KNX Multi Functional Switch

Reference Manual

KNX Multi Functional Switch MS104 FA	WRKT62045FA
KNX Multi Functional Switch MS104-D FA	WRKT62145FA

V 1.0

Panasonic

1 Contents

2 List of figure

3 Document overview

3.1 *Document updates*

Version	Date	Modifications
1.00	December 2019	Preparation of the final version

Table 1

3.2 *List of abbreviations*

Abbreviation	Description
KNX Communication Flags	
C	Communication
R	Read
W	Write
T	Transmit
U	Update
Other	
Par.	Parameter
Obj.	Object
LC	Last command
TC	Transmitted command

Table 2

4 Product description

4.1 *General information*

KNX Multi-Functional Switch is a room controller with 12 capacitive touch buttons over 4 Gang and integrated real time clock, temperature sensor, humidity sensor, proximity sensor and brightness sensor. It also has one digital input and one temperature sensor (NTC) input.
KNX Multi-Functional Switch is powered via KNX bus line without an external power supply. The device can be programmed to enable, disable or configure its features and functions via ETS.
Thanks to thermostat function which is one of the most important feature of the product; heating and cooling control can be done included 2/4 pipe fancoil systems. With the help of touch buttons, a lot of control operations can be done especially blinds/shutter, switching and dimming. Additionally; the device also can send temperature and humidity measured values to other KNX devices on the bus line.
KNX Multi-Functional Switch can be installed in flushed-mounted or hollow-wall boxes.

4.2 *Main features*

- Configurable touch buttons up to 4 Gang for single or rocker operation
- Sound feedback for touch buttons functions
- Configurable feedback LEDs can be used with buttons or KNX group objects
- Customized icon label stickers for touch buttons
- Activating standby mode according to presence information determined via proximity sensor
- Adjusting backlight of display and touch buttons according to ambient light information determined via brightness sensor
- Operating energy saving functions of thermostat according to information of the digital input
- Controlling thermostat functions according to information of external temperature sensor input or monitoring the sensor values via KNX
- Temperature and humidity sensors can be calibrated before ETS programming by parameters or after ETS programming by communication objects
- Weekly Thermostat Program can be configured over the device (only LCD model) or DCA (Device configuration app) inside ETS
- Scene actuator functions

4.3 *Technical information*

Supply voltage	21 … 32 V DC via KNX Bus
Operating temperature	-5°C … +45°C
Type of protection	IP 20 to EN60529
Safety class	III to IEC 60664-1
Cable length for external inputs	Maximum 3 m
Temperature measurement	0°C to 45°C
Relative humidity	0% to 100%

Table 3

4.4 *Product versions*

Product Features	**WRKT62045FA**	**WRKT62145FA**
	KNX Multi Functional Switch MS104 FA	KNX Multi Functional Switch MS104-D FA
Button Functions	✓	✓
Thermostat Functions	✓	✓
Scene Actuator	✓	✓
LCD Display	-	✓

Table 4

4.5 *Dimensional drawings*

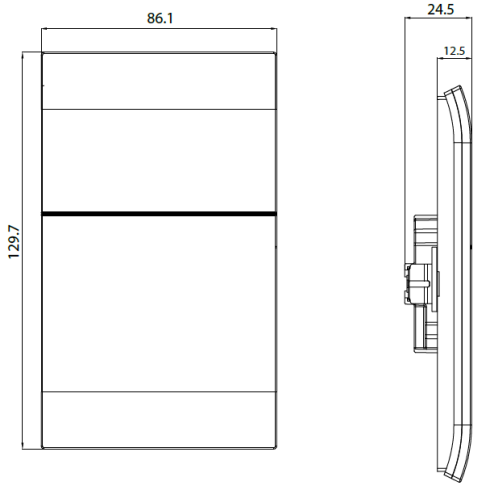


Figure 1: Multi Functional Switch with LCD Display

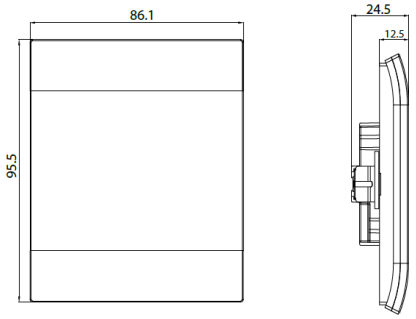


Figure 2: Multi Functional Switch

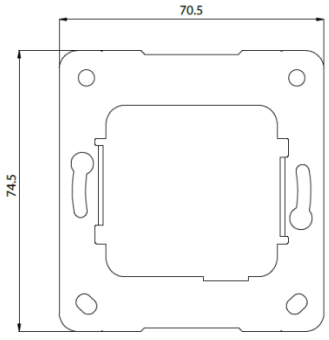


Figure 3: Mounting Frame

4.6 *Start-up behavior*

- **Factory Default**
  After power on, LCD shows "nAPP" (no application is loaded). Touch buttons with sound feedback and LEDs are activated for testing. The device is delivered with the physical address 15.15.255.

- **ETS Programming**
  User can define the device behavior and connect it to other KNX devices after programming it by ETS. The behavior of the device after programming with the ETS depends on the parameters. The description of the parameters and objects can be found in the next sections.

5 Product database

Manufacturer	Panasonic
Product family	Push Buttons
Product type	Multi Functional Switches
Product name	Multi Functional Switch MS104 FA Multi Functional Switch MS104-D FA

Table 5

6 Communication objects

6.1 *Communication objects overview*

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
0	*Device Status*	*On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
1	*Device Operation*	*Trigger*	1 Bit	[1.17] DPT Trigger	C	R		T	
12	*Temperature Calibration*	*Calibration Input*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
13	*Temperature Value*	*Sensor value*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
16	*Temperature Additional Function*	*Send 1 Bit*	1 Bit	[1.5] DPT Alarm	C			T	
		Send Scene Number	1 Byte	[17.1] DPT Scene Number					
		Send Percentage	1 Byte	[5.1] DPT Scaling					
		Send 1 Byte	1 Byte	[5.10] DPT Value 1 U count					
16	*Temperature Low Level Alarm*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
17	*Temperature High Level Alarm*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
18	*Temperature Sensor Error*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
22	*Humidity Calibration*	*Calibration Input*	2 Bytes	[9.7] DPT Value Humidity	C	R	W	T	U
23	*Humidity Value*	*Sensor value*	2 Bytes	[9.7] DPT Value Humidity	C	R		T	
24	*Humidity Additional Function*	*Send 1 Bit*	1 Bit	[1.5] DPT Alarm	C			T	
		Send Scene Number	1 Byte	[5.10] DPT Value 1 U count					
		Send Percentage	1 Byte	[5.1] DPT Scaling					
		Send 1 Byte	1 Byte	[1.5] DPT Alarm					
24	*Humidity Low Level Alarm*	*Send Alarm*	1 Bit	[17.1] DPT Scene Number	C			T	
25	*Humidity High Level Alarm*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
26	*Humidity Sensor Error*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
38	*Temperature Ext Calibration*	*Calibration Input*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
39	*Temperature Ext Value*	*Sensor value*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
40	*Temperature Ext Additional Function*	*Send 1 Bit*	1 Bit	[1.5] DPT Alarm	C			T	
		Send Scene Number	1 Byte	[17.1] DPT Scene Number					
		Send Percentage	1 Byte	[5.1] DPT Scaling					
		Send 1 Byte	1 Byte	[5.10] DPT Value 1 U count					
40	*Temperature Ext Low Level Alarm*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
41	*Temperature Ext High Level Alarm*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
42	*Temperature Sensor Error*	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
46	*Group A Button 1, Toggle*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
46	*Group A Button 1, Dimming*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
47	*Group A Button 1, Dimming*	*Lighter / Darker*	4 Bit	[3.7] DPT Control Dimming	C	R		T	
48	*Group A Button 1, Dimming*	*Feedback*	1 Byte	[5.1] DPT Scaling	C		W		U
46	*Group A Button 1, Blinds*	*Step / Stop*	1 Bit	[1.7] DPT Step	C	R		T	
47		*Up / Down*	1 Bit	[1.8] DPT Up Down	C	R		T	
46	*Group A Button 1, HVAC Mode*	*HVAC Operation Mode*	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
46	*Group A Button 1, Scene*	*Scene*	1 Byte	[18.1] DPT Scene Control	C	R		T	
46	*Group A Button 1, Sequencer*	*1 Bit Value*	1 Bit	[1.1] DPT Switch	C	R		T	
47		*1 Byte Value*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
46	*Group A Button 1, Value, Object 1*	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Scene	1 Byte	[18.1] DPT Scene Control	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		1 Bit Value	1 Bit	[1.1] DPT Switch	C	R		T	
		1 Byte Value	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
47	*Group A Button 1, Value, Object 2*	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Scene	1 Byte	[18.1] DPT Scene Control	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		1 Bit Value	1 Bit	[1.1] DPT Switch	C	R		T	
		1 Byte Value	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
46	*Group A Rocker, Dimming*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
47		*Lighter / Darker*	1 Bit	[3.7] DPT Control Dimming	C	R		T	
48		*Feedback*	1 Byte	[5.1] DPT Scaling	C		W		U
46	*Group A Rocker, Blinds*	*Step / Stop*	1 Bit	[1.7] DPT Step	C	R		T	
47		*Up / Down*	1 Bit	[1.8] DPT Up Down	C	R		T	
46	*Group A Rocker, Scene number*	*Recall / Save light scene*	1 Byte	[18.1] DPT Scene Control	C	R		T	
47	*Group A Rocker, Scene last operation*	*1=Left side, 0=Right side*	1 Bit	[1.2] DPT Bool	C	R		T	
46	*Group A Rocker, Object 1*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
		Send Value (0..65535)	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		HVAC Operation Mode	1 Byte	[20.102] DPT HVAC Mode	C	R		T	

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
		Send Value (0..255)	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
		Send Temperature Value	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Send Value (0..1)	1 Bit	[1.1] DPT Switch	C	R		T	
49	*Group A Rocker, Object 1*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
		Send Value (0..65535)	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		HVAC Operation Mode	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
		Send Value (0..255)	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
		Send Temperature Value	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Send Value (0..1)	1 Bit	[1.1] DPT Switch	C	R		T	
52	*Group A Button 3, Toggle*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
52	*Group A Button 3, Dimming*	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
53		*Lighter / Darker*	4 Bit	[3.7] DPT Control Dimming	C	R		T	
54		*Feedback*	1 Byte	[5.1] DPT Scaling	C		W		U
52	*Group A Button 3, Blinds*	*Step / Stop*	1 Bit	[1.7] DPT Step	C	R		T	
53		*Up / Down*	1 Bit	[1.8] DPT Up Down	C	R		T	
52	*Group A Button 3, HVAC Mode*	*HVAC Operation Mode*	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
52	*Group A Button 3, Scene*	*Scene*	1 Byte	[18.1] DPT Scene Control	C	R		T	
52	*Group A Button 3, Sequencer*	*1 Bit Value*	1 Bit	[1.1] DPT Switch	C	R		T	
53		*1 Byte Value*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
52	*Group A Button 3, Value, Object 1*	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Scene	1 Byte	[18.1] DPT Scene Control	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		1 Bit Value	1 Bit	[1.1] DPT Switch	C	R		T	
		1 Byte Value	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
53	*Group A Button 3, Value, Object 2*	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
		Scene	1 Byte	[18.1] DPT Scene Control	C	R		T	
		Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
		2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
		Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
		1 Bit Value	1 Bit	[1.1] DPT Switch	C	R		T	
53	*Group A Button 3, Value, Object 2*	*1 Byte Value*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
55	*Group A Led 1, Drive*	*Drive Led*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
57	*Group A Led 2, Drive*	*Drive Led*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
59	*Group A Led 3, Drive*	*Drive Led*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
				*Communication object numbers for all gang					
144	*Thermostat Status*	*On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	
145	*Thermostat Comfort Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
146	*Thermostat Standby Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
147	*Thermostat Economy Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
148	*Thermostat Protection Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
149	*Thermostat Mode*	*Operation Mode Input*	1 Byte	[20.102] DPT HVAC Mode	C		W		
150	*Thermostat Actual Temperature*	*Thermostat Temperature*	2 Bytes	[9.1] DPT Value Temp	C			T	
153	*Thermostat Heater Activate*	*Heater Active*	1 Bit	[1.3] DPT Enable	C			T	
154	*Thermostat Cooler Activate*	*Cooler Active*	1 Bit	[1.3] DPT Enable	C			T	
155	*Thermostat Heating Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	
	Thermostat Heating Cooling Control	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	
	Thermostat Heating Control	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	
156	*Thermostat Cooling Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	
	Thermostat Heating Cooling Control	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	
157	*Thermostat Cooling Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	
	Thermostat Additional Heating Control	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	
	Thermostat Additional Heating Control	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	
158	*Thermostat Additional Cooling Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	
	Thermostat Additional Cooling Control	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	
159	*Thermostat Setpoint*	*Setpoint Input*	2 Bytes	[9.1] DPT Value Temp	C		W		
160	*Thermostat Comfort Set (Heat)*	*Comfort Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
161	*Thermostat Standby Set (Heat)*	*Standby Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
162	*Thermostat Economy Set (Heat)*	*Economy Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
163	*Thermostat Protect Set (Heat)*	*Protection Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
164	*Thermostat Comfort Set (Cool)*	*Comfort Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
165	*Thermostat Standby Set (Cool)*	*Standby Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
166	*Thermostat Economy Set (Cool)*	*Economy Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
167	*Thermostat Protect Set (Cool)*	*Protection Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
168	*Thermostat Heating/Cooling Switchover*	*Report Heating/Cooling*	1 Bit	[1.100] DPT Heat Cool	C			T	

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
	Thermostat Heating/Cooling Switchover	*Switchover Heating/Cooling*	1 Bit	[1.100] DPT Heat Cool	C		W		
169	*Thermostat Reset Manual Operations*	*Reset Manual Operations*	1 Bit	[1.1] DPT Switch	C		W		
170	*Thermostat Increase Setpoint*	*Increase Current Setpoint*	1 Bit	[1.17] DPT Trigger	C		W		
171	*Thermostat Decrease Setpoint*	*Decrease Current Setpoint*	1 Bit	[1.17] DPT Trigger	C		W		
172	*Thermostat Fan Auto Mode*	*Fan Auto Enable*	1 Bit	[1.3] DPT Enable	C		W	T	
173	*Thermostat Fan Level*	*Fan Level Output*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
	Thermostat Fan Level	*Fan Level Output*	1 Byte	[5.1] DPT Scaling	C	R		T	
174	*Thermostat Fan Level*	*Fan Level Input*	1 Byte	[5.1] DPT Scaling	C		W		
	Thermostat Fan Level	*Fan Level Input*	1 Byte	[5.10] DPT Value 1 U count	C		W		
175	*Thermostat Fan Level 1*	*Fan Level 1 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
176	*Thermostat Fan Level 2*	*Fan Level 2 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
177	*Thermostat Fan Level 3*	*Fan Level 3 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
178	*Thermostat Fan Level 4*	*Fan Level 4 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
179	*Thermostat Fan Level 5*	*Fan Level 5 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
180	*Thermostat Fan Level 6*	*Fan Level 6 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
181	*Thermostat Fan Level 1*	*Fan Level 1 Input*	1 Bit	[1.3] DPT Enable	C		W		
182	*Thermostat Fan Level 2*	*Fan Level 2 Input*	1 Bit	[1.3] DPT Enable	C		W		
183	*Thermostat Fan Level 3*	*Fan Level 3 Input*	1 Bit	[1.3] DPT Enable	C		W		
184	*Thermostat Fan Level 4*	*Fan Level 4 Input*	1 Bit	[1.3] DPT Enable	C		W		
185	*Thermostat Fan Level 5*	*Fan Level 5 Input*	1 Bit	[1.3] DPT Enable	C		W		
186	*Thermostat Fan Level 6*	*Fan Level 6 Input*	1 Bit	[1.3] DPT Enable	C		W		
187	*Thermostat Fan Unit Status*	*Fan Unit On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
188	*Thermostat Swing Status*	*Swing On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
189	*Thermostat Flap Position*	*Flap Position*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
190	*Thermostat Scene*	*Scene Input*	1 Byte	[18.1] DPT Scene Control	C		W		
191	*Thermostat Window Contact 1*	*Window Contact 1*	1 Bit	[1.1] DPT Switch	C		W		
192	*Thermostat Window Contact 2*	*Window Contact 2*	1 Bit	[1.1] DPT Switch	C		W		
193	*Thermostat Presence Input 1*	*Presence Input 1*	1 Bit	[1.1] DPT Switch	C		W		
194	*Thermostat Presence Input 2*	*Presence Input 2*	1 Bit	[1.1] DPT Switch	C		W		
195	*Thermostat Card Holder Input*	*Card Holder Input*	1 Bit	[1.1] DPT Switch	C		W		
196	*Thermostat Digital Output*	*Generic Digital Output*	1 Bit	[1.1] DPT Switch	C	R		T	
196	*Thermostat Digital Output*	*Card Holder Output*	1 Bit	[1.1] DPT Switch	C	R		T	
196	*Thermostat Digital Output*	*Presence Output*	1 Bit	[1.1] DPT Switch	C	R		T	
196	*Thermostat Digital Output*	*Window Contact Output*	1 Bit	[1.1] DPT Switch	C	R		T	

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
197	*Thermostat Room Temperature*	*Room Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
198	*Thermostat Outdoor Temperature*	*Outdoor Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
199	*Thermostat Floor Temperature*	*Floor Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
200	*Thermostat Coil Temperature*	*Coil Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
201	*Thermostat Time*	*Set Time*	3 Bytes	[10.1] DPT Time Of Day	C		W		
201	*Thermostat Date Time*	*Set Date and Time*	8 Bytes	[19.1] DPT Date Time	C		W		
202	*Thermostat Date*	*Set Date*	3 Bytes	[11.1] DPT Date	C		W		
203	*Date & Time Query*	*Query Date & Time*	1 Bit	[1.1] DPT Switch	C			T	
203	*Time Query*	*Query Time*	1 Bit	[1.1] DPT Switch	C			T	
204	*Date Query*	*Query Date*	1 Bit	[1.1] DPT Switch	C			T	
205	*Thermostat Mode*	*Operation Mode Output*	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
206	*Thermostat Mode Forced*	*Operation Mode Forced*	1 Byte	[20.102] DPT HVAC Mode	C	R	W		
207	*Thermostat Alarm*	*Condensate Alarm*	1 Bit	[1.5] DPT Alarm	C	R	W	T	
208	*Thermostat Alarm*	*Dew-point Alarm*	1 Bit	[1.5] DPT Alarm	C	R	W	T	
209	*Thermostat Setpoint*	*Setpoint Output*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
210	*Thermostat Setpoint Forced*	*Setpoint Forced*	2 Bytes	[9.1] DPT Value Temp	C	R	W		
211	*Thermostat Setpoint Forced En.*	*Setpoint Forced Enable*	1 Bit	[1.3] DPT Enable	C	R	W		
214	*Scene Number Input*	*Scene Actuation Input*	1 Byte	[18.1] DPT Scene Control	C		W		
215	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output A*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
215	*Scene Actuation Output Temperature*	*Scene Actuator Output A*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
215	*Scene Actuation Output Switch*	*Scene Actuator Output A*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
215	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output A*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
215	*Scene Actuation Output Scene*	*Scene Actuator Output A*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
215	*Scene Actuation Output Percentage*	*Scene Actuator Output A*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
215	*Scene Actuation Output Priority*	*Scene Actuator Output A*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
216	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output B*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
216	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output B*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
216	*Scene Actuation Output Priority*	*Scene Actuator Output B*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
216	*Scene Actuation Output Percentage*	*Scene Actuator Output B*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
216	*Scene Actuation Output Temperature*	*Scene Actuator Output B*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
216	*Scene Actuation Output Switch*	*Scene Actuator Output B*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
216	*Scene Actuation Output Scene*	*Scene Actuator Output B*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
217	*Scene Actuation Output Scene*	*Scene Actuator Output C*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
217	*Scene Actuation Output Priority*	*Scene Actuator Output C*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
217	*Scene Actuation Output Percentage*	*Scene Actuator Output C*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
217	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output C*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
218	*Scene Actuation Output Priority*	*Scene Actuator Output D*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
218	*Scene Actuation Output Percentage*	*Scene Actuator Output D*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
218	*Scene Actuation Output Switch*	*Scene Actuator Output D*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
218	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output D*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
218	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output D*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
218	*Scene Actuation Output Temperature*	*Scene Actuator Output D*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
218	*Scene Actuation Output Scene*	*Scene Actuator Output D*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
219	*Scene Actuation Output Priority*	*Scene Actuator Output E*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
219	*Scene Actuation Output Switch*	*Scene Actuator Output E*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
219	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output E*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
219	*Scene Actuation Output Scene*	*Scene Actuator Output E*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
219	*Scene Actuation Output Percentage*	*Scene Actuator Output E*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
219	*Scene Actuation Output Temperature*	*Scene Actuator Output E*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
219	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output E*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
220	*Scene Actuation Output Percentage*	*Scene Actuator Output F*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
220	*Scene Actuation Output Switch*	*Scene Actuator Output F*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
220	*Scene Actuation Output Priority*	*Scene Actuator Output F*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
220	*Scene Actuation Output Scene*	*Scene Actuator Output F*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
220	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output F*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
220	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output F*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
220	*Scene Actuation Output Temperature*	*Scene Actuator Output F*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
221	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output G*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
221	*Scene Actuation Output Temperature*	*Scene Actuator Output G*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
221	*Scene Actuation Output Scene*	*Scene Actuator Output G*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
221	*Scene Actuation Output Percentage*	*Scene Actuator Output G*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
221	*Scene Actuation Output Priority*	*Scene Actuator Output G*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
221	*Scene Actuation Output Switch*	*Scene Actuator Output G*	1 Bit	[1.1] DPT Switch	C	R	W	T	U

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
221	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output G*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
222	*Scene Actuation Output Temperature*	*Scene Actuator Output H*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
222	*Scene Actuation Output Scene*	*Scene Actuator Output H*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
222	*Scene Actuation Output Percentage*	*Scene Actuator Output H*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
222	*Scene Actuation Output Priority*	*Scene Actuator Output H*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U
222	*Scene Actuation Output Switch*	*Scene Actuator Output H*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
222	*Scene Actuation Output 2 Byte Value*	*Scene Actuator Output H*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
222	*Scene Actuation Output 1 Byte Value*	*Scene Actuator Output H*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
223	*Display Airquality Warning*	*Airquality Input*	1 Bit	[1.5] DPT Alarm	C		W		
224	*Display Humidity*	*Humidity Input*	2 Bytes	[9.7] DPT Value Humidity	C		W		

Table 6

6.2 *Communication object numbers for all gang*

Channel object name	Function	Gang			
		A	B	C	D
Group x Button 1, Toggle	*Switch ON/OFF*	*46*	*66*	*86*	*106*
Group x Button 1, Dimming	*Switch ON/OFF*	*46*	*66*	*86*	*106*
	Lighter / Darker	*47*	*67*	*87*	*107*
	Feedback	*48*	*68*	*88*	*108*
Group x Button 1, Blinds	*Step / Stop*	*46*	*66*	*86*	*106*
	Up / Down	*47*	*67*	*87*	*107*
Group x Button 1, HVAC Mode	*HVAC Operation Mode*	*46*	*66*	*86*	*106*
Group x Button 1, Scene	*Scene*	*46*	*66*	*86*	*106*
Group x Button 1, Sequencer	*1 Bit Value*	*46*	*66*	*86*	*106*
	1 Byte Value	*47*	*67*	*87*	*107*
Group x Button 1, Value, Object 1	*Temperature*	*46*	*66*	*86*	*106*
	Scene				
	Priority				
	2 Byte Value				
	Percentage				
	1 Bit Value				
	1 Byte Value				
Group x Button 1, Value, Object 2	*Temperature*	*47*	*67*	*87*	*107*
	Scene				
Group x Button 1, Value, Object 2	*Priority*	*47*	*67*	*87*	*107*
	2 Byte Value				
	Percentage				

Channel object name	Function	Gang			
		A	B	C	D
	1 Bit Value				
	1 Byte Value				
Group x Rocker, Dimming	*Switch ON/OFF*	*46*	*66*	*86*	*106*
	Lighter / Darker	*47*	*67*	*87*	*107*
	Feedback	*48*	*68*	*88*	*108*
Group x Rocker, Blinds	*Step / Stop*	*46*	*66*	*86*	*106*
	Up / Down	*47*	*67*	*87*	*107*
Group x Rocker, Scene Number	*Recall / Save light scene*	*46*	*66*	*86*	*106*
Group x Rocker, Scene Last Operation	*1=Left side, 0=Right side*	*47*	*67*	*87*	*107*
Group x Rocker, Object 1	*Switch ON/OFF*	*46*	*66*	*86*	*106*
	Send Value (0..65535)				
	Priority				
	Percentage				
	HVAC Operation Mode				
	Send Value (0..255)				
	Send Temperature Value				
	Send Value (0..1)				
	Switch ON/OFF				
Group x Rocker, Object 1	*Switch ON/OFF*	*49*	*69*	*89*	*109*
	Send Value (0..65535)				
	Priority				
	Percentage				
	HVAC Operation Mode				
	Send Value (0..255)				
	Send Temperature Value				
	Send Value (0..1)				
Group x Button 3, Toggle	*Switch ON/OFF*	*52*	*72*	*92*	*112*
Group x Button 3, Dimming	*Switch ON/OFF*	*52*	*72*	*92*	*112*
	Lighter / Darker	*53*	*73*	*93*	*113*
	Feedback	*54*	*74*	*94*	*114*
Group x Button 3, Blinds	*Step / Stop*	*52*	*72*	*92*	*112*
	Up / Down	*53*	*73*	*93*	*113*
Group x Button 3, HVAC Mode	*HVAC Operation Mode*	*52*	*72*	*92*	*112*
Group x Button 3, Scene	*Scene*	*52*	*72*	*92*	*112*
Group x Button 3, Sequencer	*1 Bit Value*	*52*	*72*	*92*	*112*
	1 Byte Value	*53*	*73*	*93*	*113*
Group x Button 3, Value, Object 1	*Temperature*	*52*	*72*	*92*	*112*
	Scene				
	Priority				
	2 Byte Value				
	Percentage				
	1 Bit Value				
	1 Byte Value				

Channel object name	Function	Gang			
		A	B	C	D
Group x Button 3, Value, Object 2	*Temperature*	*53*	*73*	*93*	*113*
	Scene				
	Priority				
	2 Byte Value				
Group x Button 3, Value, Object 2	*Percentage*	*53*	*73*	*93*	*113*
	1 Bit Value				
Group x Button 3, Value, Object 2	*1 Byte Value*	*53*	*73*	*93*	*113*
Group x Led 1, Drive	*Drive Led*	*55*	*75*	*95*	*115*
Group x Led 2, Drive	*Drive Led*	*57*	*77*	*97*	*117*
Group x Led 3, Drive	*Drive Led*	*59*	*79*	*99*	*119*

Table 7

7 ETS Database

7.1 *General tab*

7.1.1 General parameters

No	Name	Values	Description
1	*Device status after bus voltage return*	**On*** Off As before bus voltage failure	This parameter determines the device status after KNX bus voltage return.
2	*Startup Delay*	**5*** …255 s	This parameter defines delay time from power up to start-up in seconds. Power up -> *delay time* -> Start-up After KNX bus voltage return, KNX Multi-Functional Switch with display shows "*LoAd*" on the display, the device without display illustrates animation on the touch button surface during the delay time.
3	*Device in operation sending*	**Disable*** Enable	With this parameter, the device transmits specific telegram (Par.5) to KNX bus cyclically to indicate it is alive. If "Enable" is selected, *Device In Operation* communication object will be visible.
4	*Sending cycle time*	00:00:00 **00:01:00*** 09:00:00 hh:mm:ss	This parameter defines delay time between two *Device In Operation* telegrams to be transmitted. The value should not be higher than 09:00:00.
5	*Sending value*	0 - **1***	This parameter determines the telegram value to be transmitted via *Device In Operation* object.
6	*Enter programming mode with*	**KNX button*** KNX button or user button combination	This parameter determines how the KNX Multi-Functional Switch enters KNX programming mode. If "KNX button" is selected, KNX programming mode can be entered by KNX button on the back side of the device. If "KNX button or user button combination" is selected, KNX programming mode can be entered by KNX button or by pressing the 1st and 2nd touch buttons of specific gang (Par. 7) in the following sequence. Sequence: 1->2->2->1->1->2

No	Name	Values	Description
7	*User button*	**Gang A*** Gang B Gang C Gang D	This parameter is visible if Par .6 is selected as "KNX button or user button combination". It determines which gang will be used to enter programming mode. If the selected gang is disabled from General parameters in Touch buttons tab, a warning text will be shown.

Table 8

***: Default Value**

7.1.2 General objects

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
0	*Device Status*	*On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U

Table 9

This object is used to get or set status of the device. After start-up, the object's value is transmitted to the bus once. Writing "off" telegram to this object disables all functions. When "on" telegram is received, all functions are returned to their latest values.

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
1	*Device Operation*	*Trigger*	1 Bit	[1.17] DPT Trigger	C	R		T	

Table 10

This object is visible only if the Par. 3 in Table 8 is selected as "Enable". It is used to check that the device is alive. After start-up, the device transmits its value to the bus cyclically depending on Par. 4 and 5 in Table 8.

7.2 *Display tab*

7.2.1 Display parameters

Display tab is only available for KNX Multi-Functional Switch 4 Gang MS104-D FA (with display)

No	Name	Values	Description
1	*Display behavior*	Clock **Temperature*** Clock & Temperature	This parameter determines what will be shown on the display. If “Clock & Temperature” is selected, the parameters 2 and 3 will be visible. For icon codes please see *Product Display* section.
2	*Time for clock*	1…**5***...255 sec.	This parameter determines how long the clock will be shown on the display.
3	*Time for temperatures*	1…**5***...255 sec.	This parameter determines how long temperature will be shown on the display.
4	*Backlight brightness behavior*	**Fixed level*** Touch based (30s) Proximity based (30s)	This parameter determines the behavior of backlight brightness of the display. If “Fixed level” is selected, the brightness level will be set to the value which is defined the Par. 5. If “Touch based (30s)” or “Proximity based (30s)” is selected, the display will work in two modes. After start-up, the display enters standby mode until a touch or proximity is detected. When it is detected, the display enters active mode. After last detection, the display stays for 30 seconds in active mode then enters standby mode again. At the standby mode, the brightness level will be set to the low level value which is defined the Par. 8. At the active mode, the brightness level will be set to the high level value which is defined the Par. 9 or it will be set to the level which is determined by ambient light sensor (Par .7).
5	*Backlight brightness level*	0…**100***	This parameter is visible only when *Fixed level is* selected for Par. 4. It determines backlight brightness level of the device.
6	*Display standby behavior*	Don’t show display icons **Show display icons***	This parameter is visible only when *Touch* or *Proximity based* is selected for Par. 4. It determines behavior of thermostat icons at the standby mode.

No	Name	Values	Description
			If “Don’t show display icons” is selected, S1…S10, D1-2, S11…S27 and S29…S48 are not shown on the display at the standby mode. For icon codes please see *Product Display* section.
7	*Ambient light sensor for LCD*	Disable **Enable***	This parameter is visible only when *Touch* or *Proximity based* is selected for Par. 4. It is used to activate determining of backlight brightness level of the display at the active mode. If “Enable” is selected, while the device is being used by enduser (active mode), backlight brightness level is determined according to ambient light which is measured by the internal sensor. The determined brightness level will be between brightness low level (Par. 8) and high level (Par. 9). At the standby mode, backlight brightness is set to low level (Par. 8).
8	*Backlight brightness low level*	0…**20***…50	This parameter is visible only when *Touch* or *Proximity based* is selected for Par. 4. It defines brightness level of display for the standby mode. The parameter shouldn’t be higher than the Par. 9 and level 50.
9	*Backlight brightness high level*	0…**100***	This parameter is visible only when *Touch* or *Proximity based* is selected for Par. 4. It defines maximum brightness level of display for the active mode. If the ambient sensor (Par. 7) is disabled, backlight brightness of the display is set to this level. Otherwise, the sensor determines the level between low and high level. The parameter shouldn’t be lower than the Par. 8.
10	*Showing humidity on display*	**No*** Internal sensor value External sensor value	This parameter is used to show humidity information on the display. If “Internal sensor” *value* is selected, internal humidity sensor measures humidity value of area in percentage (%) between 0-99. If “External sensor” *value* is selected, *Display Humidity* communication object will be visible and it is used to set humidity value. After start-up, humidity value is not shown on the display

No	Name	Values	Description
			until the object updated via KNX bus. The object value must be between 0-99. Humidity value will be shown on D1, D2 digits. For icon codes please see *Product Display* section.
11	*Airquality warning input*	**Disable*** Enable	This parameter is used to show Airquality warning icon on the display via its object (Table 12). If "Enable" is selected, *Display Airquality Warning* object will be visible. When an "*alarm*" telegram is received, S9 icon appears on the display until "*no alarm*" telegram is received. For icon codes please see *Product Display* section.

Table 11

***: Default Value**

7.2.2 Display objects

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
223	*Display Airquality Warning*	*Airquality Input*	1 Bit	[1.5] DPT Alarm	C		W		

Table 12

This object is visible only if the Par. 11 in Table 11 is enabled.

Object No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
224	*Display Humidity*	*Humidity Input*	2 Bytes	[9.7] DPT Value Humidity	C		W		

Table 13

This object is visible only if the Par. 10 in Table 11 is set to "*External sensor value*".

7.3 *Touch buttons tab*

7.3.1 General parameters

No	Name	Values	Description
1	*Button feedback sound*	Off Level 1 **Level 2***	This parameter defines sound level of KNX Multi-Functional Switch's buttons for feedback. Depending on *Group parameters* settings, when a touch or release is detected, the device gives a sound feedback.
2	*Button brightness behavior*	**Fixed level*** Touch based (30s) Proximity based (30s)	This parameters determines behavior of LED brightness of the buttons. If "Fixed level" is selected, LED brightness levels will be set to the values which are defined the Par. 3 and 4. If "Touch based (30s)" or "Proximity based (30s)" is selected, the LEDs will work in two modes. After start-up, the LEDs enter standby mode until a touch or proximity is detected. When it is detected, the LEDs enter active mode. After last detection, the LEDs stay for 30 seconds in active mode and enter to standby mode again. At the standby mode, the brightness level will be set to the low level value which is defined the Par. 6. At active mode, the brightness level will be set to the high level value which is defined the Par. 7 or it will be set to the level which is determined by ambient light sensor (Par .5).
3	*Button orientation brightness level*	0…**100***	This parameter is visible only when "Fixed level" *is* selected for Par. 2. It determines brightness level of icon LEDs.
4	*Button feedback brightness level*	0…**100***	This parameter is visible only when "Fixed level" *is* selected for Par. 2. It determines brightness level of feedback LEDs.
5	*Ambient light sensor for LEDs*	Disable **Enable***	This parameter is visible only when "Touch based (30s)" or "Proximity based (30s)" is selected for Par. 4. It is used to activate determining of LED brightness level at the active mode. If "Enable" is selected, while the device is being used by enduser (active mode), LED brightness level is determined according to ambient light which is measured by the internal sensor. The

No	Name	Values	Description
			determined brightness level will be between low level (Par. 6) and high level (Par. 7). At the standby mode, LED brightness is set to low level (Par. 8).
6	*Backlight brightness low level*	0…**20***…100	This parameter is visible only when "Touch based (30s)" or "Proximity based (30s)" is selected for Par. 2. It defines LED brightness level at the standby mode. The parameter shouldn't be higher than the Par. 7.
7	*Backlight brightness high level*	0…**100***	This parameter is visible only when "Touch based (30s)" or "Proximity based (30s)" is selected for Par. 2. It defines maximum LED brightness level at the active mode. If the light sensor (Par. 5) is disabled, LEDs brightness are set to high level. Otherwise, the sensor determines the level between low and high level. The parameter shouldn't be lower than the Par. 6.
8	*Gang A*	Disable **Enable***	This parameter is used to disable or enable the gang. If "Disable" is selected, button functions and LEDs of the gang cannot be used. If the gang is selected to enter KNX programming mode, a warning text appears below of the parameter.
9	*Gang B*	Disable **Enable***	This parameter is used to disable or enable the gang. If "Disable" is selected, button functions and LEDs of the gang cannot be used. If the gang is selected to enter KNX programming mode, a warning text appears below of the parameter.
10	*Gang C*	Disable **Enable***	This parameter is used to disable or enable the gang. If "Disable" is selected, button functions and LEDs of the gang cannot be used. If the gang is selected to enter KNX programming mode, a warning text appears below of the parameter.
11	*Gang D*	Disable **Enable***	This parameter is used to disable or enable the gang.

No	Name	Values	Description
			If “Disable” is selected, button functions and LEDs of the gang cannot be used. If the gang is selected to enter KNX programming mode, a warning text appears below of the parameter.

Table 14

***: Default Value**

7.3.2 Group parameters and objects

All parameters in this section are individually defined for Group A, B, C and D.

No	Name	Values	Description
1	*Group configuration*	**Single button*** Rocker & Single button	This parameter determines how the group will be used. KNX Multi-Functional Switch has three buttons in a group. These buttons can be used single or rocker & single.
2	*Rocker buttons*	**1&2*** 1&3 2&3	This parameter is visible only when “Rocker & Single button” is selected for Par. 1. It determines rocker button combination of the group.
3	*Sound feedback*	None **Tone 1*** Tone 2 Tone 3	This parameter defines sound feedback tone or disables it with “None”.
4	*Sound feedback when button released*	**No*** Yes	This parameter determines condition of giving sound feedback. If “No” is selected, sound feedback is given, when a touch is detected in one of the buttons of the group. Otherwise, it is given, when a touched button is released.
5	*Show dimming feedback on display*	**Disable*** Enable	This parameter is used to show dimming value on the display. If “Enable” is selected and any rocker or button function of the group selected as “Dimming”, a *Dimming Feedback* communication object will be visible to receive feedback value. After a dimming or switch command is transmitted or while a dimming command is transmitting, if a telegram is received via feedback object, the telegram value is shown on the KNX Multi-Functional Switch‘s display for 2 seconds.

Table 15

***: Default Value**

7.3.2.1 Single button parameters

All parameters in this section are individually defined for Button 1, 2, 3 in each Groups. Also, Button Y presentives Button 1, 2, 3 and Group X presentives Group A, B, C, D.

No	Name	Values	Description
1	*Button function*	Disable **Toggle*** Dimming Blinds Scene Sequencer Value HVAC operation mode Build in thermostat function	This parameter determines function of single button. For parameters which will be visible according the selected value, check Tables 17-23. If "Disable" or "Build in thermostat function" is selected, communication object of the button will be hidden. Otherwise, check Single button objects for more information.
2	*Additional functions*	**Disabled*** 2nd object Long keystroke Night mode Child lock	This parameter is visible only if the *Button function* (Par. 1) is selected as one of *Toggle, Value*, *HVAC operation mode* and *Build in thermostat* functions. If "*2nd object*" is selected, a *Group X Button Y, Value, Object 2* will be visible with specific data type. When a touch or release is detected at corresponding button surface, a specific telegram value is transmitted via the object. More parameters for 2nd object, see Table 24. If "*Long keystroke*" is selected, a *Group X Button Y, Value, Object 2* will be visible with specific data type. When a touch is detected at corresponding button surface during specific time, a specific telegram value is transmitted via the object. More parameters for long keystroke, see Table 25. If "*Night mode*" is selected, KNX Multi-Functional Switch's display backlight and button LED brightness can be turned off. When a touch is detected at corresponding button surface during 2 seconds, the device enters night mode until another touch detection at any button surface. If "*Child lock*" is selected, the device's touch buttons can be locked against unintended use. When a touch is detected at corresponding button surface during 4 seconds, the device enter child lock mode until another touch detection at corresponding button surface during 4 seconds.

Table 16

***: Default Value**

- Dimming parameters

These parameters are visible only if parameter 1 in Table 16 is “Dimming”.

No	Name	Values	Description
1	*Long keystroke starting at*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to send dimming command as “Increment, Decrement”. Also, short touch is used to send switch command as “On, Off” via dimming communication objects (Table 27).
2	*Dimming increment*	1,5% … **100%***	This parameter defines a step value for a dimming command. If a long touch is detected, “Increment” or “Decrement” dimming command with this percentage value is transmitted to KNX bus and when a release is detected at the touched button, “Break” dimming command is transmitted to KNX bus.

Table 17

***: Default Value**

- Blinds parameters

These parameters are visible only if parameter 1 in Table 16 is “Blinds”.

No	Name	Values	Description
1	*Long keystroke starting at*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to send Up/Down blinds commands. Also, short touch is used to send Step/Stop blinds commands as “Increase, Decrease” via communication objects (Table 29).
2	*Stop driving when release key*	No **Yes***	This parameter is used to determine how “Stop” blinds command will be sent.

Table 18

***: Default Value**

- Scene parameters

These parameters are visible only if parameter 1 in Table 16 is “Scene”.

No	Name	Values	Description
1	*Scene number*	**1*** … 64	This parameter defines scene number to be transmitted via communication objects (Table 30), when a touch is detected at corresponding button surface.
2	*Saving after long keystroke*	**No*** Yes	This parameter is used to enable long keystroke function for scene learn command. Long touch time is 6 seconds. If “Yes” is selected, the device transmits the value of scene object with learn command.

Table 19

***: Default Value**

- Sequencer parameters

These parameters are visible only if parameter 1 in Table 16 is “Sequencer”.

No	Name	Values	Description
1	*Sequencer type*	**Cyclic*** Up-Down Cyclic with additional bit Up-Down with additional bit	This parameter determines the sequence type which will be transmitted via communication objects (Table 31). If “Cyclic” is selected, sequence starts from step 1 and it increases one by one to last step. After last step, it returns to step 1 again. Example for step number (Par. 2) 3, 1->2->3->1->2->3… If “Up-Down” is selected, sequence starts from step 1 and it increases one by one to the last step. After last step, it decreases one by one to step 1 again. Example for step number (Par. 2) 3, 1->2->3->2->1->2->3->2->1… If a value with additional bit is selected, the sequence works as it is. However, another step with a 1-bit value is added after the last step. Example for step number (Par. 2) 3 with Cyclic with additional bit (AB), 1->2->3->AB->1->2->3->AB…
2	*Number of steps*	**2***, 3, 4	This parameter determines number of steps for sequencer.

No	Name	Values	Description
• Parameter 3 and 4 are duplicated and defined according to selected number of steps (Par. 2). X presentives 1, 2, 3 or 4.			
3	*Value of step X*	**0***-255	This parameter defines 1-byte object value of step x for sequencer.
4	*Value of 1 bit object step X*	**0***-1	This parameter defines 1-bit object value of step x for sequencer.
5	*Value of 1 bit object step 5*	**0***-1	This parameter is visible only if Par. 1 is selected with additional bit and defines value of additional bit.

Table 20

***: Default Value**

- Value parameters

These parameters are visible only if parameter 1 in Table 16 is “Value”.

No	Name	Values	Description
1	*1st object type*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 1st value object (Table 32).
2	*Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 1st value object.
3	*1st object transmit on*	**Pushing*** Releasing	This parameter determines transmitting condition. If “*Pushing*” is selected, when a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If “*Releasing*” is selected, when a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 21

***: Default Value**

- HVAC operation mode parameters

These parameters are visible only if parameter 1 in Table 16 is “HVAC operation mode”.

No	Name	Values	Description
1	*HVAC mode*	**Auto*** Comfort Standby Economy Frost protection	This parameter defines HVAC mode to be transmitted via communication objects (Table 33), when a touch is detected at the corresponding button surface.

Table 22

***: Default Value**

- Build in thermostat function parameters

These parameters are visible only if parameter 1 in Table 16 is “Build in thermostat function”.

No	Name	Values	Description
1	*Thermostat control function*	**Operation mode*** Heating-Cooling Setpoint Fan level	This parameter determines thermostat control function which will be operate when a touch is detected at the corresponding button surface. In order to operate the functions, manual permissions should be enabled from Control permissions over device. If “Heating-Cooling” is selected, “*Thermostat control function*” should be selected as “*Heating and Cooling*” and “*Switching mode between heating and* cooling” should be selected as “*Via object or panel*” from Controller general at Thermostat tab. If “Fan level” is selected, “*Fan control*” parameter should be enabled from “Heating control” or/and “Cooling control”
2	*Thermostat mode*	**Comfort*** Standby Economy Frost/Heat protection	This parameter is visible only if “Operation mode” is selected for Par. 1. It defines the operation mode to be set when a touch is detected at the corresponding button surface.
3	*Thermostat mode*	**Heating*** Cooling Heating and Cooling	This parameter is visible only if “Heating-Cooling” is selected for Par. 1. It defines control mode to be set when a touch is detected at the corresponding button surface.
4	*Setpoint control*	**Increase*** Decrease	This parameter is visible only if “Setpoint” is selected for Par. 1. It defines the setpoint control direction when a touch is detected at the corresponding button surface.
5	*Step*	**0.1K*** … 1K	This parameter is visible only if “Setpoint” is selected for Par. 1. It defines setpoint control step value.
6	*Fan level*	**Increase*** Decrease	This parameter is visible only if “Fan level” is selected for Par. 1. It defines fan level control direction when a touch is detected at the corresponding button surface.

Table 23

***: Default Value**

- 2nd object parameters

These parameters are visible only if parameter 2 in Table 16 is “2nd object”.

No	Name	Values	Description
1	*Type*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 2st value object (Table 34).
2	*Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2st value object.
3	*2st object transmit on*	**Pushing*** Releasing	This parameter determines telegram transmitting condition. If “*Pushing*” is selected. When a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If “*Releasing*” is selected. When a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 24

***: Default Value**

- Long keystroke parameters

These parameters are visible only if parameter 2 in Table 16 is “Long keystroke”.

No	Name	Values	Description
1	*Type*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 2st value object (Table 34).
2	*Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2st value object.
3	*Long keystroke time*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to transmit 2nd value object to KNX bus.

Table 25

***: Default Value**

7.3.2.2 Single button objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Toggle	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	

Table 26

This object is visible only if parameter 1 in Table 16 is “Toggle” for Button Y. When a touch is detected at the corresponding button surface, an “On” or “Off” command is transmitted to the bus via the object depending on its state. The transmitted command (TC) to the bus is the reversal of the last command (LC):

LC: “On” ->TC: “Off”,
LC: “Off” -> TC: “On”

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Dimming	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
Group X Button Y, Dimming	*Lighter / Darker*	4 Bit	[3.7] DPT Control Dimming	C	R		T	

Table 27

These objects are visible only if parameter 1 in Table 16 is “Dimming” for Button Y. When a short touch is detected at the corresponding button surface, an “On” or “Off” command is transmitted to the bus via the 1-bit object depending on last command. When a long touch is detected at the corresponding button surface, an “Increment” or “Decrement” command is transmitted to the bus via the 4- bit object depending on last command. It means the transmitted command (TC) to the bus is the reversal of the last command (LC):

LC: “On” -> TC: “Off” for short touch or “Decrement” for long touch,
LC: “Increment” -> TC: “Off” for short touch or “Decrement” for long touch,
LC: “Off” -> TC: “On” for short touch or “Increment” for long touch,
LC: “Decrement”-> TC: “On” for short touch or “Increment” for long touch.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Dimming	*Feedback*	1 Byte	[5.1] DPT Scaling	C		W		U

Table 28

This object is visible only if the parameter 5 in Table 15 is enabled. The object is used to show the level of dimming on the KNX Multi-Functional Switch‘s display for 2 seconds, when a value is received via the object after a dimming or switch command is transmitted or while a dimming command is transmitting.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Blinds	*Step / Stop*	1 Bit	[1.7] DPT Step	C	R		T	
Group X Button Y, Blinds	*Up / Down*	1 Bit	[1.8] DPT Up Down	C	R		T	

Table 29

These objects are visible only if parameter 1 in Table 16 is “Blinds” for Button Y. When a short touch is detected at the corresponding button surface, an “Increase” or “Decrease” command is transmitted to the bus via the 1 bit *step* object. When a long touch is detected at the corresponding button surface, an “Up” or “Down” command is transmitted to the bus via the 1 bit *up/down* object. If parameter 2 in Table 18 is set to “*Yes*” and when the button is released after long touch, an “Increase” or “Decrease” command is transmitted to the bus via the 1 bit *step* object to stop blinds command. Transmitted command (TC) depends to last command (LC):

LC: “Increase, Decrease” -> TC for short touch: “Increase, Decrease”,
LC: “Increase, Decrease” -> TC for long touch: “Up, Down”,
If parameter 2 in Table 18 is “*Yes*”,
LC: “Up, Down” -> TC for release button: “Decrease, Increase”,
If parameter 2 in Table 18 is “*No*”,
LC: “Up, Down” -> TC for short touch: “Decrease, Increase”,
LC: “Up, Down” -> TC for long touch: “Down, Up”,

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Scene	*Scene*	1 Byte	[18.1] DPT Scene Control	C	R		T	

Table 30

This object is visible only if parameter 1 in Table 16 is “Scene” for Button Y. When a short touch is detected at the corresponding button surface, a 1-byte specific scene value with activate command is transmitted to the bus via the object. If parameter 2 in Table 19 is “Yes”, when a long touch is detected, a 1-byte specific scene value with learn command is transmitted to the bus via the object.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Sequencer	*1 Bit Value*	1 Bit	[1.1] DPT Switch	C	R		T	
Group X Button Y, Sequencer	*1 Byte Value*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	

Table 31

These objects are visible only if parameter 1 in Table 16 is “Sequencer” for Button Y. When a touch is detected at the corresponding button surface, a 1-Bit and a 1-Byte specific values are transmitted to the bus via the objects depending on its step. For more description, check Table 20.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Value, Object 1	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
	Scene	1 Byte	[18.1] DPT Scene Control					
	Priority	2 Bit	[2.1] DPT Switch Control					
	2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count					
	Percentage	1 Byte	[5.1] DPT Scaling					
	1 Bit Value	1 Bit	[1.1] DPT Switch					
	1 Byte Value	1 Byte	[5.10] DPT Value 1 U count					

Table 32

This object is visible only if parameter 1 in Table 16 is “Value” for Button Y. When a touch or release is detected at the corresponding button surface, a specific value is transmitted to the bus via the object. For more description, check Table 21.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, HVAC Mode	*HVAC Operation Mode*	1 Byte	[20.102] DPT HVAC Mode	C	R		T	

Table 33

This object is visible only if parameter 1 in Table 16 is “HVAC operation mode” for Button Y. When a touch is detected at the corresponding button surface, a specific HVAC mode value is transmitted to the bus via the object. For more description, check Table 22.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Button Y, Value, Object 2	*Temperature*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
	Scene	1 Byte	[18.1] DPT Scene Control					
	Priority	2 Bit	[2.1] DPT Switch Control					
	2 Byte Value	2 Bytes	[7.1] DPT Value 2 U count					
	Percentage	1 Byte	[5.1] DPT Scaling					
	1 Bit Value	1 Bit	[1.1] DPT Switch					
	1 Byte Value	1 Byte	[5.10] DPT Value 1 U count					

Table 34

This object is visible only if parameter 2 in Table 16 is “2nd object” or “Long keystroke” for Button Y. When a short touch or long touch or release is detected at the corresponding button surface, a specific value is transmitted to the bus via the object. For more description, check Table 24 or Table 25.

7.3.2.3 Rocker button parameters

No	Name	Values	Description
1	*Rocker function*	**Switching*** Dimming Blinds Scene Value	This parameter determines function and object of rocker buttons. For parameters which will be visible according the selected value, check Tables 36-40. For object details, check Rocker button objects.
2	*Additional functions*	**Disabled*** 2nd object Long keystroke Night mode Child lock	This parameter is visible only if the *Rocker function* (Par. 1) is selected as *Switching or Value*. If "*2nd object*" is selected, a *Group X Rocker, Object 2* will be visible with specific data type. When a touch or release is detected at corresponding button surface, a specific telegram value is transmitted via the object. More parameters for 2nd object, see Table 41. If "*Long keystroke*" is selected, a *Group X Rocker, Object 2* will be visible with specific data type. When a long touch is detected at corresponding button surface during specific time, a specific telegram value is transmitted via the object. More parameters for long keystroke, see Table 42. If "*Night mode*" is selected, KNX Multi-Functional Switch's display backlight and button LED brightness can be turned off. When a long touch is detected at corresponding button surface during 2 seconds, the device enters night mode until another touch detection at any button surface. If "*Child lock*" is selected, the device's touch buttons can be locked against unintended use. When a long touch is detected at corresponding button surface during 4 seconds, the device enter child lock mode until another long touch detection at corresponding button surface during 4 seconds.

Table 35

***: Default Value**

At following parameters, “Left” means first button, “Right” means second button of rocker.

- Switching parameters

These parameters are visible only if parameter 1 in Table 35 is “Switching”.

No	Name	Values	Description
1	*1st object LEFT key action*	Off **On*** Toggle No telegram	This parameter determines how to be used the buttons of rocker. When a touch is detected at corresponding button surface, a specific value is transmitted via communication object (Table 43)
2	*1st object LEFT key action*	**Off*** On Toggle No telegram	This parameter determines how to be used the buttons of rocker. When a touch is detected at corresponding button surface, a specific value is transmitted via communication object (Table 43)
3	*1st object transmit on*	**Pushing*** Releasing	This parameter determines transmitting condition. If “*Pushing*” is selected. When a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If “*Releasing*” is selected. When a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 36

***: Default Value**

- Dimming parameters

These parameters are visible only if parameter 1 in Table 35 is “Dimming”.

No	Name	Values	Description
1	*Dimming key actions*	**Left:Brighter/On, Right:Darker/Off*** Left:Brighter/Toggle, Right:Darker/Toggle Left:Darker/Off, Right:Brighter/On Left:Darker/Toggle, Right:Brighter/Toggle	This parameter determines how to be used the buttons of rocker. When a touch is detected at corresponding button surface, a specific value is transmitted via communication object (Table 44)
2	*Dimming increment*	1,5% … **100%***	This parameter defines a step value for a dimming command. If a long touch is detected, “Increment” or “Decrement” dimming command with this percentage value is transmitted to KNX bus and when a release is detected at the touched button, “Break” dimming command is transmitted to KNX bus.

No	Name	Values	Description
3	*Long keystroke starting at*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to send dimming command as "Increment, Decrement", short touch is used to send switch command as "On, Off" via dimming communication objects (Table 44).

Table 37

***: Default Value**

- Blinds parameters

These parameters are visible only if parameter 1 in Table 35 is "Blinds".

No	Name	Values	Description
1	*Blinds key actions*	**Left = UP, Right = DOWN*** Left = DOWN, Right = Up	This parameter determines how to be used the buttons of rocker. When a touch is detected at corresponding button surface, a specific value is transmitted via communication object (Table 46)
2	*Stop driving when*	**Releasing the key*** Short keystroke	This parameter is used to determine how "Stop" blinds command will be sent.
3	*Long keystroke starting at*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to send Up/Down blinds commands, short touch is used to send Step/Stop blinds commands as "Increase, Decrease" via communication objects (Table 46).

Table 38

***: Default Value**

- Scene parameters

These parameters are visible only if parameter 1 in Table 35 is “Scene”.

No	Name	Values	Description
1	*1st object LEFT key action*	**1*** … 64	This parameter defines scene number to be transmitted when a touch is detected via communication objects (Table 47).
2	*1st object LEFT key action*	**1*** … 64	This parameter defines scene number to be transmitted when a touch is detected via communication objects (Table 47).
3	*1st object transmit on*	**Pushing*** Releasing	This parameter determines transmitting condition. If “*Pushing*” is selected. When a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If “*Releasing*” is selected. When a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 39

***: Default Value**

- Value parameters

These parameters are visible only if parameter 1 in Table 35 is “Value”.

No	Name	Values	Description
1	*Object type of 1st object*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 1st value object (Table 48).
2	*1st object LEFT key Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 1st value object for LEFT key.
3	*1st object RIGHT key Value*	0-1 00-11-10 0-255 0-100 1-64	This parameter determines value of 1st value object for RIGHT key.

No	Name	Values	Description
		0-40 0-65535	
3	*1st object transmit on*	**Pushing*** Releasing	This parameter determines transmitting condition. If "*Pushing*" is selected, when a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If "*Releasing*" is selected, when a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 40

***: Default Value**

- 2nd object parameters

These parameters are visible only if parameter 2 in Table 35 is "2nd object".

No	Name	Values	Description
1	*Type*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 2st value object (Table 49).
2	*2nd object LEFT key Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2nd value object for LEFT key.
3	*2nd object RIGHT key Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2nd value object for RIGHT key.

No	Name	Values	Description
4	*2nd object transmit on*	**Pushing*** Releasing	This parameter determines transmitting condition. If "*Pushing*" is selected, when a touch is detected at corresponding button surface, the object is transmitted to KNX bus. If "*Releasing*" is selected, when a touch is detected at corresponding button surface, the object is not transmitted until a release is detected at the touched button surface.

Table 41

***: Default Value**

- Long keystroke parameters

These parameters are visible only if parameter 2 in Table 35 is "Long keystroke".

No	Name	Values	Description
1	*Type*	**Value 0…1 (1 bit)*** Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Temperature (2 byte) Value 0…65535 (2 byte)	This parameter determines data type of 2st value object (Table 49).
2	*2nd object LEFT key Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2nd value object for LEFT key.
3	*2nd object RIGHT key Value*	0-1 00-11-10 0-255 0-100 1-64 0-40 0-65535	This parameter determines value of 2nd value object for RIGHT key.
4	*Long keystroke time*	**300ms***… 3000ms	This parameter defines long keystroke start time. When a touch is detected at the corresponding surface during this time, it is defined as a long touch and used to transmit 2nd value object to KNX bus.

Table 42

***: Default Value**

7.3.2.4 Rocker button objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Object 1	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	

Table 43

This object is visible only if parameter 1 in Table 35 is “Switching”. When a touch is detected at the corresponding button surface, an “On” or “Off” command is transmitted to the bus via the object depending on the parameters in Table 36. If *key action* is selected as “Toggle”, the transmitted command (TC) to the bus is the reversal of the last command (LC):

LC: “On” ->TC: “Off”,
LC: “Off” -> TC: “On”

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Dimming	*Switch ON/OFF*	1 Bit	[1.1] DPT Switch	C	R		T	
Group X Rocker, Dimming	*Lighter / Darker*	4 Bit	[3.7] DPT Control Dimming	C	R		T	

Table 44

These objects are visible only if parameter 1 in Table 35 is “Dimming”. When a short touch is detected at the corresponding button surface, an “On” or “Off” command is transmitted to the bus via the 1-bit object depending on the parameters in Table 37. When a long touch is detected at the corresponding button surface, an “Increment” or “Decrement” command is transmitted to the bus via the 4- bit object depending on the parameters in Table 37. If *key action* is selected as “Toggle”, the transmitted command (TC) to the bus is the reversal of the last command (LC):

LC: “On” -> TC: “Off” for short touch or “Decrement” for long touch,
LC: “Increment” -> TC: “Off” for short touch or “Decrement” for long touch,
LC: “Off” -> TC: “On” for short touch or “Increment” for long touch,
LC: “Decrement”-> TC: “On” for short touch or “Increment” for long touch.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Dimming	*Feedback*	1 Byte	[5.1] DPT Scaling	C		W		U

Table 45

This object is visible only if the parameter 5 in Table 15 is enabled. The object is used to show the level of dimming on the KNX Multi-Functional Switch‘s display for 2 seconds, when a value is received via the object after a dimming or switch command is transmitted or while a dimming command is transmitting.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Blinds	*Step / Stop*	1 Bit	[1.7] DPT Step	C	R		T	
Group X Rocker, Blinds	*Up / Down*	1 Bit	[1.8] DPT Up Down	C	R		T	

Table 46

These objects are visible only if parameter 1 in Table 35 is “Blinds”. When a short touch is detected at the corresponding button surface, an “Increase” or “Decrease” command is transmitted to the bus via the 1 bit *step* object. When a long touch is detected at the corresponding button surface, an “Up” or “Down” command is transmitted to the bus via the 1 bit *up/down* object. If parameter 2 in Table 38 is set to “*Releasing the key*” and when the button is released after long touch, an “Increase” or “Decrease” command is transmitted to the bus via the 1 bit *step* object to stop blinds command. Transmitted command (TC) depends to last command (LC):

LC: “Increase, Decrease” -> TC for short touch: “Increase, Decrease”,
LC: “Increase, Decrease” -> TC for long touch: “Up, Down”,
If parameter 2 in Table 38 is “*Releasing the key*”,
LC: “Up, Down” -> TC for release button: “Decrease, Increase”,
If parameter 2 in Table 38 is “*Short keystroke*”,
LC: “Up, Down” -> TC for short touch: “Decrease, Increase”,
LC: “Up, Down” -> TC for long touch: “Down, Up”,

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Scene number	*Recall / Save light scene*	1 Byte	[18.1] DPT Scene Control	C	R		T	
Group X Rocker, Scene last operation	*1=Left side, 0=Right side*	1 Bit	[1.2] DPT Bool	C	R		T	

Table 47

These objects are visible only if parameter 1 in Table 35 is “Scene”. When a short touch is detected at the corresponding button surface, a specific value is transmitted to the bus via the 1 byte *scene control* object and “true” or “false” command is transmitted to the bus via the 1 bit *bool* object. For more description, check Table 39.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Object 1	*Send Value (0..65535)*	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
	Switch ON/OFF	1 Bit	[1.1] DPT Switch	C	R		T	
	Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
	Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
	HVAC Operation Mode	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
	Send Value (0..255)	1 Byte	[5.10] DPT Value 1 U count	C	R		T	

Table 48

This object is visible only if parameter 1 in Table 35 is “Value”. When a touch or release is detected at the corresponding button surface, a specific value is transmitted to the bus via the object. For more description, check Table 40.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Rocker, Object 2	*Send Value (0..65535)*	2 Bytes	[7.1] DPT Value 2 U count	C	R		T	
	Switch ON/OFF	1 Bit	[1.1] DPT Switch	C	R		T	
	Priority	2 Bit	[2.1] DPT Switch Control	C	R		T	
	Percentage	1 Byte	[5.1] DPT Scaling	C	R		T	
	HVAC Operation Mode	1 Byte	[20.102] DPT HVAC Mode	C	R		T	
	Send Value (0..255)	1 Byte	[5.10] DPT Value 1 U count	C	R		T	

Table 49

This object is visible only if parameter 2 in Table 35 is “2nd object” or “Long keystroke”. When a short touch or long touch or release is detected at the corresponding button surface, a specific value is transmitted to the bus via the object. For more description, check Table 41 or Table 42.

7.3.2.5 **LED parameters**

All parameters in this section are individually defined for Feedback led 1, 2, and 3 in each Groups.
Also, Led Y presentives Led 1, 2, 3 and Group X presentives Group A, B, C, D.

No	Name	Values	Description
1	*Led function*	Fixed display Display object value **Button feedback***	This parameter defines function of the feedback led. If “Fixed display” is selected, the led works constantly as turned on or off according to behavior parameter (Par. 3). If “Display object value” is selected, the led works with its object (Table 51) according to behavior parameter (Par. 3). If “Button feedback” is selected, the led works with specific touch button of the group according to behavior parameter (Par. 3).
• This parameter is visible only if the related group has only single button (no rocker button),			
2	*Led key*	1 2 3	This parameter determines which button of the related group will be connect the feedback led.
3	*Led behavior*	This parameter’s values are determined according to its function parameter (Par.1) and the group configuration parameters (Table 15). If led function is selected as “Fixed display” Always off **Always On*** If led function is selected as “ Display object value”, **Object value 1 = Led On*** Object value 0 = Led Off Object value 1 = Led On for 3s Object value 0 = Led Off for 3s Any object value = Led On for 3s If led function is selected as “Button feedback” and the related button is configured as single button, **Led toggle*** Led On for 3s Push/Release = Led On/Off If led function is selected as “Button feedback” and the related button is configured as rocker button, **Leftside = Led On, Rightside = Led Off*** Leftside = Led Off, Rightside = Led On Bothsides = Led On for 3s Leftside = Led On for 3s Rightside = Led On for 3s Push/Release = Led On/Off	This parameter determines how to work the feedback led. If “Led toggle” is selected, when a touch is detected at corresponding button surface, the feedback led is turned on or off according its status. On -> Off, Off -> On If “Led On for 3s” is selected, when a touch is detected at corresponding button surface, the feedback led is turned on for 3 seconds and turned off back. If “Push/Release = Led On/Off” is selected, when a touch is detected at corresponding button surface, the feedback led is turned on until a release detected.

Table 50

***: Default Value**

7.3.2.6 **LED object**

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Group X Led Y, Drive	*Drive Led*	1 Bit	[1.1] DPT Switch	C	R	W	T	U

Table 51

This object is visible only if led function parameter is selected as “Display object value” in Table 50. According to parameter of led behavior, the feedback led is driven by this object.

7.4 *Internal sensors tab*

7.4.1 Internal sensors parameters

These parameters are defined for Temperature and Humidity sensors.

No	Name	Values	Description
1	*Calibration*	**With Adjustment Factor** Via object	Sensor calibration carried out either via an object (Table 53) or via an adjustment factor parameter.
2	*Adjustment factor*	1…**100**…10000	This parameter is visible only if "Calibration" parameter is set as "With adjustment factor." In this case, the value measured by the sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / device value that is measured internally) × 100
3	*Sending value*	**No** On Change Cyclic	This parameter determines whether and when the value will be sent via an object (Table 54). "On change" means that the value is sent if the measured value has changed by at least the configured value since the last transmission. This change is independent of the length of time taken for this process. "Cyclic" means that the measured value is transmitted cyclically at the selected time.
4	*Changing value*	**0.1***…10.0 °C 0.1…**1.0***…10.0 %RH	This parameter is visible if "Sending value" parameter is set as "On change". It determines the amount of change in the specific value that will trigger the device to send the value via the bus.
5	*Cycle time*	**3 sec**…60min	This parameter is visible if "Sending value" parameter is set as "Cyclic". It determines at what intervals the specific value is sent via the bus.
6	*Additional function*	**No** Alarm function Send 1 bit value Send scene number	This parameter is used to determine the additional function of sensor measurement besides sending its value.

No	Name	Values	Description
		Send percentage Send 1 byte value	If “Alarm function” is selected, low level alarm and high level alarm can be transmitted to bus via an object (Table 56). Otherwise, a specific value can be transmitted via object with specific type (Table 55).
7	*Additional function alarm low level*	0…**18.0***…40.0 °C 0…**30***…100 %RH	This parameter determines the low level value of the additional function.
8	*Additional function alarm high level*	0…**30.0***…45.0 °C 0…**60***…100 %RH	This parameter determines the high level value of the additional function.
9	*Additional function hysteresis*	0…**2***…10 °C/%RH	This parameter determines the hysteresis value of the additional function.
10	*If actual level is lower than the low level*	**Don’t send telegram** Send telegram	This parameter is available if “Additional function” is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to “Send telegram” another parameter will appear so the user can enter the value.
11	*If actual level is between the low level and the high level*	**Don’t send telegram** Send telegram	This parameter is available if “Additional function” is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to “Send telegram” another parameter will appear so the user can enter the value.
12	*If actual level is higher than the high level*	**Don’t send telegram** Send telegram	This parameter is available if “Additional function” is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to “Send telegram” another parameter will appear so the user can enter the value.

Table 52

***: Default Value**

7.4.2 Internal sensors objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Calibration	*Calibration Input*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
Humidity Calibration	*Calibration Input*	2 Bytes	[9.7] DPT Value Humidity	C	R	W	T	U
Temperature Ext Calibration	*Calibration Input*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U

Table 53

This object is visible only if “Calibration” parameter is set as “Via object” in Table 52. The user can use it to calibrate the measurement output by measuring the actual measurement value via an external device and then writing this value to the object. When KNX Multi-Functional Switch received the value, calibrate its measurement output automatically.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Value	*Sensor value*	2 Bytes	[9.1] DPT Value Temp	C	R		T	
Humidity Value	*Sensor value*	2 Bytes	[9.7] DPT Value Humidity	C	R		T	
Temperature Ext Value	*Sensor value*	2 Bytes	[9.1] DPT Value Temp	C	R		T	

Table 54

This object is available if “Send value” parameter is set as “On change” or “Cyclic” in Table 52.
The device uses this object to send the measurement value that is measured by the sensor after calibrating it. Each measurement value can be calibrated via “Adjustment factor” parameter or “Calibration” object (Table 53).

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Additional Function	*Send 1 Bit*	1 Bit	[1.5] DPT Alarm	C			T	
Humidity Additional Function	*Send Scene Number*	1 Byte	[17.1] DPT Scene Number					
Air Quality Additional Function	*Send Percentage*	1 Byte	[5.1] DPT Scaling					
	Send 1 Byte	1 Byte	[5.10] DPT Value 1 U count					

Table 55

This object is visible only if “Additional function” parameter is set as “Send 1 bit value”, “Send scene number”, “Send percentage” or “Send 1 byte value” in Table 52.
When the measurement value changed, this object sends telegrams with specific type and values according to the related parameters in Table 52.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Low Level Alarm	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
Temperature High Level Alarm								
Humidity Low Level Alarm								
Humidity High Level Alarm								
Temperature Ext Low Level Alarm								
Temperature Ext High Level Alarm								

Table 56

These objects are visible only if “Additional function” parameter value is “Alarm function” in Table 52.
“High Level Alarm” object sends “Alarm” telegram when the measurement value exceeds the high level value and “No Alarm” telegram when the measurement value returns below it.
“Low Level Alarm” object sends “Alarm” telegram when the measurement value goes below the low level value and “No Alarm” telegram when the measurement value returns above it.
A “Hysteresis” value is taken into the account while this function is used.
Low level value, high level value and hysteresis value can be set in the related measurement parameter page.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Sensor Error	*Send Alarm*	1 Bit	1.005 DPT Alarm	C			T	
Humidity Sensor Error								
Temperature Ext Sensor Error								

Table 57

This object is used to warn the user when the device isn’t able to read measurement value from the related internal sensor.

7.5 *External inputs tab*

7.5.1 Analog input parameters

No	Name	Values	Description
1	*Input type*	**Disable*** General temperature Room temperature Floor temperature Outdoor temperature	This parameter determines the type of analog input. For all options, measured temperature value can be transmitted to KNX bus (Par. 7). If “Room temperature” is selected, the measured temperature value can be used thermostat operation and it is shown on display of the device if related parameters are configured (Table 68). If “Floor temperature” is selected, heating limitation can be enabled while floor heating control is active (Table 89). If “Outdoor temperature” is selected, the measured temperature value can be shown on the display if related parameters are configured (Table 68).
• The following parameters is visible only if “Input type” is not selected as “Disable”.			
2	*Probe type*	**Manual setting*** Alre HF-8/4-K2 Senstech CWF-A23	This parameter is used to determine probe type. “Alre HF-8/4-K2” and “Senstech CWF-A23” options are predefined ntc10k sensor types. If “Manual setting” is selected, probe resistance and probe beta value are set with following parameters. The values can find from datasheets of sensors.
3	*Probe resistance*	1…**10000***…65535	This parameter is visible only if “Probe type” is selected as “Manual settings” and it is used to convert measured analog value to temperature value.
4	*Probe beta (B) value*	1…**3300***…65535	This parameter is visible only if “Probe type” is selected as “Manual settings” and it is used to convert measured analog value to temperature value.
5	*Calibration*	**With Adjustment Factor** Via object	Sensor calibration carried out either via an object (Table 59) or via an adjustment factor parameter.

No	Name	Values	Description
6	*Adjustment factor*	1…**100**…10000	This parameter is visible only if “Calibration” parameter is set as “With adjustment factor.” In this case, the value measured by the sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / device value that is measured internally) × 100
7	*Sending value*	**No** On Change Cyclic	This parameter determines whether and when the value will be sent via an object (Table 60). “On change” means that the value is sent if the measured value has changed by at least the configured value since the last transmission. This change is independent of the length of time taken for this process. “Cyclic” means that the measured value is transmitted cyclically at the selected time.
8	*Changing value*	**0.1***…10.0 °C	This parameter is visible if “Sending value” parameter is set as “On change”. It determines the amount of change in the specific value that will trigger the device to send the value via the bus.
9	*Cycle time*	**3 sec**…60min	This parameter is visible if “Sending value” parameter is set as “Cyclic”. It determines at what intervals the specific value is sent via the bus.
10	*Additional function*	**No** Alarm function Send 1 bit value Send scene number Send percentage Send 1 byte value	This parameter is used to determine the additional function of sensor measurement besides sending its value. If “Alarm function” is selected, low level alarm and high level alarm can be transmitted to bus via an object (Table 62). Otherwise, a specific value can be transmitted via object with specific type (Table 61).
11	*Additional function alarm low level*	0…**18.0***…40.0 °C	This parameter determines the low level value of the additional function.
12	*Additional function alarm high level*	0…**30.0***…45.0 °C	This parameter determines the high level value of the additional function.

No	Name	Values	Description
13	*Additional function hysteresis*	0…**2***…10 °C	This parameter determines the hysteresis value of the additional function.
14	*If actual level is lower than the low level*	**Don't send telegram** Send telegram	This parameter is available if "Additional function" is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
15	*If actual level is between the low level and the high level*	**Don't send telegram** Send telegram	This parameter is available if "Additional function" is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
16	*If actual level is higher than the high level*	**Don't send telegram** Send telegram	This parameter is available if "Additional function" is set as send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.

Table 58

***: Default Value**

7.5.2 Analog input objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Ext Calibration	*Calibration Input*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U

Table 59

This object is visible only if “Calibration” parameter is set to “Via object” in Table 58. The user can use it to calibrate the measurement output by measuring the actual measurement value via an external device like temperature meter then writing this value to the related calibration object. When KNX Multi-Functional Switch received the value, calibrate its measurement output automatically.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Ext Value	*Sensor value*	2 Bytes	[9.1] DPT Value Temp	C	R		T	

Table 60

This object is available if “Send value” parameter is set to “On change” or “Cyclic” in Table 58.
The device uses this object to send the measurement value that is measured by the sensor after calibrating it. Each measurement value can be calibrated via “Adjustment factor” parameter or via “Calibration” object.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Ext Additional Function	*Send 1 Bit* *Send Scene Number* *Send Percentage* *Send 1 Byte*	1 Bit 1 Byte 1 Byte 1 Byte	[1.5] DPT Alarm [17.1] DPT Scene Number [5.1] DPT Scaling [5.10] DPT Value 1 U count	C			T	

Table 61

This object is visible only if “additional function” parameter is set to “Send 1 bit value”, “Send scene number”, “Send percentage” or “Send 1 byte value” in the related measurement page.
When the measurement value changed, this object sends telegrams with specific type and values according to the additional function parameters in Table 58.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Ext Low Level Alarm	*Send Alarm*	1 Bit	[1.5] DPT Alarm	C			T	
Temperature Ext High Level Alarm								

Table 62

These objects are visible only if “additional function” parameter value is “Alarm function” in Table 58.
“High Level Alarm” object sends “Alarm” telegram when the measurement value exceeds the high level value and “No Alarm” telegram when the measurement value returns below it.

"Low Level Alarm" object sends "Alarm" telegram when the measurement value goes below the low level value and "No Alarm" telegram when the measurement value returns above it.
A "Hysteresis" value is taken into the account while this function is used.
Low level value, high level value and hysteresis value can be set in the related measurement parameter page.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Temperature Ext Sensor Error	*Send Alarm*	1 Bit	1.005 DPT Alarm	C			T	

Table 63

This object is used to warn the user when the device isn't able to read measurement value from the related internal sensor.

7.5.3 Digital input parameters

No	Name	Values	Description
1	*Input type*	**Disable*** Generic digital input Window contact Presence input Card holder	This parameter determines that external analog input will be used what for. If “Disable” is not selected, 1 bit *switch* object will be visible and it is used to transmit status of digital input via KNX bus (Table 65). To use the digital input for thermostat energy saving function, the output object of digital input should be connected to one of input objects. (Energy saving functions tab).
2	*Invert input*	**No*** Yes	This parameter is visible only if “input type” is selected as “Generic digital input” and it is used to invert the telegram which will be transmitted for digital input status via the object (Table 65).

Table 64

***: Default Value**

7.5.4 Digital input objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Thermostat Digital Output	*Generic Digital Output*	1 Bit	[1.1] DPT Switch	C	R		T	
Thermostat Digital Output	*Card Holder Output*	1 Bit	[1.1] DPT Switch	C	R		T	
Thermostat Digital Output	*Presence Output*	1 Bit	[1.1] DPT Switch	C	R		T	
Thermostat Digital Output	*Window Contact Output*	1 Bit	[1.1] DPT Switch	C	R		T	

Table 65

These objects are visible only if “Input type” is not selected as “Disable” (Table 64). According to “Invert input” parameter, an “On” or “Off” telegram is transmitted to KNX bus for status of digital input.

7.5.5 Thermostat input (From Bus) parameters

No	Name	Values	Description
1	*Room temperature*	**Disable*** Enable	This parameter is visible only if external analog input is not used as “Room temperature”. If “Enable” is selected, a temperature object will be visible (Table 67). The temperature value can be updated via KNX bus. The value is used thermostat operation and it is shown on display of the device if related parameters are configured (Table 68).
2	*Outdoor temperature*	**Disable*** Enable	This parameter is visible only if external analog input is not used as “Outdoor temperature”. If “Enable” is selected, a temperature object will be visible (Table 67). The temperature value can be updated via KNX bus. The value is shown on the display if related parameters are configured (Table 68).
3	*Floor temperature*	**Disable*** Enable	This parameter is visible only if external analog input is not used as “Floor temperature”. If “Enable” is selected, a temperature object will be visible (Table 67). The temperature value can be updated via KNX bus. The value can be used to heat limitation while floor heating control is active (Table 89).

Table 66

***: Default Value**

7.5.6 Thermostat input (From Bus) objects

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Thermostat Room Temperature	*Room Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
Thermostat Outdoor Temperature	*Outdoor Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		
Thermostat Floor Temperature	*Floor Temperature*	2 Bytes	[9.1] DPT Value Temp	C		W		

Table 67

These objects are visible only if related parameters is enabled (Table 66).

7.6 *Thermostat tab*

7.6.1 General parameters

No	Name	Values	Description
1	*Operation mode after reset*	Comfort Standby Economy Frost/Heat protection **As before bus reset***	This parameter is used to determine operation mode after start-up.
2	*Activation thermostat mode via 1 bit objects*	**No*** Yes	This parameter activates to control operation mode via 1 bit objects (Table 70) over KNX bus. If “Yes” is selected, an object is visible for each operation mode. The operation mode is set to mode which is latest enabled via object.
3	*Separated date time objects*	**No*** Yes	This parameter separates date time object. (Table 71)
4	*Cyclic date time query (5 min)*	*If Par. 3 is selected as “No”,* **Disable*** Enable *If Par. 3 is selected as “Yes”,* **Disable*** Query Date Query Time Query Date & Time	This parameter is used to transmit a date or/and time query via the object (Table 72). If this parameter is not set “Disable”, a 1 bit *switch* object will be visible. With the object, “On” telegram is transmitted for a date or/and time query in every 5 minutes. When users are received that query, they can set date time object (Table 71).
5	*Display unit*	**Celsius (°C)*** Fahrenheit (°F)	This parameter determines how to show temperature values including *Setpoint* on display of the device.

No	Name	Values	Description
6	*Displayed value on LCD*	*If "Outdoor temperature" is not enabled (Table 58, Table 66),* **Room temperature*** Setpoint *If "Outdoor temperature" is enabled (Table 58, Table 66),* **Room temperature*** Outdoor temperature Room and outdoor temperature Setpoint	This parameter is used to determine what values will be shown on the display of device. If "Room temperature" is selected, the value will be shown on the display constantly with icon S26 and S27 after start-up. If "Setpoint" is selected, the value will be shown on the display constantly with icon S25 and S27 after start-up. If "Room and outdoor temperature" is selected, the values will be shown on the display in sequence. Room temperature value is shown with icon S26 and S27, outdoor temperature is shown icon S24 and S27. For icon codes please see *Product Display* section.
7	*Display setpoint type*	**Absolute setpoint*** Relative setpoint	This parameter determines how to shown and set current setpoint temperature on display. If "Absolute setpoint" is selected, the current setpoint temperature is shown as an absolute temperature, e.g. 21.0°C, 30.2°C and it can be increased or decreased in specific step (Table 104). If "Relative setpoint" is selected, the current setpoint temperature is shown as a relative temperature, e.g. -0.5°C, +1.2°C and it can be increased or decreased in specific step (Table 104).
• The following parameters also is set over DCA tab.			
8	*Weekly program*	**Disable*** Enable	This parameter enables weekly program of thermostat.
9	*Weekly program settings on device*	Unchanged after download **Overwrite via download***	This parameter is visible only if "Weekly program" is enabled. It is used to keep weekly program settings which are already set before.
10	*First day of week*	**Monday*** ... Sunday	This parameter is visible only if "Weekly program" is enabled. It determines first day of week for the user. For example: First day of week is Sunday at USA.

Table 68

***: Default Value**

7.6.2 General objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Status*	*On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	

Table 69

This object is used to set or watch thermostat status. “On” or “Off” telegram is transmitted to KNX bus via this object when thermostat status is changed over device. Also, when a telegram is received via this object, thermostat status is changed.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
145	*Thermostat Comfort Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
146	*Thermostat Standby Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
147	*Thermostat Economy Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		
148	*Thermostat Protection Switch*	*Enable*	1 Bit	[1.3] DPT Enable	C		W		

Table 70

These objects are visible only if Par. 2 is selected as “Yes” in Table 68. They are used to switch operation mode, when a “Enable” telegram is received. Operation mode of last updated object is enabled. So, a “Disable” telegram is not necessary to switch operation mode.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
201	*Thermostat Date Time*	*Set Date and Time*	8 Bytes	[19.1] DPT Date Time	C		W		

Table 71

This object is used to set date and time. Date and time is used thermostat weekly program.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
201	*Thermostat Time*	*Set Time*	8 Bytes	[19.1] DPT Date Time	C		W		
202	*Thermostat Date*	*Set Date*	3 Bytes	[11.1] DPT Date	C		W		

Table 72

These objects are used to set date or time separately.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
203	*Date & Time Query*	*Query Date & Time*	1 Bit	[1.1] DPT Switch	C			T	
203	*Time Query*	*Query Time*	1 Bit	[1.1] DPT Switch	C			T	
204	*Date Query*	*Query Date*	1 Bit	[1.1] DPT Switch	C			T	

Table 73

These objects are visible only if Par. 4 is enabled in Table 68. Also, these are used to get a date time query.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
149	*Thermostat Mode*	*Operation Mode Input*	1 Byte	[20.102] DPT HVAC Mode	C		W		

Table 74

This object is used to set operation mode of thermostat.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
205	*Thermostat Mode*	*Operation Mode Output*	1 Byte	[20.102] DPT HVAC Mode	C	R		T	

Table 75

This object is used to get operation mode of thermostat. When operation mode is updated via display, touch buttons, scene or KNX objects etc., this object transmits the new value to KNX bus.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
206	*Thermostat Mode Forced*	*Operation Mode Forced*	1 Byte	[20.102] DPT HVAC Mode	C	R	W		

Table 76

This object is used to set operation mode of thermostat. Its priority is highest including thermostat energy saving functions and the mode cannot be changed until “Auto” is received via this object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
159	*Thermostat Setpoint*	*Setpoint Input*	2 Bytes	[9.1] DPT Value Temp	C		W		

Table 77

This object is used to set setpoint temperature of thermostat.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
209	*Thermostat Setpoint*	*Setpoint Output*	2 Bytes	[9.1] DPT Value Temp	C	R		T	

Table 78

This object is used to get setpoint temperature of thermostat. When setpoint temperature is updated via display, touch buttons or KNX objects, this object transmits the new value to KNX bus.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
210	*Thermostat Setpoint Forced*	*Setpoint Forced*	2 Bytes	[9.1] DPT Value Temp	C	R	W		

Table 79

This object is used to set setpoint temperature of thermostat. It is enabled via the object Table 80. Its priority is highest and the value cannot be changed until “Disable” is received via the object Table 80.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
211	*Thermostat Setpoint Forced En.*	*Setpoint Forced Enable*	1 Bit	[1.3] DPT Enable	C	R	W		

Table 80

This object is used to enable or disable forced setpoint temperature function.

7.6.3 Control permissions over device parameters

No	Name	Values	Description
1	*Operation mode control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, users cannot change operation mode over device.
2	*Setpoint control*	No **Yes***	This parameter is used to allow manual control for the function over device and via input object (Table 77). If "No" is selected, users cannot change the function over device and via input object over KNX bus excluding force object. The force object can be updated via KNX bus (Table 79).
3	*Permission in*	Only comfort mode **All operation mode***	This parameter is visible only if "Setpoint control" permission is enabled. If "Only comfort mode" is selected, setpoint permissions are only applied in comfort mode. At the other modes, setpoint cannot be changed except via force object.
4	*Fan level control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, user cannot change fan level over device.
5	*Thermostat on/off control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, user cannot turn off or on thermostat function over device.
6	*Swing level control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, the user cannot change swing level over device.
7	*Settings menu control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, user cannot enter settings menu over device.
8	*Weekly program control*	No **Yes***	This parameter is used to allow manual control for the function over device. If "No" is selected, user cannot set weekly program over device.

Table 81

***: Default Value**

7.6.4 Temperature measurement parameters

No	Name	Values	Description
1	*Temperature offset*	-50…**0***…50 °C	This parameter is used to set an offset for room temperature value. If “10” is selected, **10** x 0.1 K = 1 °C offset. 23 °C room temperature will be 24 °C.
2	*Sending value*	**No** On Change Cyclic	This parameter determines whether and when the value will be sent via an object (Table 83). “On change” means that the value is sent if the measured value has changed by at least the configured value since the last transmission. This change is independent of the length of time taken for this process. “Cyclic” means that the measured value is transmitted cyclically at the selected time.
3	*Changing value*	0.1…**0.3***…3.0 °C	This parameter is visible if “Sending value” parameter is set as “On change”. It determines the amount of change in the specific value that will trigger the device to send the value via the bus.
4	*Cycle time*	3 sec…**3min***…60min	This parameter is visible if “Sending value” parameter is set as “Cyclic”. It determines at what intervals the specific value is sent via the bus.

Table 82

***: Default Value**

7.6.5 Temperature measurement objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
150	*Thermostat Actual Temperature*	*Thermostat Temperature*	2 Bytes	[9.1] DPT Value Temp	C			T	

Table 83

This object is available if “Sending value” parameter is set as “On change” or “Cyclic” in Table 82.
The device uses this object to send the measurement value via KNX bus.

7.6.6 Controller general parameters

No	Name	Values	Description
1	*Temperature control function*	Heating Cooling **Heating and Cooling***	This parameter determines thermostat control system. If "Heating" is selected, the thermostat function works only in heating mode. If "Cooling" is selected, the thermostat function works only in cooling mode.
• The following parameters are visible only if Par. 1 is selected as "Heating and cooling"			
2	*Switching mode between heating and cooling*	**Automatically*** Via object or panel	This parameter determines how to switch between heating and cooling. If "Automatically" is selected, the thermostat function decides to switch control mode between heating and cooling according to setpoint temperature and room temperature. In this case, the manual switching by the use is disabled. Also the information is transmitted on KNX bus via the output object (Table 85). If "Via object or panel" is selected, the user can switch control mode via display or the input object (Table 86).
3	*Switchover object value*	Heating = 0, Cooling = 1 **Heating = 1, Cooling = 0***	This parameter determines the telegram value of switchover object.
4	*HVAC system type*	2 control objects (4 pipes system) **1 control object (2 pipe system)***	This parameter is used to determine HVAC system type will be used. If "2 control objects (4 pipes system)" is selected, the control output objects will be separately for heating and cooling (Table 91, Table 92). Otherwise heating and cooling will be managed via same output object (Table 87, Table 88).
5	*Temperature control after reset*	Heating Cooling As before bus failure	This parameter determines thermostat control mode after reset or download. If "As before bus failure" is selected, the device is initialized with heating mode at first run after download. At the other start-ups, the device is initialized with latest control mode.
• The following parameter are visible only if Par. 4 is selected as "1 control object (2 pipe system)"			
6	*Controller type*	**2 Step (On/Off)*** PWM Continuous	This parameter determines thermostat controller type.

No	Name	Values	Description
			If “2 Step (On/Off)” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “PWM” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “Continuous” is selected, the device controls HVAC system with 1 byte percentage object via KNX bus.
7	*Output type*	**0-1 (1 Bit)*** 0-100% (1 Byte)	This parameter is visible only if Par. 6 is selected as “2 Step” or “PWM”. It determines output object type.
8	*Invert control value*	**No*** Yes	This parameter is visible only if Par. 6 is selected as “2 Step” or “PWM”. It is used to invert control output.
9	*Sending control value cyclically*	Not cyclically, only changed … **3 min.*** … 60 min.	This parameter is visible only if Par. 6 is selected as “2 Step” or “Continuous”. This parameter determines whether and when the output value will be sent via object.
10	*Sending control value at change of*	**1*** … 10 %	This parameter is visible only if Par. 6 is selected as “Continuous”. It determines whether the output value will be sent via object.

Table 84

***: Default Value**

7.6.7 Controller general objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
168	*Thermostat Heating/Cooling Switchover*	*Report Heating/Cooling*	1 Bit	[1.100] DPT Heat Cool	C			T	

Table 85

This object is visible only if Par. 2 is selected as “Automatically” in Table 84. A telegram is transmitted when the value is updated according to Par. 3 in Table 84.
Heating = 0, Cooling = 1 or Heating = 1, Cooling = 0

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
168	*Thermostat Heating/Cooling Switchover*	*Switchover Heating/Cooling*	1 Bit	[1.100] DPT Heat Cool	C		W		

Table 86

This object is visible only if Par. 2 is selected as “Via object or panel” in Table 84. According to Par.3 in Table 84, when a telegram is received via the object, the thermostat control will be switched.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Heating Cooling Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	

Table 87

This object is visible only if Par.3 is selected as “1 control object (2 pipes system)” and Par.6 is selected as “2 Step (On/Off)” or “PWM” and Par. 7 is selected as “0-1 (1 Bit)” in Table 84. According to Par.7 and Par.9 in Table 84, the output value for controller is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
156	*Thermostat Heating Cooling Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	

Table 88

This object is visible only if Par.3 is selected as “1 control object (2 pipes system)” and Par.6 is selected as “2 Step (On/Off)” or “PWM” and Par. 7 is selected as “0-100% (1 Byte)” or Par. 6 is selected as “Continuous” in Table 84. According to Par.7 and Par.9 in Table 84, the output value of thermostat control is transmitted via the object.

7.6.8 Heating control parameters

This tab is visible only if “Temperature control function” is selected as “Heating” or “Heating and Cooling” in Table 84.

No	Name	Values	Description
• The following parameters 1-5 are visible only if Par. 4 is selected as “1 control object (2 pipe system)” in Table 84			
1	*Controller type*	**2 Step (On/Off)*** PWM Continuous	This parameter determines thermostat controller type. If “2 Step (On/Off)” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “PWM” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “Continuous” is selected, the device controls HVAC system with 1 byte percentage object via KNX bus.
2	*Output type*	**0-1 (1 Bit)*** 0-100% (1 Byte)	This parameter is visible only if Par. 1 is selected as “2 Step” or “PWM”. It determines output object type.
3	*Invert control value*	**No*** Yes	This parameter is visible only if Par. 1 is selected as “2 Step” or “PWM”. It is used to invert control output.
4	*Sending control value cyclically*	Not cyclically, only changed … **3 min.*** … 60 min.	This parameter is visible only if Par. 6 is selected as “2 Step” or “Continuous”. This parameter determines whether and when the output value will be sent via object.
5	*Sending control value at change of*	**1*** … 10 %	This parameter is visible only if Par. 1 is selected as “Continuous”. After how much % change* in the control variable is the new value to be sent. Small values increase control accuracy but also the bus load. *Change since last transmission

No	Name	Values	Description
6	*On/Off hysteresis*	0,1 … **0,3*** …3,0K	This parameter is visible only if “Controller type” is selected as “2 Step”. Set a hysteresis value to ensure that the valve does not constantly switch with each minor under and overshoot when using 2-step control of the actuator. The hysteresis value lies around the setpoint. For example, if the setpoint is 21 °C and the hysteresis is 1 K, the room thermostat only sends an "on" signal at 21.5 °C and an "off" signal at 20.5 °C. This parameter is only available if "2-step" is set as the control type.
7	*Heating PI parameter selection*	**Via type of system*** User defined	This parameter is visible only if “Controller type” is selected as “PWM” or “Continuous”. It is used to select PI (Proportional, Integral) control parameters.
8	*Type of system*	**Warm water heating (P:4K, I:123mins)*** Electric heating (P:3K, I:83mins) Floor heating (P:5K, I:215mins) Split unit (P:4K, I:90mins)	This parameter is visible only if Par. 7 is selected as “Via type of system”. It is used to select a predefined control system.
9	*Proportional band*	0,5...**2.0***…10K	This parameter is visible only if Par. 7 is selected as “User defined”. It is used to determine proportional band of temperature control algorithm. Small values cause large changes in control variables, larger values cause finer control variable adjustment.
10	*Integral time*	0…**60***…250mins	This parameter is visible only if Par. 7 is selected as “User defined”. It is used to determine integral time of temperature control algorithm. If the heating system is over- dimensioned and therefore too fast, shorter values should be used. Conversely, under-dimensioned heating (slow) benefits from longer integrated times.
11	*PWM cycle time*	1…**20***…60mins	This parameter is visible only if “Controller type” is selected as “PWM”. An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period. Example: Actuating value= 20%, PWM time = 10 min: In an actuating cycle of 10 min, 2min switched on and 8 min switched off (I.e. 20% on/ 80% off).
12	*Minimum control value*	**0***…100 %	This parameter is visible only if “Controller type” is selected as “PWM” or “Continuous”. It

No	Name	Values	Description
			determines minimum control value that will be scaled by PI controller.
13	*Maximum control value*	**0**…**100*** %	This parameter is visible only if "Controller type" is selected as "PWM" or "Continuous". It determines maximum control value that will be scaled by PI controller.
14	*Fan control*	**Disable*** Enable	This parameter determines that fan control will be included at the control system. Example: Fancoil system
15	*Floor temperature limitation*	**Disable*** Enable	This parameter is visible only if "Floor temperature" is enabled (Table 66, Table 58). If "Enable" is selected, when heating control is activated and the floor temperature is higher than Par. 16 + Par. 17, then the heating control will be deactivated until floor temperature is lower than Par. 16 – Par.17.
16	*Temperature limit*	16…**29***…80 °C	This parameter is visible only if Par. 15 is selected as "Enable".
17	*Hysteresis*	**0,1***…3,0K	This parameter is visible only if Par. 15 is selected as "Enable".
18	*Additional stage*	**Disable*** Enable	This parameter determines that the control system will be included additional control stage. Example: First stage: Fancoil, Second (Additional) stage: Floor heating
19	*Floor heating stage*	**Main*** Additional	This parameter is visible only if "Floor temperature" is enabled (Table 66, Table 58) and Par. 15 is selected as "Enable". If "Main" is selected, floor temperature limitation is applied to first stage heater. Otherwise limitation is applied to additional stage heater.

Table 89

***: Default Value**

7.6.9 Heating control objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
153	*Thermostat Heater Activate*	*Heater Active*	1 Bit	[1.3] DPT Enable	C			T	

Table 90

This object is visible only if Par.1 is selected as “Heating” or “Heating and Cooling” in Table 84. An “Enable” or “Disable” telegram is transmitted, when the value is updated.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Heating Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	

Table 91

This object is visible if Par.3 is selected as “2 control object (4 pipes system)” in Table 84 and Par.1 is selected as “2 Step (On/Off)” or “PWM” and Par. 2 is selected as “0-1 (1 Bit)” in Table 89. According to Par.4 and Par.5 in Table 89, the output value for controller is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Heating Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	

Table 92

This object is visible if Par.3 is selected as “2 control object (4 pipes system)” in Table 84 and Par.1 is selected as “2 Step (On/Off)” or “PWM” and Par. 2 is selected as “0-100% (1 Byte)” or Par. 1 is selected as “Continuous” in Table 89. According to Par.4 and Par.5 in Table 89, the output value for controller is transmitted via the object.

7.6.10Heating control (Additional) parameters

This tab is visible only if “Additional control” is selected as “Enable” in Table 89.

No	Name	Values	Description
1	*Offset from main stage*	No offset … **1K*** ... 7K	This parameter determines offset from main stage. If “No offset” is selected, additional stage heater output is calculated at the same time with main stage heater. Otherwise, additional stage will be waited the difference between the actual temperature and current setpoint temperature is higher than the offset.
2	*Controller type*	**2 Step (On/Off)*** PWM Continuous	This parameter determines thermostat controller type. If “2 Step (On/Off)” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “PWM” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “Continuous” is selected, the device controls HVAC system with 1 byte percentage object via KNX bus.
3	*Output type*	**0-1 (1 Bit)*** 0-100% (1 Byte)	This parameter is visible only if Par. 2 is selected as “2 Step” or “PWM”. It determines output object type.
4	*On/Off hysteresis*	0,1 … **0,3*** …3,0K	This parameter is visible only if Par. 2 is selected as “2 Step”. Set a hysteresis value to ensure that the valve does not constantly switch with each minor under and overshoot when using 2-step control of the actuator. The hysteresis value lies around the setpoint. For example, if the setpoint is 21 °C and the hysteresis is 1 K, the room thermostat only sends an "on" signal at 21.5 °C and an "off" signal at 20.5 °C. This parameter is only available if "2-step" is set as the control type.
5	*Invert control value*	**No*** Yes	This parameter is visible only if Par. 2 is selected as “2 Step” or “PWM”. It is used to invert control output.
6	*Sending control value cyclically*	Not cyclically, only changed … **3 min.*** …	This parameter is visible only if Par. 2 is selected as “2 Step” or “Continuous”. This parameter determines whether and when the output value will be sent via object.

No	Name	Values	Description
		60 min.	
7	*Sending control value at change of*	**1*** … 10 %	This parameter is visible only if Par. 2 is selected as “Continuous”. After how much % change* in the control variable is the new value to be sent. Small values increase control accuracy but also the bus load. *Change since last transmission
8	*Heating additional stage PI parameter selection*	**Via type of system*** User defined	This parameter is visible only if Par. 2 is selected as “PWM” or “Continuous”. It is used to select PI (Proportional, Integral) control parameters.
9	*Type of system*	**Warm water heating (P:4K, I:123mins)*** Electric heating (P:3K, I:83mins) Floor heating (P:5K, I:215mins) Split unit (P:4K, I:90mins)	This parameter is visible only if Par. 8 is selected as “Via type of system”. It is used to select a predefined control system.
10	*Proportional band*	0,5...**2.0***…10K	This parameter is visible only if Par. 8 is selected as “User defined”. It is used to determine proportional band of temperature control algorithm. Small values cause large changes in control variables, larger values cause finer control variable adjustment.
11	*Integral time*	0…**60***…250mins	This parameter is visible only if Par. 8 is selected as “User defined”. It is used to determine integral time of temperature control algorithm. If the heating system is over- dimensioned and therefore too fast, shorter values should be used. Conversely, under-dimensioned heating (slow) benefits from longer integrated times.
12	*PWM cycle time*	1…**20***…60mins	This parameter is visible only if Par. 2 is selected as “PWM”. An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period. Example: Actuating value= 20%, PWM time = 10 min: In an actuating cycle of 10 min, 2min switched on and 8 min switched off (I.e. 20% on/ 80% off).
13	*Minimum control value*	**0***…100 %	This parameter is visible only if Par. 2 is selected as “PWM” or “Continuous”. It determines minimum control value that will be scaled by PI controller.

No	Name	Values	Description
14	*Maximum control value*	**0**…**100*** %	This parameter is visible only if Par. 2 is selected as "PWM" or "Continuous". It determines maximum control value that will be scaled by PI controller.
15	*Fan control*	**Disable*** Enable	This parameter is visible only if main heater stage fan control is disabled in Table 89. It determines that fan control will be included at the control system. Example: Fancoil system

Table 93

7.6.11Heating control (Additional) objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
157	*Thermostat Additional Heating Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	

Table 94

This object is visible if Par.18 is selected as "Enable" in Table 89 and Par.2 is selected as "2 Step (On/Off)" or "PWM" and Par. 3 is selected as "0-1 (1 Bit)" in Table 93. According to Par.6 and Par.7 in Table 93, the output value for additional heater is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
157	*Thermostat Additional Heating Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	

Table 95

This object is visible if Par.18 is selected as "Enable" in Table 89 and Par.2 is selected as "2 Step (On/Off)" or "PWM" and Par. 3 is selected as "0-100 % (1 Byte)" or Par. 2 is selected as "Continuous" in Table 93. According to Par.6 and Par.7 in Table 93, the output value for additional heater is transmitted via the object.

7.6.12Cooling control parameters

This tab is visible only if “Temperature control function” is selected as “Cooing” or “Heating and Cooling” in Table 84.

No	Name	Values	Description
• The following parameters 1-5 are visible only if Par. 4 is selected as “1 control object (2 pipe system)” in Table 84			
1	*Controller type*	**2 Step (On/Off)*** PWM Continuous	This parameter determines thermostat controller type. If “2 Step (On/Off)” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “PWM” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “Continuous” is selected, the device controls HVAC system with 1 byte percentage object via KNX bus.
2	*Output type*	**0-1 (1 Bit)*** 0-100% (1 Byte)	This parameter is visible only if Par. 1 is selected as “2 Step” or “PWM”. It determines output object type.
3	*Invert control value*	**No*** Yes	This parameter is visible only if Par. 1 is selected as “2 Step” or “PWM”. It is used to invert control output.
4	*Sending control value cyclically*	Not cyclically, only changed … **3 min.*** … 60 min.	This parameter is visible only if Par. 1 is selected as “2 Step” or “Continuous”. This parameter determines whether and when the output value will be sent via object.
5	*Sending control value at change of*	**1*** … 10 %	This parameter is visible only if Par. 1 is selected as “Continuous”. After how much % change* in the control variable is the new value to be sent. Small values increase control accuracy but also the bus load. *Change since last transmission

No	Name	Values	Description
6	*On/Off hysteresis*	0,1 … **0,3*** …3,0K	This parameter is visible only if “Controller type” is selected as “2 Step”. Set a hysteresis value to ensure that the valve does not constantly switch with each minor under and overshoot when using 2-step control of the actuator. The hysteresis value lies around the setpoint. For example, if the setpoint is 21 °C and the hysteresis is 1 K, the room thermostat only sends an "on" signal at 21.5 °C and an "off" signal at 20.5 °C. This parameter is only available if "2-step" is set as the control type.
7	*Cooling PI parameter selection*	**Via type of system*** User defined	This parameter is visible only if “Controller type” is selected as “PWM” or “Continuous”. It is used to select PI (Proportional, Integral) control parameters.
8	*Type of system*	**Cool ceiling (P:5K, I:220mins)*** Split unit (P:4K, I:90mins)	This parameter is visible only if Par. 7 is selected as “Via type of system”. It is used to select a predefined control system.
9	*Proportional band*	0,5...**2.0***…10K	This parameter is visible only if Par. 7 is selected as “User defined”. It is used to determine proportional band of temperature control algorithm. Small values cause large changes in control variables, larger values cause finer control variable adjustment.
10	*Integral time*	0…**60***…250mins	This parameter is visible only if Par. 7 is selected as “User defined”. It is used to determine integral time of temperature control algorithm. If the cooling system is over- dimensioned and therefore too fast, shorter values should be used. Conversely, under-dimensioned cooling (slow) benefits from longer integrated times.
11	*PWM cycle time*	1…**20***…60mins	This parameter is visible only if “Controller type” is selected as “PWM”. An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period. Example: Actuating value= 20%, PWM time = 10 min: In an actuating cycle of 10 min, 2min switched on and 8 min switched off (I.e. 20% on/ 80% off).
12	*Minimum control value*	**0***…100 %	This parameter is visible only if “Controller type” is selected as “PWM” or “Continuous”. It determines minimum control value that will be scaled by PI controller.

No	Name	Values	Description
13	*Maximum control value*	**0**…**100*** %	This parameter is visible only if "Controller type" is selected as "PWM" or "Continuous". It determines maximum control value that will be scaled by PI controller.
14	*Fan control*	**Disable*** Enable	This parameter determines that fan control will be included at the control system. Example: Fancoil system
15	*Additional stage*	**Disable*** Enable	This parameter determines that the control system will be included additional control stage. Example: First stage: Fancoil, Second (Additional) stage: Split unit
16	*Condensate alarm*	**Disable*** Enable	This parameter is used to enable condensate alarm for fancoil systems If "Enable" is selected, 1 bit alarm object will be visible (Table 100). An alarm telegram is received via the object, the thermostat operation mode is set to protection mode until no alarm is received.
17	*Dew-point alarm*	**Disable*** Enable	This parameter is used to enable dew-point alarm for fancoil systems If "Enable" is selected, 1 bit alarm object will be visible (Table 100). An alarm telegram is received via the object, the thermostat operation mode is set to protection mode until no alarm is received.

Table 96

***: Default Value**

7.6.13Cooling control objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
153	*Thermostat Cooler Activate*	*Cooler Active*	1 Bit	[1.3] DPT Enable	C			T	

Table 97

This object is visible only if Par.1 is selected as “Cooling” or “Heating and Cooling” in Table 84. An “Enable” or “Disable” telegram is transmitted, when the value is updated.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Cooling Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	

Table 98

This object is visible if Par.3 is selected as “2 control object (4 pipes system)” in Table 84 and Par.1 is selected as “2 Step (On/Off)” or “PWM” and Par. 2 is selected as “0-1 (1 Bit)” in Table 96. According to Par.4 and Par.5 in Table 96, the output value for controller is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
155	*Thermostat Cooling Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	

Table 99

This object is visible if Par.3 is selected as “2 control object (4 pipes system)” in Table 84 and Par.1 is selected as “1 Step (On/Off)” or “PWM” and Par. 2 is selected as “0-100% (1 Byte)” or Par. 1 is selected as “Continuous” in Table 96. According to Par.4 and Par.5 in Table 96, the output value for controller is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
207	*Thermostat Alarm*	*Condensate Alarm*	1 Bit	[1.5] DPT Alarm	C	R	W	T	
208	*Thermostat Alarm*	*Dew-point Alarm*	1 Bit	[1.5] DPT Alarm	C	R	W	T	

Table 100

These parameters are visible only if Par.16 or Par. 17 is selected as “Enable” in Table 96. If thermostat control is working in cooling mode and one of these objects is received an alarm telegram, fan control is changed to auto mode and operation mode is changed to protection mode. If fan auto level is not enabled, then fan level is changed to off. After no alarm is received via one of these objects, operation mode and fan level is changed to latest value before alarm.

7.6.14Cooling control (Additional) parameters

This tab is visible only if “Additional control” is selected as “Enable” in Table 96.

No	Name	Values	Description
1	*Offset from main stage*	No offset … **1K*** ... 7K	This parameter determines offset from main stage. If “No offset” is selected, additional stage heater output is calculated at the same time with main stage heater. Otherwise, additional stage will be waited the difference between the actual temperature and current setpoint temperature is higher than the offset.
2	*Controller type*	**2 Step (On/Off)*** PWM Continuous	This parameter determines thermostat controller type. If “2 Step (On/Off)” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “PWM” is selected, the device controls output with 1 bit switch or 1 byte percentage object via KNX bus. If “Continuous” is selected, the device controls HVAC system with 1 byte percentage object via KNX bus.
3	*Output type*	**0-1 (1 Bit)*** 0-100% (1 Byte)	This parameter is visible only if Par. 2 is selected as “2 Step” or “PWM”. It determines output object type.
4	*On/Off hysteresis*	0,1 … **0,3*** …3,0K	This parameter is visible only if Par. 2 is selected as “2 Step”. Set a hysteresis value to ensure that the valve does not constantly switch with each minor under and overshoot when using 2-step control of the actuator. The hysteresis value lies around the setpoint. For example, if the setpoint is 21 °C and the hysteresis is 1 K, the room thermostat only sends an "on" signal at 21.5 °C and an "off" signal at 20.5 °C. This parameter is only available if "2-step" is set as the control type.
5	*Invert control value*	**No*** Yes	This parameter is visible only if Par. 2 is selected as “2 Step” or “PWM”. It is used to invert control output.
6	*Sending control value cyclically*	Not cyclically, only changed … **3 min.*** …	This parameter is visible only if Par. 2 is selected as “2 Step” or “Continuous”. This parameter determines whether and when the output value will be sent via object.

No	Name	Values	Description
		60 min.	
7	*Sending control value at change of*	**1*** … 10 %	This parameter is visible only if Par. 2 is selected as “Continuous”. After how much % change* in the control variable is the new value to be sent. Small values increase control accuracy but also the bus load. *Change since last transmission
8	*Heating additional stage PI parameter selection*	**Via type of system*** User defined	This parameter is visible only if Par. 2 is selected as “PWM” or “Continuous”. It is used to select PI (Proportional, Integral) control parameters.
9	*Type of system*	**Cool ceiling (P:5K, I:220mins)*** Split unit (P:4K, I:90mins)	This parameter is visible only if Par. 8 is selected as “Via type of system”. It is used to select a predefined control system.
10	*Proportional band*	0,5...**2.0***…10K	This parameter is visible only if Par. 8 is selected as “User defined”. It is used to determine proportional band of temperature control algorithm. Small values cause large changes in control variables, larger values cause finer control variable adjustment.
11	*Integral time*	0…**60***…250mins	This parameter is visible only if Par. 8 is selected as “User defined”. It is used to determine integral time of temperature control algorithm. If the heating system is over- dimensioned and therefore too fast, shorter values should be used. Conversely, under-dimensioned heating (slow) benefits from longer integrated times.
12	*PWM cycle time*	1…**20***…60mins	This parameter is visible only if Par. 2 is selected as “PWM”. An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period. Example: Actuating value= 20%, PWM time = 10 min: In an actuating cycle of 10 min, 2min switched on and 8 min switched off (I.e. 20% on/ 80% off).
13	*Minimum control value*	**0***…100 %	This parameter is visible only if Par. 2 is selected as “PWM” or “Continuous”. It determines minimum control value that will be scaled by PI controller.
14	*Maximum control value*	**0**…**100*** %	This parameter is visible only if Par. 2 is selected as “PWM” or “Continuous”. It determines maximum control value that will be scaled by PI controller.

No	Name	Values	Description
15	*Fan control*	**Disable*** Enable	This parameter is visible only if main heater stage fan control is disabled in Table 89. It determines that fan control will be included at the control system. Example: Fancoil system

Table 101

7.6.15Cooling control (Additional) objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
158	*Thermostat Additional Heating Control*	*Control Output*	1 Bit	[1.1] DPT Switch	C			T	

Table 102

This object is visible if Par.18 is selected as “Enable” in Table 89 and Par.2 is selected as “2 Step (On/Off)” or “PWM” and Par. 3 is selected as “0-1 (1 Bit)” in Table 101. According to Par.6 and Par.7 in Table 101, the output value for additional heater is transmitted via the object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
158	*Thermostat Additional Cooling Control*	*Control Output*	1 Byte	[5.1] DPT Scaling	C			T	

Table 103

This object is visible if Par.18 is selected as “Enable” in Table 89 and Par.2 is selected as “2 Step (On/Off)” or “PWM” and Par. 3 is selected as “0-100 % (1 Byte)” or Par. 2 is selected as “Continuous” in Table 101. According to Par.6 and Par.7 in Table 101, the output value for additional heater is transmitted via the object.

7.6.16Setpoint parameters

No	Name	Values	Description
1	*Sending current setpoint cyclically*	Not cyclically, only changed … **3 min.*** … 60 min.	This parameter determines whether and when the setpoint value will be sent via output object.
2	*Setpoint value settings on device*	Unchanged after download **Overwrite via download***	This parameter is used to keep setpoint settings which are already set before.
3	*Maximum increasing manual setpoint shift value*	Manual adjustment not allowed … **3K*** … *If Par. 5 is selected as "Celsius" in Table 68.* 9K °C *If Par. 5 is selected as "Fahrenheit" in Table 68.* 5K °C	This parameter specifies how much the current setpoint value can be incremented over its default value which is determined in Par.6-9.
4	*Maximum decreasing manual setpoint shift value*	Manual adjustment not allowed … **3K*** … 9K °C	This parameter specifies how much the current setpoint value can be decremented over its default value which is determined in Par.6-9.
5	*Manual setpoint settings steps*	0,1 … **0,5*** … 1 K °C	This parameter is visible only if manual adjustment is allowed (Par. 4). It determines the current setpoint setting steps for device display and increase/decrease setpoint objects. (Table xx)
• The following parameters 6-10 are visible only if "Temperature control function" is selected as "Heating" or "Heating and Cooling" in Table 84.			
6	*Heating comfort setpoint*	10,0 … **22*** … 40,0 °C	This parameter specifies the default setpoint temperature for comfort mode in heating control.
7	*Heating standby setpoint*	10,0 … **20*** … 40,0 °C	This parameter specifies the default setpoint temperature for standby mode in heating control.
8	*Heating economy setpoint*	10,0 … **18*** … 40,0 °C	This parameter specifies the default setpoint temperature for economy mode in heating control.
9	*Frost protection setpoint*	2,0 … **5*** … 40,0 °C	This parameter specifies the default setpoint temperature for protection mode in heating control.
10	*Changing heating setpoints via object*	**No*** Yes	With this parameter, setpoint objects for all operation mode are visible. (Table xx)

No	Name	Values	Description
11	*Minimum distance between heating and cooling for comfort*	0…. **1***…7,5K °C	This parameter is visible only if “Temperature control function” is selected as “Heating and Cooling” in Table 84. It determines the distance between heating and cooling comfort setpoints including default values. Example: Heating comfort setpoint parameter : 22 °C Distance parameter : 2 °C Cooling comfort setpoint parameter : 25 °C In this case, If the device starts up at heating mode, cooling comfort setpoint will be set 24 °C internally. If the device starts up at cooling mode, heating comfort setpoint will be set 23 °C internally. And for every increment or decrement of comfort setpoints, they will follow each other with 2°C distance. Also, heating comfort setpoint is always lower than cooling comfort setpoint.
• The following parameters 12-16 are visible only if “Temperature control function” is selected as “Cooling” or “Heating and Cooling” in Table 84.			
12	*Cooling comfort setpoint*	10,0 … **24*** … 40,0 °C	This parameter specifies the default setpoint temperature for comfort mode in cooling control.
13	*Cooling standby setpoint*	10,0 … **26*** … 40,0 °C	This parameter specifies the default setpoint temperature for standby mode in cooling control.
14	*Cooling economy setpoint*	10,0 … **27*** … 40,0 °C	This parameter specifies the default setpoint temperature for economy mode in cooling control.
15	*Frost protection setpoint*	10,0 … **32*** … 50,0 °C	This parameter specifies the default setpoint temperature for protection mode in cooling control.
16	*Changing cooling setpoints via object*	**No*** Yes	With this parameter, setpoint objects for all operation mode are visible. (Table xx)

Table 104

***: Default Value**

7.6.17Setpoint objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
169	*Thermostat Reset Manual Operations*	*Reset Manual Operations*	1 Bit	[1.1] DPT Switch	C		W		

Table 105

This object is used to reset setpoints for all control and operation modes. Reset means that they are set to default values which are determined in Table 104.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
170	*Thermostat Increase Setpoint*	*Increase Current Setpoint*	1 Bit	[1.17] DPT Trigger	C		W		
171	*Thermostat Decrease Setpoint*	*Decrease Current Setpoint*	1 Bit	[1.17] DPT Trigger	C		W		

Table 106

These objects are used to increment or decrement the current setpoint temperature.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
160	*Thermostat Comfort Set (Heat)*	*Comfort Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
161	*Thermostat Standby Set (Heat)*	*Standby Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
162	*Thermostat Economy Set (Heat)*	*Economy Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		
163	*Thermostat Protect Set (Heat)*	*Protection Setpoint (Heating)*	2 Bytes	[9.1] DPT Value Temp	C		W		

Table 107

These objects are visible only if Par.10 is selected as “Enable” in Table 104. They change related setpoint in limits. Also when “R” flag is enabled, they can be read via KNX.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
164	*Thermostat Comfort Set (Cool)*	*Comfort Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
165	*Thermostat Standby Set (Cool)*	*Standby Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
166	*Thermostat Economy Set (Cool)*	*Economy Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		
167	*Thermostat Protect Set (Cool)*	*Protection Setpoint (Cooling)*	2 Bytes	[9.1] DPT Value Temp	C		W		

Table 108

These objects are visible only if Par.16 is selected as “Enable” in Table 104. They change related setpoint in limits. Also when “R” flag is enabled, they can be read via KNX.

7.6.18Fan control tab

7.6.18.1 Fan control parameters

This tab is visible only if one of heating or cooling fan control is enabled at least.

No	Name	Values	Description
1	*Number of fan level*	1 level … **3 levels*** … 6 levels	This parameter determines the fan level number of related control.
2	*Fan level after reset*	Off Level 1 … Level 6 **Auto*** As before reset	This parameter is used to determine fan level after start-up. The value of this parameter depends on Par.1. It means that if Par.1 is selected as “3 Level”, this parameter can be selected maximum as “Level 3”. If “Auto” is selected and fan auto mode is disabled for the related control mode, fan level cannot be set “Auto” after reset.
3	*Fan level limit for economy mode*	**No limit*** Fan off … Level 5	This parameter is used to determine fan level maximum limit for economy mode. The value of this parameter depends on Par.1. It means that if Par.1 is selected as “3 Level”, this parameter can be selected maximum as “Level 2”.
4	*Sending fan level cyclically*	Not cyclically, only changed … **3 min.*** … 60 min.	This parameter determines whether and when the fan level will be sent via output object. (Table 111 , Table 113)
5	*Fan object type*	**1-Byte object, percentage value 0-100%*** 1-Byte object, configurable values 0-255 1-Bit objects	This parameter determines object type of fan control (Table 111 - Table 114).
• The following parameters 6-14 are visible if Par.5 is selected as “1-Byte object, configurable values 0-255”			
6	*Fan level off custom value*	**0*** … 255	This parameter determines telegram value for the related fan level.
7	*Fan level 1 custom value*	0… **1*** … 255	This parameter determines telegram value for the related fan level.
8	*Fan level 2 custom value*	0… **2*** … 255	This parameter determines telegram value for the related fan level.

No	Name	Values	Description
9	*Fan level 3 custom value*	0… **3*** … 255	This parameter determines telegram value for the related fan level.
10	*Fan level 4 custom value*	0… **4*** … 255	This parameter determines telegram value for the related fan level.
11	*Fan level 5 custom value*	0… **5*** … 255	This parameter determines telegram value for the related fan level.
12	*Fan level 6 custom value*	0… **6*** … 255	This parameter determines telegram value for the related fan level.
13	*Fan level auto custom*	**No*** Yes	This parameter is visible if one of heating or cooling fan auto control is enabled. It determines what will be used for fan auto. A separated switchover object or specific telegram in fan level object.
14	*Fan level auto custom value*	0… **7*** … 255	This parameter is visible if Par. 13 is selected as "Yes". It determines custom fan auto level value which will be transmitted via fan level object.
15	*Fan switchover auto to manual*	**Auto enable is 1, auto disable is 0*** Manual enable is 1, manual disable is 0	This parameter is visible if one of heating or cooling fan auto control is enabled and Par. 13 is selected as "No". It determines the fan auto mode value of switchover object (Table 110).
16	*Swing function*	**Disable*** Enable	This parameter is used to enable swing function. If "Enable" is selected, a 1 bit swing status object and 1 byte flap position object will be visible (Table 116). Also, an enduser can set swing function over the display of the device.
17	*Flap position 1 custom value*	0… **1***… 255	This parameter is visible only if "Swing function" is enabled. It determines the custom value which will be transmitted via the flap position object.
18	*Flap position 2 custom value*	0… **1***… 255	This parameter is visible only if "Swing function" is enabled. It determines the custom value which will be transmitted via the flap position object.
19	*Flap position 3 custom value*	0… **1***… 255	This parameter is visible only if "Swing function" is enabled. It determines the custom value which will be transmitted via the flap position object.
20	*Flap position 4 custom value*	0… **1***… 255	This parameter is visible only if "Swing function" is enabled. It determines the custom value which will be transmitted via the flap position object.

No	Name	Values	Description
21	*Flap position 5 custom value*	0… **1***… 255	This parameter is visible only if “Swing function” is enabled. It determines the custom value which will be transmitted via the flap position object.

Table 109

***: Default Value**

7.6.18.2 Fan control objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
172	*Thermostat Fan Auto Mode*	*Fan Auto Enable*	1 Bit	[1.3] DPT Enable	C		W	T	

Table 110

This object is visible if one of heating or cooling fan auto control is enabled and if fan custom auto level is disabled. It is used to transmit fan mode at start-up and when it's changed. Also, if Par.4 in Table 109 is selected as a time, the object is transmitted cyclically.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
173	*Thermostat Fan Level*	*Fan Level Output*	1 Byte	[5.10] DPT Value 1 U count	C	R		T	
173	*Thermostat Fan Level*	*Fan Level Output*	1 Byte	[5.1] DPT Scaling	C	R		T	

Table 111

One of these objects are visible only if Par.5 in Table 109 is not selected as "1-Bit objects". The object is used to transmit fan level at start-up and when it's changed. Also, If Par.4 in Table 109 is selected as a time and the fan mode is not "Auto", the object is transmitted cyclically. The telegram value will be percentage value that corresponds to the configured threshold value or custom decimal value.
Fan level can be changed via the display, the touch buttons, thermostat energy saving functions or KNX fan level input objects.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
174	*Thermostat Fan Level*	*Fan Level Input*	1 Byte	[5.1] DPT Scaling	C		W		
174	*Thermostat Fan Level*	*Fan Level Input*	1 Byte	[5.10] DPT Value 1 U count	C		W		

Table 112

One of these objects are visible only if Par.5 in Table 109 is not selected as "1-Bit objects". The object is used to change fan level. When custom decimal levels are used, the fan input object must be received exactly equal telegram to one of the custom values to change fan level. When percentage threshold levels are used, the fan input object must be received equal or higher telegram than one of the threshold values to change fan level.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
175	*Thermostat Fan Level 1*	*Fan Level 1 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
176	*Thermostat Fan Level 2*	*Fan Level 2 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
177	*Thermostat Fan Level 3*	*Fan Level 3 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
178	*Thermostat Fan Level 4*	*Fan Level 4 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
179	*Thermostat Fan Level 5*	*Fan Level 5 Output*	1 Bit	[1.3] DPT Enable	C	R		T	
180	*Thermostat Fan Level 6*	*Fan Level 6 Output*	1 Bit	[1.3] DPT Enable	C	R		T	

Table 113

These objects are visible only if Par.5 in Table 109 is selected as “1-Bit objects”. The objects are used to transmit fan level as “Enable” at start-up and when it’s changed. Also, If Par.4 in Table 109 is selected as a time and the fan mode is not “Auto”, the object of level is transmitted cyclically.
Fan level can be changed via the display, the touch buttons, thermostat energy saving functions or KNX fan level input objects.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
181	*Thermostat Fan Level 1*	*Fan Level 1 Input*	1 Bit	[1.3] DPT Enable	C		W		
182	*Thermostat Fan Level 2*	*Fan Level 2 Input*	1 Bit	[1.3] DPT Enable	C		W		
183	*Thermostat Fan Level 3*	*Fan Level 3 Input*	1 Bit	[1.3] DPT Enable	C		W		
184	*Thermostat Fan Level 4*	*Fan Level 4 Input*	1 Bit	[1.3] DPT Enable	C		W		
185	*Thermostat Fan Level 5*	*Fan Level 5 Input*	1 Bit	[1.3] DPT Enable	C		W		
186	*Thermostat Fan Level 6*	*Fan Level 6 Input*	1 Bit	[1.3] DPT Enable	C		W		

Table 114

These objects are visible only if Par.5 in Table 109 is selected as “1-Bit objects”. The objects are used to change fan level. The one of fan input objects must be received “Enable” telegram to change fan level. Fan level of last updated object is enabled, so a “Disable” telegram is not necessary.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
187	*Thermostat Fan Unit Status*	*Fan Unit On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U

Table 115

This object is visible if one of heating or cooling fan control is enabled at least. The object is used to transmit fan unit status as “Enable” or “Disable” at start-up and when it’s changed.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
188	*Thermostat Swing Status*	*Swing On/Off*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
189	*Thermostat Flap Position*	*Flap Position*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U

Table 116

These objects are visible only if Par.16 in Table 109 is selected as “Enable”. The “Swing Status” object is used to get or set swing function for fancoil. The “Flap position” object is used to get or set flap position for fancoil.
The flap position object must be received exactly equal telegram to one of the custom values to change it.
If a flap position is selected as “A” via display of the device, “Swing status” will be transmitted as “On”.
If a flap position is selected as “0” via display of the device, “Swing status” will be transmitted as “Off”.
For other value of flap position, “Swing status” is not changed.
If “Swing status” object will be updated as “Off” via KNX, Flap position also will be set “0” in the device.
If “Swing status” object will be updated as “On” via KNX, Flap position also will be set “A” in the device.
Also, if “Swing status” is set “On”, the S38 icon will be shown at the display until “Swing status” is set “Off”.
For icon codes please see *Product Display* section.

7.6.18.3 Additional fan parameters

This tab is visible only if “Fan control” is selected as “Enable” one of the heating or additional heating or one of cooling or additional cooling control.

No	Name	Values	Description
1	*Fan Auto*	Disable **Enable***	This parameter is used to enable or disable fan auto function for the fan controller.
2	*Returning to auto fan*	**Disable*** When fan mode is manual When operation mode is changed	This parameter is visible only if Par. 1 is selected as “Enable”. It is used to limit usage of fan manual control and determines returning condition. For example, in the hotel or hospital applications.
3	*Returning time*	0…**1***…255 min.	This parameter is visible only if Par. 2 is not selected as “Disable”. It determines the time value when fan level is returned “Auto” mode after the condition (Par.2) is occurred.
4	*Returning inactive if fan level is off*	**No*** Yes	This parameter is visible only if Par. 2 is not selected as “Disable”. If “Yes” is selected, when the fan level is set off manually by enduser or KNX bus, fan mode is not returned “Auto”.
5	*Fan level display in auto*	*If controller type is not selected as “Continuous”,* Is not determined According to feedback object *If controller type is selected as “Continuous”,* Is not determined According to control value According to feedback object	This parameter is visible only if Par. 1 is selected as “Enable”. It determines fan level displaying condition in auto mode. If “Is not determined” is selected, In the auto mode, fan level is not determined and it is not shown in the display. If “According to feedback object” is selected, the fan level will be get back to previous value when the fan input object is not updated in 3 seconds after fan level is changed manually over device and the fan auto object is transmitted as “Enable”. (Table 110) If “According to control value” is selected, the fan level is determined according to thermostat control value in fan auto mode. When the control value is equal or higher than one of threshold values (Par.6 – 11), fan level is set the level.

No	Name	Values	Description
• The following parameters are visible according to “Number of fan level” is Table 109.			
6	*Fan level 1 threshold*	0…**15***…100	This parameter is used to determine the fan level.
7	*Fan level 2 threshold*	0…**30***…100	This parameter is used to determine the fan level.
8	*Fan level 3 threshold*	0…**50***…100	This parameter is used to determine the fan level.
9	*Fan level 4 threshold*	0…**65***…100	This parameter is used to determine the fan level.
10	*Fan level 5 threshold*	0…**80***…100	This parameter is used to determine the fan level.
11	*Fan level 6 threshold*	0…**100***	This parameter is used to determine the fan level.

Table 117

***: Default Value**

7.6.19Scene tab

7.6.19.1 Scene x parameters

The following parameters are defined for Scene 1-2-3-4 and **x** presentives 1-2-3-4.

No	Name	Values	Description
1	*Scene x activation number*	**1***…64	This parameter determines the scene activation number. When the number is received via scene input object (Table 119), the scene is activated.
2	*Scene x hvac operation mode*	**Comfort*** Standby Economy Frost/Heat protection	This parameter determines the operation mode which will be set, when the scene is activated.
3	*Scene x activation delay*	**00:00:00*** 09:00:00 hh:mm:ss	This parameter determines the scene activation delay time. The value should not be higher than 09:00:00. When a scene number is received via scene input object (Table 119), the scene activation is delayed for the specified time.
4	*Scene x learning mode active*	**No*** Yes	This parameter is used to activate learning mode for the scene control. If “Yes” is selected, when a scene learn telegram is received via scene input object, the current operation mode is learned for the scene.
5	*Scene x override after download*	No **Yes***	This parameter is used to keep operation modes which are already learned before.

Table 118

***: Default Value**

7.6.19.2 Scene objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
190	*Thermostat Scene*	*Scene Input*	1 Byte	[18.1] DPT Scene Control	C		W		

Table 119

This object is used to activate scene control or to learn the operation mode for related scene.

7.6.20Energy saving function tab

7.6.20.1 Window contact parameters

No	Name	Values	Description
1	*Window contact inputs*	**Disable*** Enable	This parameter is used to enable window contact function for thermostat energy saving. Two 1 bit objects are visible when it is enabled. (Table 121). Window contact function: If one of the window contact input objects is received a telegram or the digital input selected as window contact (Table 64) is triggered for activation, icon S1 is shown on the display. After activation delay (Par. 3), the operation mode is set as “Protection”. Also, if fan auto parameter is enabled for the current thermostat control, the fan mode is set “Auto”. Otherwise, fan level is set “Off”. And the operation mode, fan level and fan mode cannot be updated via KNX bus except for forced operation mode object. This case continues until the window contact input object is received a telegram or the digital input is trigged for deactivation. After deactivation, all control is returned latest values of them. Window contact function has the highest priority between thermostat energy saving functions. For icon codes please see *Product Display* section.
• The following parameter is visible only if Par. 1 is selected as “Enable”.			
2	*Invert input objects*	**None*** Invert 1 Invert 2 Invert Both	This parameter determines how to use the input objects.
3	*Activation delay on window contact*	00:00:00 **00:00:15*** 09:00:00 hh:mm:ss	This parameter determines activation delay time. The value should not be higher than 09:00:00. When a activate telegram is received via the input object, the activation is delayed for the specified time.

Table 120

***: Default Value**

7.6.20.2 Window contact objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
191	*Thermostat Window Contact 1*	*Window Contact 1*	1 Bit	[1.1] DPT Switch	C		W		
192	*Thermostat Window Contact 2*	*Window Contact 2*	1 Bit	[1.1] DPT Switch	C		W		

Table 121

These objects are visible only if Par. 1 is selected as “Enable” in Table 120. They are used to activate window contact function. The activation telegram depends on Par. 2 in Table 120.

7.6.20.3 Presence input parameters

No	Name	Values	Description
1	*Presence inputs*	**Disable*** Enable	This parameter is used to enable window contact function for thermostat energy saving. Two 1 bit objects are visible when it is enabled. (Table 123).
• The following parameter is visible only if Par. 1 is selected as “Enable”.			
2	*Invert input objects*	**None*** Invert 1 Invert 2 Invert Both	This parameter determines how to use the input objects.
3	*Presence sensor used for*	**Comfort extension*** Comfort limitation Comfort extension and comfort limitation	This parameter determines how to use the energy saving function. Presence function is operated only in “Comfort” mode. Comfort extension: If one of presence input objects is set or the digital input selected as presence input (Table 64) is triggered for activation (the end-users are in the room) and comfort limitation mode is not active, the operation mode input object (Table 74) updates via KNX Bus are ignored except for the operation mode forced object. In this case, if the operation mode input object is received a telegram except for “Comfort”, the telegram is saved to use after comfort extension. Also, comfort mode icon S31 flashes on the display for the end-users to indicate “Comfort extension” activated. When “Comfort extension” is active, the end-users cannot change operation mode from the display but if they desire thermostat control to turn off, they can use setpoint temperature. If the presence input object is set or the digital input selected as presence input is trigged for deactivation (the end-users left the room), “Comfort extension” will be deactivated after the function active time (Par. 5). When “Comfort extension” is inactive, the flash of icon S31 is stopped and the saved operation mode is set. For icon codes please see *Product Display* section. Comfort limitation:

No	Name	Values	Description
			If one of presence input objects is set or the digital input selected as presence input (Table 64) is triggered for deactivation (the end-users left the room) and comfort extension mode is not active and the operation mode is not forced, after the function active time (Par. 5), the operation mode is set from "Comfort" to the mode which is determined Par. 4 until the presence input object is set or the digital input selected as presence input is trigged for activation (the end-users entered the room).
4	*Limitation modes*	**Comfort – Standby*** Comfort – Economy	This parameter is visible only if Par. 3 is selected as "Comfort limitation" or "Comfort extension and limitation". It is used to determine the operation modes which will be set for the energy saving function.
5	*Function active time*	00:00:00 **00:01:00*** 09:00:00 hh:mm:ss	This parameter determines activation delay time. The value should not be higher than 09:00:00. When a activate telegram is received via the input object, the activation is delayed for the specified time.

Table 122

***: Default Value**

7.6.20.4 Presence input objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
193	*Thermostat Presence Input 1*	*Presence Input 1*	1 Bit	[1.1] DPT Switch	C		W		
194	*Thermostat Presence Input 2*	*Presence Input 2*	1 Bit	[1.1] DPT Switch	C		W		

Table 123

These objects are visible only if Par. 1 is selected as "Enable" in Table 122. They are used to activate presence function. The activation telegram depends on Par. 2 in Table 122.

7.6.20.5 Card holder parameters

No	Name	Values	Description
1	*Card holder inputs*	**Disable*** Enable	This parameter is used to enable card holder function for thermostat energy saving. 1 bit object is visible when it is enabled. (Table 125). Card holder: If card holder input object is set or the digital input selected as card holder input (Table 64) is triggered for activation (the end-users entered the room with card) and comfort extension mode is not active and the operation mode is not forced, then the operation mode is set as the mode Par. 3 after the function active time Par. 4. Otherwise, if card holder input object is set or the digital input selected as card holder input (Table 64) is triggered for deactivation (the end-users left the room with card) and comfort extension mode is not active and the operation mode is not forced, then the operation mode is set as the mode Par. 5 after the function active time Par. 6.
• The following parameter is visible only if Par. 1 is selected as “Enable”.			
2	*Invert input object*	**No*** Yes	This parameter determines how to use the input object.
3	*Card insertion hvac mode*	**Comfort*** Standby Economy Frost/Heat Protection	This parameter determines the operation mode which is set, when card insertion.
4	*Activation delay on card insertion*	**00:00:00*** 09:00:00 hh:mm:ss	This parameter determines the activation delay time for card insertion.
5	*Card removal hvac mode*	Comfort **Standby*** Economy Frost/Heat Protection	This parameter determines the operation mode which is set, when card removal.
6	*Activation delay on card removal*	**00:00:00*** 09:00:00 hh:mm:ss	This parameter determines the activation delay time for card removal.

Table 124

***: Default Value**

7.6.20.6 Card holder objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
195	*Thermostat Card Holder Input*	*Card Holder Input*	1 Bit	[1.1] DPT Switch	C		W		

Table 125

This object is visible only if Par. 1 is selected as “Enable” in Table 124. It is used to activate card holder function. The activation telegram depends on Par. 2 in Table 124.

7.7 *Scene actuator tab*

7.7.1 General parameters

No	Name	Values	Description
1	*Overriding scenes on download*	Disable **Enable***	This parameter is used to keep learned values for scenes. To be learned a scene value, Par .2 in Table 129 must be enabled for the related scene. Before transmitting of learning command, the value will be learned must be sent to the related output object (Table 128). And learning command with related scene number is sent to the scene input object (Table 127).
2	*Delay between telegrams*	**0***…255 sec	This parameter determines delay time between telegrams.
• The following parameter is defined for 8 telegram channels (A – H).			
3	*Telegram x type*	**Disable*** Value 0…1 (1bit) Priority (2 bit) Value 0…255 (1 byte) Percentage (1 byte) Scene (1 byte) Value 0…65535 (2 byte) Temperature (2 byte)	This parameter determines type of telegram for the channel. If “Disable” is not selected, a related type object is visible (Table 128).

Table 126

***: Default Value**

7.7.2 General objects

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
214	*Scene Number Input*	*Scene Actuation Input*	1 Byte	[18.1] DPT Scene Control	C		W		

Table 127

This parameter is used to actuate or to learn for scene control.

Object Name	Function	Size	Datapoint Type	Flags				
				C	R	W	T	U
Scene Actuation Output 2 Byte Value	*Scene Actuator Output X*	2 Bytes	[7.1] DPT Value 2 U count	C	R	W	T	U
Scene Actuation Output Temperature	*Scene Actuator Output X*	2 Bytes	[9.1] DPT Value Temp	C	R	W	T	U
Scene Actuation Output Switch	*Scene Actuator Output X*	1 Bit	[1.1] DPT Switch	C	R	W	T	U
Scene Actuation Output 1 Byte Value	*Scene Actuator Output X*	1 Byte	[5.10] DPT Value 1 U count	C	R	W	T	U
Scene Actuation Output Scene	*Scene Actuator Output X*	1 Byte	[17.1] DPT Scene Number	C	R	W	T	U
Scene Actuation Output Percentage	*Scene Actuator Output X*	1 Byte	[5.1] DPT Scaling	C	R	W	T	U
Scene Actuation Output Priority	*Scene Actuator Output X*	2 Bit	[2.1] DPT Switch Control	C	R	W	T	U

Table 128

These parameter are visible if Par. 3 is not selected as “Disable” in Table 126.

7.7.3 Scene x parameters

This table is defined for scene 1-8.

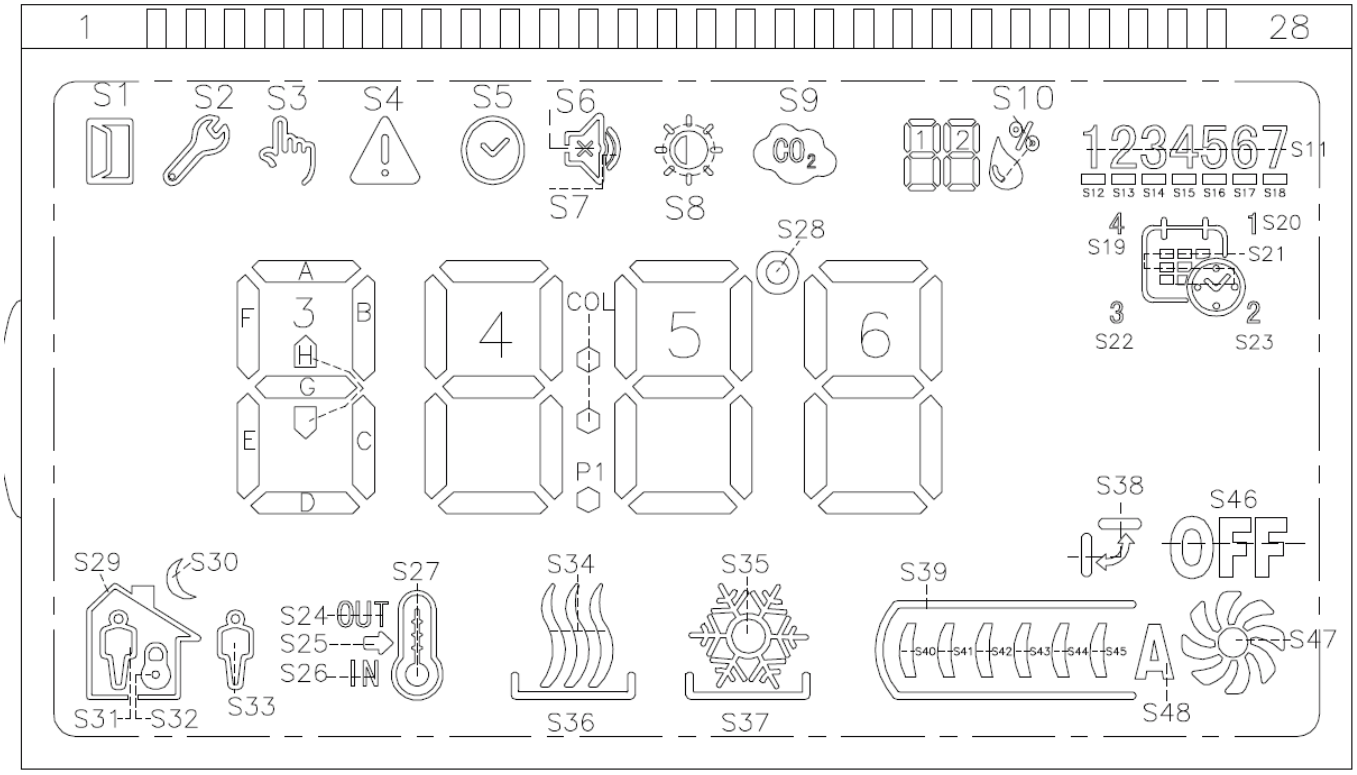
No	Name	Values	Description
1	*Scene number for actuation*	1…64	This parameter determines the number to actuate the scene. When the number is received via the scene input object (Table 127), the scene is run after the time Par. 3.
2	*Saving function*	**Disable*** Enable	This parameter is used to activate learning mode for the scene control. If “Yes” is selected, when a scene learn telegram is received via scene input object, the last received value via output object (Table 128) will be learned.
3	*Actuation startup delay*	0…255 sec	This parameter determines the scene activation delay time. When a scene number is received via scene input object (Table 127), the scene actuation is delayed for the specified time.
• The following parameter is defined for 8 telegram channels (A – H).			
4	*Telegram Y status*	Deactive **Active***	This parameter determines that the telegram Y will be used for the scene x.
5	*Telegram Y value*	0-1 00-11-10 0-255 0-100 1-64 0-40	This parameter determines value of the telegram.

No	Name	Values	Description
		0-65535	

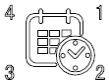
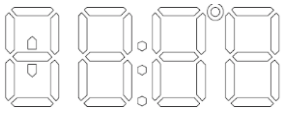
Table 129

***: Default Value**

8 Product display



No	Icon	Usage	Description
S1		Window contact	
S2		Settings menu	
S3		Child lock active	
S4		Child lock active warning Setpoint control warning	Manual control is not possible
S5		Time display Time settings	
S6-S7		Button feedback sound level	Unmute : S7 Mute : S6 + S7 Sound level setting : S6 + S7
S8		Backlight settings	

No	Icon	Usage	Description
S9		Airquality warning	
D1-D2-S10		Humidity value	
S11-S12…S18		Day of week Weekly program settings	
S19…S23		Weekly program enable Weekly program settings	
S24…S27		Temperature display	Internal sensor temperature : S27 + S26 Setpoint temperature : S27 + S25 External sensor temperature : S27 + S24
S28		Temperature value dot	
S29…S33		Operation mode	Comfort mode : S29 + S31 Standby mode : S29 + S33 Economy mode : S29 + S30 Protection mode : S29 + S32
S34-S36		Heating control mode	Heating control : S34 Heating control active : S34 + S36
S35-S37		Cooling control mode	Cooling control : S35 Cooling control active : S35 + S37
S38		Swing enable	
S39…S47		Fan control	Fan auto active : S48 Fan level off : S47 + S39 + S46 Fan level 1 : S47 + S39 + S45 Fan level 2 : S47 + S39 + S45 + S44 Fan level 3 : S47 + S39 + S45 + S44 + S43 Fan level 4 : S47 + S39 + S45 + S44 + S43 + S42 Fan level 5 : S47 + S39 + S45 + S44 + S43 + S42 + S41 Fan level 6 : S47 + S39 + S45 + S44 + S43 + S42 + S41 + S40
D3…D6-COL-P1		Time Temperature value Dimming level Swing level Brightness level Sound level Weekly program mode	

9 Some examples of typical applications

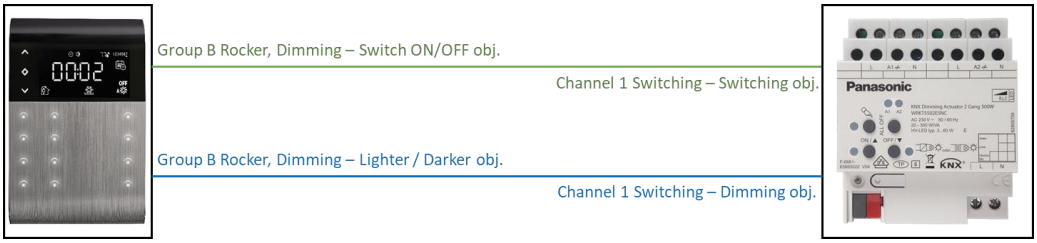
9.1 *Lighting control with Multi Functional Switch*

Multi Functional switch can work with other devices for controlling lights.
The user can use the first two buttons of group A to switch a light on/off and get the feedback from feedback LEDs on the device.
The user can also use the buttons of group B to dim a light lighter/darker.

9.1.1 ON/OFF control

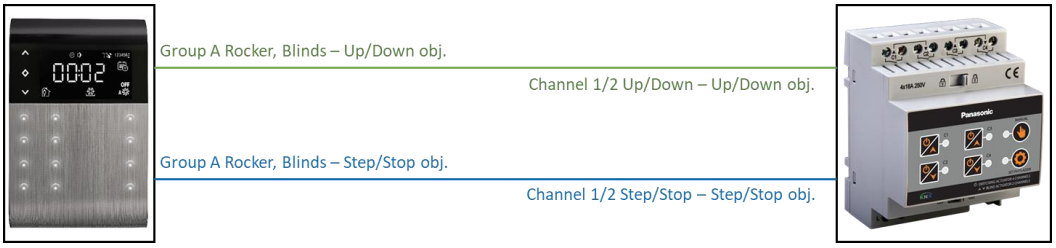
Used devices	KNX Multi Functional Switch - MS104-D (WRKT62145FA) KNX 4/2 gang Switching/Blind actuator (WRKT4504E)
Linking	 
KNX Multi Functional Switch - MS104-D parameters	• Touch buttons – Gang A: Enable • Touch buttons – Group A – Group Configuration: Rocker & Single button • Touch buttons – Group A – Rocker buttons: 1&2 • Touch buttons – Group A – Buttons – Rocker Button 1&2 – Rocker function: Switching • Touch buttons – Group A – Buttons – Rocker Button 1&2 – 1st object LEFT key action: ON • Touch buttons – Group A – Buttons – Rocker Button 1&2 – 1st object RIGHT key action: OFF • Touch buttons – Group A – Leds – Feedback led 1 – Led function – Button feedback • Touch buttons – Group A – Leds – Feedback led 1 – Led behaviour – Leftside = Led On, Rightside = Led Off • Touch buttons – Group A – Leds – Feedback led 2 – Led function – Button feedback • Touch buttons – Group A – Leds – Feedback led 2 – Led behaviour – Leftside = Led On, Rightside = Led Off
KNX 4/2 gang Switching/Blind actuator parameters	• Channel 1 – Function: Switching
	The unmentioned parameters can be the default or user defined parameters

9.1.2 Dimming control

Used devices	KNX Multi Functional Switch - MS104-D (WRKT62145FA) KNX Dimming Actuator 2 gang 300W (WRKT5502E)
Linking	
KNX Multi Functional Switch - MS104-D parameters	• Touch buttons – Gang B: Enable • Touch buttons – Group B – Group Configuration: Rocker & Single button • Touch buttons – Group B – Rocker buttons: 1&2 • Touch buttons – Group B – Buttons – Rocker function: Dimming • Touch buttons – Group B – Buttons – Dimming key actions: Left: Brighter/On, Right: Darker/Off • Touch buttons – Group B – Leds – Feedback led 1 – Led function – Button feedback • Touch buttons – Group B – Leds – Feedback led 1 – Led behaviour – Leftside = Led On, Rightside = Led Off • Touch buttons – Group B – Leds – Feedback led 2 – Led function – Button feedback • Touch buttons – Group B – Leds – Feedback led 2 – Led behaviour – Leftside = Led On, Rightside = Led Off
KNX Dimming Actuator 2 gang 300W	• K1 – General – Dimming behaviour after receipt of a brightness value: dimming to
	The unmentioned parameters can be the default or user defined parameters

9.2 *Blind control with Multi Functional Switch*

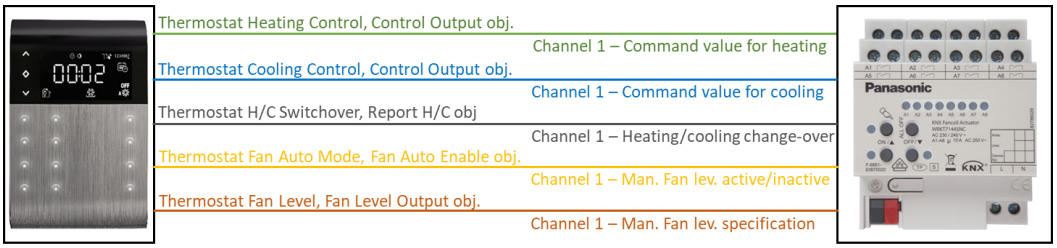
Multi Functional switch is used to control blinds with other devices.
The user can use the first two buttons of group A to control blinds up/down and step/stop and get the feedback from feedback LEDs on the device.

Used devices	KNX Multi Functional Switch - MS104-D (WRKT62145FA) KNX 4/2 gang Switching/Blind actuator (WRKT4504E)
Linking	
KNX Multi Functional Switch - MS104-D parameters	• Touch buttons – Gang A: Enable • Touch buttons – Group A – Group Configuration: Rocker & Single button • Touch buttons – Group A – Rocker buttons: 1&3 • Touch buttons – Group A – Buttons – Rocker Button 1&3 – Rocker function: Blinds • Touch buttons – Group A – Buttons – Rocker Button 1&3 – Blinds key action: Left = UP, Right = DOWN • Stopping driving when: Short keystroke • Touch buttons – Group A – Leds – Feedback led 1 – Led function – Button feedback • Touch buttons – Group A – Leds – Feedback led 1 – Led behaviour – Push/Release = Led On/Off • Touch buttons – Group A – Leds – Feedback led 3 – Led function – Button feedback • Touch buttons – Group A – Leds – Feedback led 3 – Led behaviour – Push/Release = Led On/Off
KNX 4/2 gang Switching/Blind actuator parameters	• Channel Functions – Channel 1 and Channel 2 Function: Blind/Shutter
	The unmentioned parameters can be the default or user defined parameters

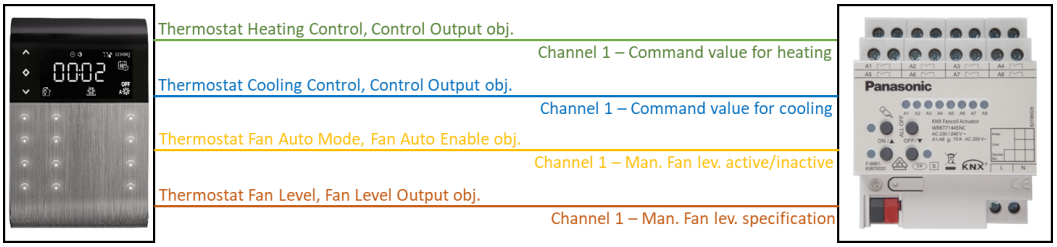
9.3 *Fan coil control with Multi Functional Switch*

It is feasible to control 2 pipes and 4 pipes fan coil system using thermostat functions of the Multi Functional switch.

9.3.1 2 pipes fan coil system control

Used devices	KNX Multi Functional Switch - MS104-D (WRKT62145FA) KNX Fancoil Actuator (WRKT71445NC)
Linking	
KNX Multi Functional Switch - MS104-D parameters	• Thermostat – Controller General - HVAC system type: 1 control objects (2 pipes system) • Thermostat – Controller General - Controller type: Continuous • Thermostat – Heating Control – Fan control: Enable • Thermostat – Cooling Control – Fan control: Enable • Thermostat – Fan Control – Number of fan level: 3 levels • Thermostat – Fan Control – Fan Heating – Fan Auto: Enable • Thermostat – Fan Control – Fan Cooling – Fan Auto: Enable
KNX Fancoil Actuator	• General – Type of fan coil system: 2-pipe heating/cooling via change-over object • C1 – fan configuration – Number of fan levels: 3 • C1 – manual fan control – Manual fan control: enabled
	The unmentioned parameters can be the default or user defined parameters

9.3.2 4 pipes fan coil system control

Used devices	KNX Multi Functional Switch - MS104-D (WRKT62145FA) KNX Fancoil Actuator (WRKT71445NC)
Linking	
KNX Multi Functional Switch - MS104-D parameters	• Thermostat – Controller General - HVAC system type: 2 control objects (4 pipes system) • Thermostat – Heating Control – Control type: Continuous • Thermostat – Heating Control – Fan control: Enable • Thermostat – Cooling Control – Control type: Continuous • Thermostat – Cooling Control – Fan control: Enable • Thermostat – Fan Control – Number of fan level: 3 levels • Thermostat – Fan Control – Fan Heating – Fan Auto: Enable • Thermostat – Fan Control – Fan Cooling – Fan Auto: Enable
KNX Fancoil Actuator	• General – Type of fan coil system: 4-pipe heating/cooling via command value specific. • C1 – fan configuration – Number of fan levels: 3 • C1 – manual fan control – Manual fan control: enabled
	The unmentioned parameters can be the default or user defined parameters