Temperature Sensor** (only in Flat v2) [*disabled/enabled*]: enables or disables the “Temperature Sensor” tab in the tree on the left. See section 2.1.2.
- **Sounds** [*Default / Custom*]: sets whether the sound functions (button beeps, alarm and doorbell) should work according to the pre-defined configuration or to a user-defined configuration. See section 2.1.4 for details.
- **Ambient luminosity sensor** [*disabled/enabled*]: enables setting the ambient luminosity sensor. When the sensor is enabled, a new tab for its configuration is shown. See section 2.1.5 for details.
- **Proximity Sensor** [*disabled/enabled*]: enables the proximity sensor. This functionality permits “waking up” the device when detecting presence, see section 2.1.6.
- **Time to Consider Inactivity** [*1...30...255*][s/min/h]: allows setting a time after which, if no pulsation or proximity detection has occurred, the LEDs turn off (or acquire the brightness level configured, see section 2.1.3).
- **Advanced Configuration** [*disabled/enabled*]: enables or disables the “Advanced” tab in the tree on the left. See section 2.1.7 for details.

2.1.2 TEMPERATURE SENSOR

Note: *This functionality is only available in Flat v2.*

Flat v2 is equipped with **one internal temperature probe** which can monitor the ambient temperature of the room, thus making the device capable of reporting it to the KNX bus and of triggering certain actions when the temperature reaches specific values.

Please refer to the specific manual “**Temperature Probe**” (available in the Flat v2 product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.3 BACKLIGHT

Flat v2 / Flat 55 v2 allows managing the brightness of the LED according to two operating modes: normal mode and night mode.

Please refer to the specific manual “**Brightness**” (available in the Flat v2 / Flat 55 v2 product section at the Zennio website, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.4 SOUNDS

For detailed information about the functionality and the configuration of the related parameters, please refer to the specific manual “**Capacitive Touch Switches**” available in the Flat v2/Flat 55 v2 product section at the Zennio homepage, www.zennio.com.

2.1.5 AMBIENT LUMINOSITY SENSOR

Flat v2 / Flat 55 v2 incorporates **a luminosity sensor** to receive and monitor ambient brightness measurement.

Please refer to the specific manual “**Luminosity and Proximity Sensor**” (available in the Flat v2 / Flat 55 v2 product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.6 PROXIMITY SENSOR

Please refer to the specific manual “**Proximity and Luminosity Sensor**” (available in the product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.7 ADVANCED CONFIGURATION

For detailed information about the functionality and the configuration of the related parameters, please refer to the specific manual “**Capacitive Touch Switches**” available in the Flat v2/Flat 55 v2 product section at the Zennio homepage, www.zennio.com.

2.2 BUTTONS

For detailed information about the functionality and the configuration of the related parameters, please refer to the specific manual “**Capacitive Touch Switches**” available in the Flat v2 / Flat 55 v2 product section at the Zennio homepage, www.zennio.com.

2.3 INPUTS

Flat v2 / Flat 55 v2 incorporates **two analogue/digital inputs**, each configurable as a:

- **Binary Input**, for the connection of a pushbutton or a switch/sensor.
- **Temperature Probe**, to connect a temperature from Zennio.
- **Motion Detector**, to connect a motion detector (suitable for the new motion detector model from Zennio).

2.3.1 BINARY INPUT

Please refer to the specific user manual “**Binary Inputs**”, available in the Flat v2 / Flat 55 v2 product section, at the Zennio website (www.zennio.com).

2.3.2 TEMPERATURE PROBE

Please refer to the specific user manual “**Temperature Probe**”, available in the Flat v2 / Flat 55 v2 product section, at the Zennio website (www.zennio.com).

2.3.3 MOTION DETECTOR

It is possible to connect motion detectors to the input ports of Flat v2 / Flat 55 v2.

Please refer to the specific user manual “**Motion Detector**”, available in the Flat v2 / Flat 55 v2 product section, at the Zennio website (www.zennio.com).

2.4 THERMOSTAT

Flat v2 / Flat 55 v2 implements **one Zennio thermostat** which can be enabled and fully customised.

Please refer to the specific manual “**Zennio Thermostat**” (available in the Flat v2 / Flat 55 v2 product section at the Zennio website, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

ANNEX I. COMMUNICATION OBJECTS

- “Functional range” shows the values that, with independence of any other values permitted by the bus according to the object size, may be of any use or have a particular meaning because of the specifications or restrictions from both the KNX standard or the application program itself.

Note:

- The objects shown in this table are from model **Flat 6 v2**. Please note that certain objects will not be available in models with less push buttons.
- **Flat 55 v2** does not incorporate the internal temperature probe, nor the 6-button model, so objects applicable to these characteristics will not be available.

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Bit		C--T-	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
2	1 Bit		C--T-	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 0
3	1 Bit		C--T-	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 1
4	1 Byte	I	C-W--	DPT_SceneNumber	0 - 63	[General] Scene: Receive	0 - 63 (Run Scene 1-64)
5	1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[General] Scene: Send	0 - 63/128 - 191 (Run/Save Scene 1-64)
6	1 Bit	I	C-W--	DPT_Enable	0/1	[General] Touch Locking	0 = Unlock; 1 = Lock
	1 Bit	I	C-W--	DPT_Enable	0/1	[General] Touch Locking	0 = Lock; 1 = Unlock
7	1 Bit		C--T-	DPT_Switch	0/1	[General] Welcome Back Object	Switch Object Sent on Wake Up
8	1 Bit	I	C-W--	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Disable Sound; 1 = Enable Sound
	1 Bit	I	C-W--	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Enable Sound; 1 = Disable Sound
9	1 Bit	I	C-W--	DPT_Ack	0/1	[General] Sounds - Doorbell	1 = Play a Doorbell Sound; 0 = Nothing
	1 Bit	I	C-W--	DPT_Ack	0/1	[General] Sounds - Doorbell	0 = Play a Doorbell Sound; 1 = Nothing
10	1 Bit	I	C-W--	DPT_Alarm	0/1	[General] Sounds - Alarm	1 = Play Alarm Intermittent Sounds; 0 = Stop Alarm Sounds
	1 Bit	I	C-W--	DPT_Alarm	0/1	[General] Sounds - Alarm	0 = Play Alarm Intermittent Sounds; 1 = Stop Alarm Sounds
11, 12, 13, 14, 15	1 Bit	I	C-W--	DPT_Switch	0/1	[General] Welcome Back Object - Additional Condition	Additional Condition Object x
16	1 Bit	I	C-W--	DPT_Enable	0/1	[General] Proximity Sensor	0 = Disable; 1 = Enable
17	1 Bit	I	C-W--	DPT_Start	0/1	[General] External Proximity Detection	1 = Detection
18	1 Bit		C--T-	DPT_Start	0/1	[General] Proximity Detection	Send 1 when Proximity is Detected

19	1 Bit		C--T-	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Over Threshold; 1 = Under Threshold
	1 Bit		C--T-	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Under Threshold; 1 = Over Threshold
20	1 Byte	O	CR---	DPT_Scaling	0% - 100%	[General] Luminosity (Percentage)	0% ... 100%
21	2 Bytes	O	CR---	DPT_Value_Lux		[General] Luminosity (Lux)	0 Lux ... 670760 Lux
22	1 Bit	I	C-W--	DPT_DayNight	0/1	[General] Backlight Mode	0 = Night Mode; 1 = Normal Mode
	1 Bit	I	C-W--	DPT_DayNight	0/1	[General] Backlight Mode	0 = Normal Mode; 1 = Night Mode
23	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[General] Display - Brightness	0% ... 100%
24	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[General] Display - Contrast	0% ... 100%
25, 31, 37, 43, 49, 55	1 Bit	I	C-WT-	DPT_Switch	0/1	[Btn][Ix] Switch	Send Selected Value on Short Press
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Btn][Ix] Hold & Release	Send Selected Values on Hold and Release Presses
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Btn][Ix] Two Objects - Short Press	Send Selected Value on Short Press
	1 Bit		C--T-	DPT_Switch	0/1	[Btn][Ix] Light - On/Off	(Short Press) Switch Between On and Off
	1 Bit		C--T-	DPT_Step	0/1	[Btn][Ix] Shutter - Stop/Step	(Short Press) 0 = Stop Shutter/Step Up; 1 = Stop Shutter/Step Down
	1 Bit		C--T-	DPT_Trigger	0/1	[Btn][Ix] Shutter - Stop	(End Pressing) Stop Shutter
25, 31, 37, 43, 49, 55	1 Bit		C--T-	DPT_Step	0/1	[Btn][Ix] Shutter - Stop/Step	(Short Press) Stop Shutter/Step Up
	1 Bit		C--T-	DPT_Step	0/1	[Btn][Ix] Shutter - Stop/Step	(Short Press) Stop Shutter/Step Down
26, 32, 38, 44, 50, 56	4 Bit	I	C-WT-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Btn][Ix] Light - Dimming	(Long Press) Switch Between Dimming Up and Down
27, 33, 39, 45, 51, 57	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Long Press) 0 = Up ; 1 = Down
	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Start Pressing) Switch Between Up and Down
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Btn][Ix] Two Objects - Long Press	Send Selected Value on Long Press
	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Long Press) Up
	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Long Press) Down
	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Start Pressing) Up
	1 Bit		C--T-	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move	(Start Pressing) Down
28, 34, 40, 46, 52, 58	1 Bit	I	C-WT-	DPT_Switch	0/1	[Btn][Ix] LED On/Off	0 = Off; 1 = On

	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] LED On/Off	0 = On; 1 = Off
29, 35, 41, 47, 53, 59	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] Scaling	Send Selected Percentage Value on Short Press
	1 Byte	I	C - W T -	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Counter - 1-Byte Unsigned	Send Selected Value on Short Press
	1 Byte	I	C - W T -	DPT_Value_1_Count	-128 - 127	[Btn][Ix] Counter - 1-Byte Signed	Send Selected Value on Short Press
	2 Bytes	I	C - W T -	DPT_Value_2_Ucount	0 - 65535	[Btn][Ix] Counter - 2-Byte Unsigned	Send Selected Value on Short Press
	2 Bytes	I	C - W T -	DPT_Value_2_Count	-32768 - 32767	[Btn][Ix] Counter - 2-Byte Signed	Send Selected Value on Short Press
	2 Bytes	I	C - W T -	9.xxx	-671088.64 - 670433.28	[Btn][Ix] Float	Send Selected Value on Short Press
	1 Byte	I	C - W T -	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Two Objects - Short Press (1-Byte)	Send Selected 1-Byte Value on Short Press
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] Shutter - Position	0 - 100 %
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] Light - Dimming (Status)	0 - 100 %
	1 Byte	I	C - W T -	1.xxx	0/1	[Btn][Ix] Room State	0 = Normal; 1 = Make-up Room; 2 = Do not Disturb
30, 36, 42, 48, 54, 60	1 Byte	I	C - W T -	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Two Objects - Long Press (1-Byte)	Send Selected 1-Byte Value on Long Press
85, 91, 97	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Switch	Left = 0; Right = 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Short Press	Left = 1; Right = 0
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Short Press	Left = 0; Right = 1
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Px] Light - On/Off	(Short Press) Left = Off; Right = On
	1 Bit		C - - T -	DPT_Step	0/1	[Btn][Px] Shutter - Stop/Step	(Short Press) Left = Stop/Step Down; Right = Stop/Step Up
	1 Bit		C - - T -	DPT_Trigger	0/1	[Btn][Px] Shutter - Stop	(End Pressing) Left = Stop-Down; Right = Stop-Up
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Switch	Left = 1; Right = 0
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Px] Light - On/Off	(Short Press) Left = On; Right = Off
	1 Bit		C - - T -	DPT_Step	0/1	[Btn][Px] Shutter - Stop/Step	(Short Press) Left = Stop/Step Up; Right = Stop/Step Down
	1 Bit		C - - T -	DPT_Trigger	0/1	[Btn][Px] Shutter - Stop	(End Pressing) Left = Stop-Up; Right = Stop-Down
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Switch	Lower = 0; Upper = 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Switch	Lower = 1; Upper = 0
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Px] Light - On/Off	(Short Press) Lower = Off; Upper = On

	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Px] Light - On/Off	(Short Press) Lower = On; Upper = Off
	1 Bit		C - - T -	DPT_Step	0/1	[Btn][Px] Shutter - Stop/Step	(Short Press) Lower = Stop/Step Down; Upper = Stop/Step Up
	1 Bit		C - - T -	DPT_Step	0/1	[Btn][Px] Shutter - Stop/Step	(Short Press) Lower = Stop/Step Up; Upper = Stop/Step Down
	1 Bit		C - - T -	DPT_Trigger	0/1	[Btn][Px] Shutter - Stop	(End Pressing) Lower = Stop-Down; Upper = Stop-Up
	1 Bit		C - - T -	DPT_Trigger	0/1	[Btn][Px] Shutter - Stop	(End Pressing) Lower = Stop-Up; Upper = Stop-Down
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Short Press	Lower = 0; Upper = 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Short Press	Lower = 1; Upper = 0
86, 92, 98	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Btn][Px] Light - Dimming	(Long Press) Left = Darker; Right = Brighter
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Btn][Px] Light - Dimming	(Long Press) Left = Brighter; Right = Darker
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Btn][Px] Light - Dimming	(Long Press) Lower = Darker; Upper = Brighter
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Btn][Px] Light - Dimming	(Long Press) Lower = Brighter; Upper = Darker
87, 93, 99	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Long Press	Left = 0; Right = 1

	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Long Press	Left = 1; Right = 0
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Long Press) Left = Down; Right = Up
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Start Pressing) Left = Down; Right = Up
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Long Press) Left = Up; Right = Down
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Start Pressing) Left = Up; Right = Down
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Long Press) Lower = Down; Upper = Up
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Long Press) Lower = Up; Upper = Down
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Start Pressing) Lower = Down; Upper = Up
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Px] Shutter - Move	(Start Pressing) Lower = Up; Upper = Down
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Long Press	Lower = 0; Upper = 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] Two Objects - Long Press	Lower = 1; Upper = 0
88, 94, 100	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] LED On/Off	0 = On; 1 = Off
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Px] LED On/Off	0 = Off; 1 = On
89, 95, 101	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Px] Light - Dimming (Status)	0 - 100 %
115	1 Byte	I	C - W - -	DPT_SceneControl	0-63; 128-191	[Thermostat] Scene Input	Scene Value
116	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Temperature Source 1	External Sensor Temperature
117	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Temperature Source 2	External Sensor Temperature
118	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Effective Temperature	Effective Control Temperature
119	1 Byte	I	C - W - -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Tx] Special Mode	1-Byte HVAC Mode
120	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Comfort	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Comfort	0 = Off; 1 = On
121	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Standby	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Standby	0 = Off; 1 = On
122	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Economy	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Economy	0 = Off; 1 = On
123	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Protection	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Protection	0 = Off; 1 = On
124	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status (Input)	0 = Closed; 1 = Open

125	1 Bit	I	C - W - -	DPT_Trigger	0/1	[Tx] Comfort Prolongation	0 = Nothing; 1 = Timed Comfort
126	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Tx] Special Mode Status	1-Byte HVAC Mode
127	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Setpoint	Thermostat Setpoint Input
	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Basic Setpoint	Reference Setpoint
128	1 Bit	I	C - W - -	DPT_Step	0/1	[Tx] Setpoint Step	0 = Decrease Setpoint; 1 = Increase Setpoint
129	2 Bytes	I	C - W - -	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Setpoint Offset	Float Offset Value
130	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Setpoint Status	Current Setpoint
131	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Basic Setpoint Status	Current Basic Setpoint
132	2 Bytes	O	C R - T -	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Setpoint Offset Status	Current Setpoint Offset
133	1 Bit	I	C - W - -	DPT_Reset	0/1	[Tx] Setpoint Reset	Reset Setpoint to Default
	1 Bit	I	C - W - -	DPT_Reset	0/1	[Tx] Offset Reset	Reset Offset
134	1 Bit	I	C - W - -	DPT_Heat_Cool	0/1	[Tx] Mode	0 = Cool; 1 = Heat
135	1 Bit	O	C R - T -	DPT_Heat_Cool	0/1	[Tx] Mode Status	0 = Cool; 1 = Heat
136	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] On/Off	0 = Off; 1 = On
137	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] On/Off Status	0 = Off; 1 = On
138	1 Bit	I/O	C R W - -	DPT_Switch	0/1	[Tx] Main System (Cool)	0 = System 1; 1 = System 2
139	1 Bit	I/O	C R W - -	DPT_Switch	0/1	[Tx] Main System (Heat)	0 = System 1; 1 = System 2
140	1 Bit	I	C - W - -	DPT_Enable	0/1	[Tx] Enable/Disable Secondary System (Cool)	0 = Disable; 1 = Enable
141	1 Bit	I	C - W - -	DPT_Enable	0/1	[Tx] Enable/Disable Secondary System (Heat)	0 = Disable; 1 = Enable
142, 148	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Cool)	PI Control (Continuous)
143, 149	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Heat)	PI Control (Continuous)
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable	PI Control (Continuous)
144, 150	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	PI Control (PWM)
145, 151	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	PI Control (PWM)
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	PI Control (PWM)
146, 152	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Cool)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
147, 153	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Heat)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
154, 158	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Ix] Current Temperature	Temperature Sensor Value
155, 159	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm

156, 160	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm
157, 161	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm
162	2 Bytes	O	CR-T-	DPT_Value_Temp	-273.00° - 670433.28°	[Internal Probe] Current Temperature	Temperature Sensor Value
163	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Internal Probe] Overcooling	0 = No Alarm; 1 = Alarm
164	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Internal Probe] Overheating	0 = No Alarm; 1 = Alarm
165	1 Byte	I	C-W--	DPT_SceneNumber	0 - 63	[Motion Detector] Scene Input	Scene Value
166	1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[Motion Detector] Scene Output	Scene Value
167, 196	1 Byte	O	CR-T-	DPT_Scaling	0% - 100%	[Ix] Luminosity	0-100%
168, 197	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] Open Circuit Error	0 = No Error; 1 = Open Circuit Error
169, 198	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] Short Circuit Error	0 = No Error; 1 = Short Circuit Error
170, 199	1 Byte	O	CR-T-	DPT_Scaling	0% - 100%	[Ix] Presence State (Scaling)	0-100%
171, 200	1 Byte	O	CR-T-	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] Presence State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
172, 201	1 Bit	O	CR-T-	DPT_Switch	0/1	[Ix] Presence State (Binary)	Binary Value
	1 Bit	O	CR-T-	DPT_Start	0/1	[Ix] Presence: Slave Output	1 = Motion Detected
173, 202	1 Bit	I	C-W--	DPT_Window_Door	0/1	[Ix] Presence Trigger	Binary Value to Trigger the Presence Detection
174, 203	1 Bit	I	C-W--	DPT_Start	0/1	[Ix] Presence: Slave Input	0 = Nothing; 1 = Detection from slave device
175, 204	2 Bytes	I	C-W--	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Waiting Time	0-65535 s.
176, 205	2 Bytes	I	C-W--	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Listening Time	1-65535 s.
177, 206	1 Bit	I	C-W--	DPT_Enable	0/1	[Ix] Presence: Enable	According to parameters
178, 207	1 Bit	I	C-W--	DPT_DayNight	0/1	[Ix] Presence: Day/Night	According to parameters
179, 208	1 Bit	O	CR-T-	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State	0 = Not Occupied; 1 = Occupied
180, 209	1 Bit	I	C-W--	DPT_Start	0/1	[Ix] External Motion Detection	0 = Nothing; 1 = Motion detected by an external sensor
181, 186, 191, 210, 215, 220	1 Byte	O	CR-T-	DPT_Scaling	0% - 100%	[Ix] [Cx] Detection State (Scaling)	0-100%
182, 187, 192, 211, 216, 221	1 Byte	O	CR-T-	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] [Cx] Detection State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
183, 188, 193, 212, 217, 222	1 Bit	O	CR-T-	DPT_Switch	0/1	[Ix] [Cx] Detection State (Binary)	Binary Value
184, 189, 194, 213, 218, 223	1 Bit	I	C-W--	DPT_Enable	0/1	[Ix] [Cx] Enable Channel	According to parameters
185, 190, 195, 214, 219, 224	1 Bit	I	C-W--	DPT_Switch	0/1	[Ix] [Cx] Force State	0 = No Detection; 1 = Detection
225, 231	1 Bit	I	C-W--	DPT_Enable	0/1	[Ix] Input Lock	0 = Unlock; 1 = Lock
226, 232	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Short Press] 0	Sending of 0

1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Short Press] 1	Sending of 1
1 Bit	I	C-WT-	DPT_Switch	0/1	[Ix] [Short Press] 0/1 Switching	Switching 0/1
1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Short Press] Move Up Shutter	Sending of 0 (Up)
1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Short Press] Move Down Shutter	Sending of 1 (Down)
1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Short Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
1 Bit		C--T-	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
1 Bit		C--T-	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
1 Bit		C--T-	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Ix] [Short Press] Brighter	Increase Brightness
4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Ix] [Short Press] Darker	Decrease Brightness
4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Ix] [Short Press] Brighter/Darker	Switch Bright/Dark
1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Short Press] Light On	Sending of 1 (On)
1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Short Press] Light Off	Sending of 0 (Off)
1 Bit	I	C-WT-	DPT_Switch	0/1	[Ix] [Short Press] Light On/Off	Switching 0/1
1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Run Scene	Sending of 0 - 63
1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Save Scene	Sending of 128 - 191
1 Bit	I/O	CRWT-	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge	Sending of 0 or 1
1 Byte		C--T-	DPT_Value_1_Ucount	0 - 255	[Ix] [Short Press] Constant Value (Integer)	0 - 255

	1 Byte		C--T-	DPT_Scaling	0% - 100%	[Ix] [Short Press] Constant Value (Percentage)	0% - 100%
	2 Bytes		C--T-	DPT_Value_2_Ucount	0 - 65535	[Ix] [Short Press] Constant Value (Integer)	0 - 65535
	2 Bytes		C--T-	9.xxx	-671088.64 - 670433.28	[Ix] [Short Press] Constant Value (Float)	Float Value
227, 233	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[Ix] [Short Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[Ix] [Short Press] Dimming Status (Input)	0% - 100%
228, 234	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Long Press] 0	Sending of 0
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Long Press] 1	Sending of 1
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Ix] [Long Press] 0/1 Switching	Switching 0/1
	1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Long Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Long Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Long Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit		C--T-	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit		C--T-	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit		C--T-	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Ix] [Long Press] Brighter	Long Pr. -> Brighter; Release -> Stop
	4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	[Ix] [Long Press] Darker	Long Pr. -> Darker; Release -> Stop
	4 Bit		C--T-	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%)	[Ix] [Long Press] Brighter/Darker	Long Pr. -> Brighter/Darker; Release -> Stop

				...		
	1 Bit		C--T-	DPT_Switch	0xF (Inc. by 1%) 0/1	[Ix] [Long Press] Light On Sending of 1 (On)
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Long Press] Light Off Sending of 0 (Off)
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Ix] [Long Press] Light On/Off Switching 0/1
	1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Run Scene Sending of 0 - 63
	1 Byte		C--T-	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Save Scene Sending of 128 - 191
	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] [Switch/Sensor] Alarm: Breakdown or Sabotage 1 = Alarm; 0 = No Alarm
	2 Bytes		C--T-	9.xxx	-671088.64 - 670433.28	[Ix] [Long Press] Constant Value (Float) Float Value
	2 Bytes		C--T-	DPT_Value_2_Ucount	0 - 65535	[Ix] [Long Press] Constant Value (Integer) 0 - 65535
	1 Byte		C--T-	DPT_Scaling	0% - 100%	[Ix] [Long Press] Constant Value (Percentage) 0% - 100%
	1 Byte		C--T-	DPT_Value_1_Ucount	0 - 255	[Ix] [Long Press] Constant Value (Integer) 0 - 255
229, 235	1 Bit		C--T-	DPT_Trigger	0/1	[Ix] [Long Press/Release] Stop Shutter Release -> Stop Shutter
230, 236	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[Ix] [Long Press] Dimming Status (Input) 0% - 100%
	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[Ix] [Long Press] Shutter Status (Input) 0% = Top; 100% = Bottom

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