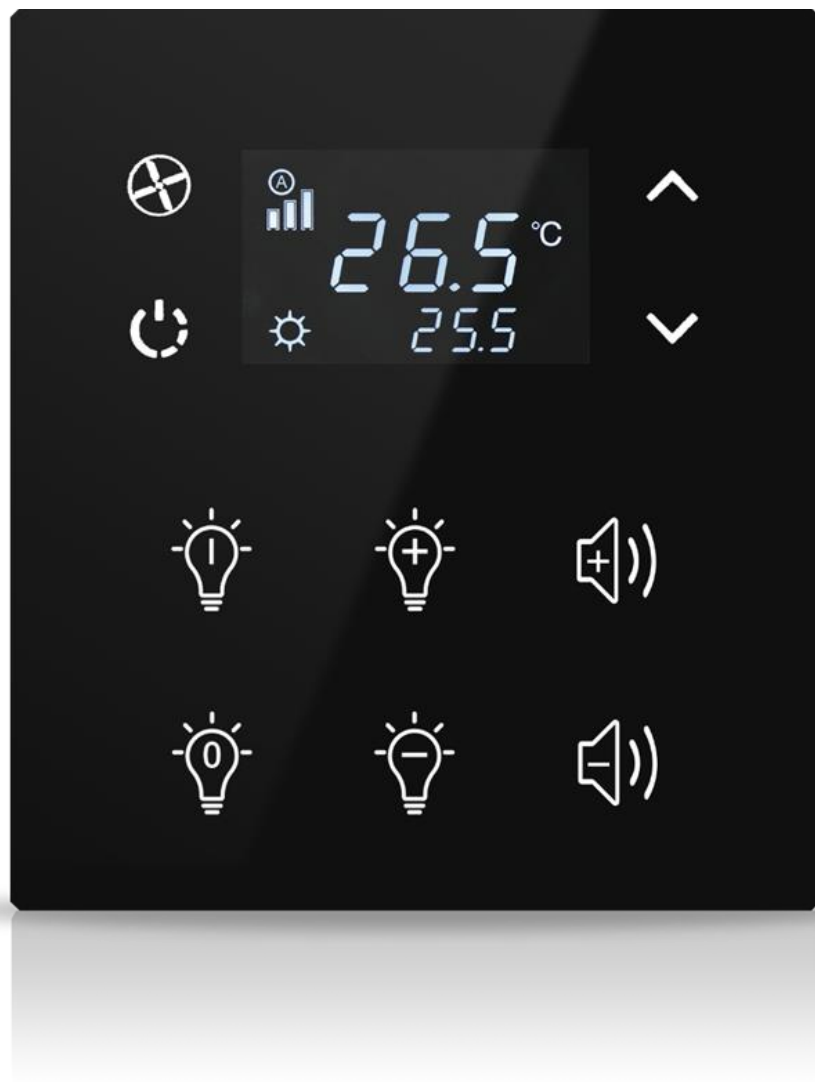


EAE KNX MONA THERMOSTAT



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Product Order Codes

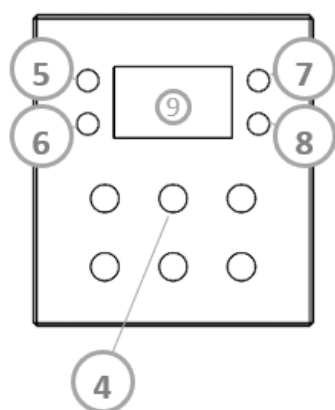
MNB-T01	MONA 1 BUTTON THERMOSTAT BLACK
MNW-T01	MONA 1 BUTTON THERMOSTAT WHITE
MNB-T02	MONA 2 BUTTON THERMOSTAT BLACK
MW-T02	MONA 2 BUTTON THERMOSTAT WHITE
MN-B-T03	MONA 3 BUTTON THERMOSTAT BLACK
MNW-T03	MONA 3 BUTTON THERMOSTAT WHITE
MNB-T04	MONA 4 BUTTON THERMOSTAT BLACK
MNW-T04	MONA 4 BUTTON THERMOSTAT WHITE
MNB-T05	MONA 5 BUTTON THERMOSTAT BLACK
MNW-T05	MONA 5 BUTTON THERMOSTAT WHITE
MNB-T06	MONA 6 BUTTON THERMOSTAT BLACK
MNW-T06	MONA 6 BUTTON THERMOSTAT WHITE

1. General

Mona KNX Thermostats offer a wide range of functional flexibility, with up to 6 programmable buttons in addition to the thermostat function. Mona Thermostat switches can be programmed for control lighting, shutter/blind drivers, speakers, make scene calls and mimic panic buttons. Each button can be programmed independently for a different function.

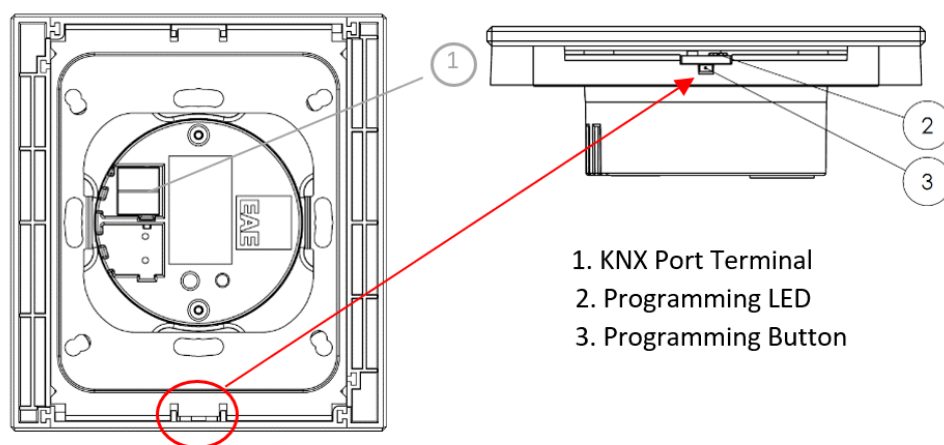
2. Device Technology

2.1. Button Definitions



- 4. Programmable Buttons
- 5. Fan Speed (1, 2, 3, Auto)
- 6. Operation Mode Button (Comfort, Night, Away, Protection, OFF)
- 7. Setpoint Temperature UP
- 8. Setpoint Temperature DOWN
- 9. Built-in Screen

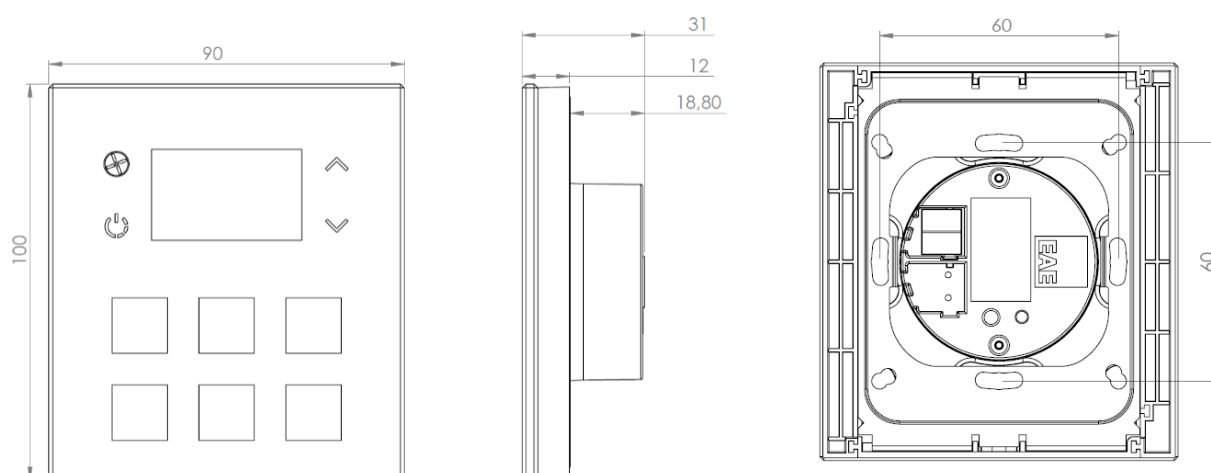
2.2. Connection Diagram



2.3. Technical Data

Protection Grade	IP 20	EN 60529
Safety Class	II	EN 61140
Operating Voltage	Voltage	21V... 30V DC, via the KNX bus
	Current drawn from bus	< 25 mA
Connections	KNX	Bus Connection
Measurement Accuracy	+/- 0.5 °C	
Operating Temperature	Ambient	-5 °C + 45 °C
	Storage	-25 °C + 55 °C
Humidity	Max. Air humidity condensation	95% no moisture
Dimensions	Front Side	90 x 100 mm
	Side- Surface mounted part	12 mm
	Side- Flush mounted part	18.8 mm
Weight	73 g	
Box Material	Surface : Glass	
	Flush Mount Part : Polycarbonate	
CE	In accordance with the EMC guideline and low voltage directives.	

2.4. Dimensions



3. Communication Object Table

No	Object Name	Function	Data Point Type	Flags
0	In operation	[0, 1]	1 bit DPT 1.017	CT
1, 7, 13, 19, 25, 31	Button 1...6 [Press]	Switching --> On/Off	1 bit DPT 1.001	CT
	Button 1...6 [Release]	Switching <--> On/Off & Status	1 bit DPT 1.001	CWT
	Button 1...6 [Press/Release]			
	Button 1...6 [Short Press]	Dimming --> On/Off	1 bit DPT 1.001	CT
		Dimming <--> On/Off & Status	1 bit DPT 1.001	CWT
	Button 1...6 [Long Press]	Shutter <--> Up/Down	1 bit DPT 1.008	CWT
	Button 1...6 [Press]			
	Button 1...6 [Release]			
		Value --> 1-bit	1 bit DPT 1.001	CT
		Value --> 1-bit HVAC Control Mode	1 bit DPT 1.100	CT
		Value <--> 1-bit toggle	1 bit DPT 1.001	CT
		Value --> 2-bit priority control	2 bit DPT 2.001	CT
		Value --> 4-bit dimming control	4 bit DPT 3.007	CT
		Value --> 4-bit blind control	4 bit DPT 3.008	CT
		Value --> 1-byte unsigned	1 Byte DPT 5.010	CT
		Value --> 1-byte signed	1 Byte DPT 6.010	CT
		Value --> 1-byte HVAC Mode	1 Byte DPT 20.102	CT
		Value --> 1-byte percentage	1 Byte DPT 5.001	CT
		Value <--> 1-byte counter/sequence	1 Byte DPT 5.010	CWT
		Value --> 1-byte scene activate	1 Byte DPT 18.001	CT
		Value --> 1-byte scene learn	1 Byte DPT 18.001	CT
		Value --> 2-byte unsigned	2 Byte DPT 7.001	CT
		Value --> 2-byte signed	2 Byte DPT 8.001	CT
		Value --> 2-byte float	2 Byte DPT 9.001	CT
		Value --> 3-byte color	3 Byte DPT 232.600	CT
		Value --> 4-byte unsigned	4 Byte DPT 12.001	CT
		Value --> 4-byte signed	4 Byte DPT 13.001	CT
		Value --> 4-byte float	4 Byte DPT 14.005	CT
	Button 1...6 [Short Press 1]			
	Button 1...6 [Double Press 1]			
	Button 1...6 [Triple Press 1]			
	Button 1...6 [Long Press 1]			
	Button 1...6 [Long Press Repeat 1]			
	Button 1...6 [Long Press Release 1]			

No	Object Name	Function	Data Point Type	Flags
2, 8, 14, 20, 26, 32	Button 1...6 [Long Press]	Dimming --> Dim [+/-]	4 bit DPT 3.007	CT
	Button 1...6 [Press]	Shutter <--> Stop	1 bit DPT 1.017	CWT
	Button 1...6 [Release]			
	Button 1...6 [Short Press]	Shutter <--> Stop/Adjust	1 bit DPT 1.007	CWT
		Value --> 1-bit	1 bit DPT 1.001	CT
		Value --> 1-bit HVAC Control Mode	1 bit DPT 1.100	CT
		Value <--> 1-bit toggle	1 bit DPT 1.001	CT
		Value --> 2-bit priority control	2 bit DPT 2.001	CT
		Value --> 4-bit dimming control	4 bit DPT 3.007	CT
		Value --> 4-bit blind control	4 bit DPT 3.008	CT
		Value --> 1-byte unsigned	1 Byte DPT 5.010	CT
		Value --> 1-byte signed	1 Byte DPT 6.010	CT
		Value --> 1-byte HVAC Mode	1 Byte DPT 20.102	CT
		Value --> 1-byte percentage	1 Byte DPT 5.001	CT
		Value <--> 1-byte counter/sequence	1 Byte DPT 5.010	CWT
		Value --> 1-byte scene activate	1 Byte DPT 18.001	CT
		Value --> 1-byte scene learn	1 Byte DPT 18.001	CT
		Value --> 2-byte unsigned	2 Byte DPT 7.001	CT
		Value --> 2-byte signed	2 Byte DPT 8.001	CT
		Value --> 2-byte float	2 Byte DPT 9.001	CT
		Value --> 3-byte color	3 Byte DPT 232.600	CT
		Value --> 4-byte unsigned	4 Byte DPT 12.001	CT
		Value --> 4-byte signed	4 Byte DPT 13.001	CT
		Value --> 4-byte float	4 Byte DPT 14.005	CT

No	Object Name	Function	Data Point Type	Flags
3, 9, 15, 21, 27, 33	Button 1...6 [Double Press]	Dimming --> Rel. Dim [+/-]	4 bit DPT 3.007	CT
		Dimming --> Abs. Dim [%]	1 Byte DPT 5.001	CT
		Dimming <--> Abs. Dim [%]	1 Byte DPT 5.001	CWT
		Dimming --> Color Temperature	2 Byte DPT 7.600	CT
		Dimming <--> Color Temperature	2 Byte DPT 7.600	CWT
	Button 1...6	Shutter <-- Top Position	1 bit DPT 1.002	CW
	Button 1...6 [Short Press 3] Button 1...6 [Double Press 3] Button 1...6 [Triple Press 3] Button 1...6 [Long Press 3] Button 1...6 [Long Press Repeat 3] Button 1...6 [Long Press Release 3]	Value --> 1-bit	1 bit DPT 1.001	CT
		Value --> 1-bit HVAC Control Mode	1 bit DPT 1.100	CT
		Value <--> 1-bit toggle	1 bit DPT 1.001	CT
		Value --> 2-bit priority control	2 bit DPT 2.001	CT
		Value --> 4-bit dimming control	4 bit DPT 3.007	CT
		Value --> 4-bit blind control	4 bit DPT 3.008	CT
		Value --> 1-byte unsigned	1 Byte DPT 5.010	CT
		Value --> 1-byte signed	1 Byte DPT 6.010	CT
		Value --> 1-byte HVAC Mode	1 Byte DPT 20.102	CT
		Value --> 1-byte percentage	1 Byte DPT 5.001	CT
		Value <--> 1-byte counter/sequence	1 Byte DPT 5.010	CWT
		Value --> 1-byte scene activate	1 Byte DPT 18.001	CT
		Value --> 1-byte scene learn	1 Byte DPT 18.001	CT
		Value --> 2-byte unsigned	2 Byte DPT 7.001	CT
		Value --> 2-byte signed	2 Byte DPT 8.001	CT
		Value --> 2-byte float	2 Byte DPT 9.001	CT
		Value --> 3-byte color	3 Byte DPT 232.600	CT
		Value --> 4-byte unsigned	4 Byte DPT 12.001	CT
		Value --> 4-byte signed	4 Byte DPT 13.001	CT
		Value --> 4-byte float	4 Byte DPT 14.005	CT
4, 10, 16, 22, 28, 34	Button 1...6 Status	Switching <-- On/Off Status	1 bit DPT 1.001	CW
		Dimming <-- On/Off Status	1 bit DPT 1.001	CW
		Shutter <-- Bottom Position	1 bit DPT 1.002	CW
	Button 1...6 [Short Press 4] Button 1...6 [Double Press 4] Button 1...6 [Triple Press 4] Button 1...6 [Long Press 4] Button 1...6 [Long Press Repeat 4] Button 1...6 [Long Press Release 4]	Value --> 1-bit	1 bit DPT 1.001	CT
		Value --> 1-bit HVAC Control Mode	1 bit DPT 1.100	CT
		Value <--> 1-bit toggle	1 bit DPT 1.001	CT
		Value --> 2-bit priority control	2 bit DPT 2.001	CT
		Value --> 4-bit dimming control	4 bit DPT 3.007	CT
		Value --> 4-bit blind control	4 bit DPT 3.008	CT
		Value --> 1-byte unsigned	1 Byte DPT 5.010	CT
		Value --> 1-byte signed	1 Byte DPT 6.010	CT
		Value --> 1-byte HVAC Mode	1 Byte DPT 20.102	CT
		Value --> 1-byte percentage	1 Byte DPT 5.001	CT
		Value <--> 1-byte counter/sequence	1 Byte DPT 5.010	CWT
		Value --> 1-byte scene activate	1 Byte DPT 18.001	CT
		Value --> 1-byte scene learn	1 Byte DPT 18.001	CT
		Value --> 2-byte unsigned	2 Byte DPT 7.001	CT
		Value --> 2-byte signed	2 Byte DPT 8.001	CT
		Value --> 2-byte float	2 Byte DPT 9.001	CT
		Value --> 3-byte color	3 Byte DPT 232.600	CT
		Value --> 4-byte unsigned	4 Byte DPT 12.001	CT
		Value --> 4-byte signed	4 Byte DPT 13.001	CT

No	Object Name	Function	Data Point Type	Flags
5, 11, 17, 23, 29, 35	Button 1...6 LED Status	[0, 1]	1 bit DPT 1.001	CW
6, 12, 18, 24, 30, 36	Button 1...6 Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW
	Button 1...6 Lock (T)	0=Lock; 1=Unlock	1 bit DPT 1.001	CRWT
73	Cleaning Mode	0=Disable; 1=Enable	1 bit DPT 1.003	CW
		0=Enable; 1=Disable	1 bit DPT 1.006	
74	LED Custom Color	0=R,1=Y,2=G,3=C,4=B,5=M,6=W,7=T	1 Byte DPT 5.010	CRW(T)
	LED Custom Color [+/-]	.<>R<>Y<>G<>C<>B<>M<>W<>T<>.	1 bit DPT 1.007	CW
75	LED Brightness Custom Level	0=Off, 1...7	1 Byte DPT 5.010	CRW(T)
	LED Brightness Custom Level [%]	0%=0(Off); [0,4...100]%=1...7	1 Byte DPT 5.001	CRW(T)
	LED Brightness Custom Level Raw [%]	0%=Off; [0,4...100]%	1 Byte DPT 5.001	CRW(T)
76	LCD Backlight Brightness Custom Level	0=Off, 1...7	1 Byte DPT 5.010	CRW(T)
	LCD Backlight Brightness Custom Level [%]	0%=0(Off); [0,4...100]%=1...7	1 Byte DPT 5.001	CRW(T)
	LCD Backlight Brightness Custom Level Raw [%]	0%=Off; [0,4...100]%	1 Byte DPT 5.001	CRW(T)
79	Day/Night	0=Day; 1=Night	1 bit DPT 1.001	CW
		0=Night; 1=Day	1 bit DPT 1.006	
80	Proximity	0=Absence; 1=Presence	1 bit DPT 1.011	CT
				CW
				CWT
		BIT6: 0=Presence; 1=Absence	1 Byte DPT 26.001	CT
				CW
				CWT
84	Humidity	0...100%RH	2 Byte DPT 9.007	CRT
85	Low Humidity Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
86	High Humidity Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
87	Dew Point Temperature	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
88	Dew Point Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
89	Thermostat Joint Link	Link the same group address for all thermostats	5 Byte NON-DPT	CWT
90	Regulation	0=Off; 1=On	1 bit DPT 1.001	CW
91	Regulation (Status)	0=Off; 1=On	1 bit DPT 1.001	CRT
92	Window Status	0=Closed; 1=Open	1 bit DPT 1.019	CW
		0=Open; 1=Closed	1 bit DPT 1.006	
93	Reset On Site	[0,1]	1 bit DPT 1.017	CW
94	Switchover	0=Cooling; 1=Heating	1 bit DPT 1.100	CR(W)T
		1=Heat; 3=Cool	1 Byte DPT 20.105	CR(W)T
95	Control Mode Status	0=Cooling; 1=Heating	1 bit DPT 1.100	CRT
		1=Heat; 3=Cool	1 Byte DPT 20.105	CRT

No	Object Name	Function	Data Point Type	Flags
96	Additional Control Stage	0=Disable; 1=Enable	1 bit DPT 1.003	CW
	Control Stage Select	1=Main; 3=Main+Add.	1 Byte DPT 20.116	CW
	Control Stage Select [+/-]	..<>Main<>Main+Add.<>..	1 bit DPT 1.007	CW
	Control Stage Select	1=Main; 2=Add.; 3=Main+Add.	1 Byte DPT 20.116	CW
	Control Stage Select [+/-]	..<>Main<>Add.<>Main+Add.<>..	1 bit DPT 1.007	CW
97	Control Stage (Status)	1=Main; 3=Main+Add.	1 Byte DPT 20.116	CRT
	Control Stage (Status)	1=Main; 2=Add.; 3=Main+Add.	1 Byte DPT 20.116	CRT
	Main Control Stage (Status)	0=Inactive; 1=Active	1 bit DPT 1.011	CRT
98	Additional Control Stage (Status)	0=Inactive; 1=Active	1 bit DPT 1.011	CRT
99	Heat Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
	Heat/Cool Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
100	Cool Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
101	Additional Heat Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
	Additional Heat/Cool Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
102	Additional Cool Control Value	[0,1]	1 bit DPT 1.001	CT
		[%] [0...255]	1 Byte DPT 5.001	CT
103	Split Heat Error	0=No Error; 1=Error	1 bit DPT 1.005	CW
	Split Heat/Cool Error			
104	Split Cool Error			
105	Comfort Mode	[0, 1]	1 bit DPT 1.003	CW
	Operating Mode	1=Comfort; 2=Away(Standby); 3=Night(Economy); 4=Protection	1 Byte DPT 20.102	CW
106	Night Mode	[0, 1]	1 bit DPT 1.003	CW
107	Away Mode	[0, 1]	1 bit DPT 1.003	CW
108	Protection Mode	[0, 1]	1 bit DPT 1.003	CW
109	Comfort Mode (Status)	[0, 1]	1 bit DPT 1.002	CRT
	Operating Mode (Status)	1=Comfort; 2=Away(Standby); 3=Night(Economy); 4=Protection	1 Byte DPT 20.102	CRT
110	Night Mode (Status)	[0, 1]	1 bit DPT 1.002	CRT
111	Away Mode (Status)	[0, 1]	1 bit DPT 1.002	CRT
112	Protection Mode (Status)	[0, 1]	1 bit DPT 1.002	CRT
113	Ambient Temperature	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
114	External Temperature Sensor	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
115	Spot Temperature Sensor	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
	Spot Heat Protection	0=Disable; 1=Enable	1 bit DPT 1.003	CRW
116	Spot Cool Protection	0=Disable; 1=Enable	1 bit DPT 1.003	CRW
118	Setpoint (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT

No	Object Name	Function	Data Point Type	Flags
119	Setpoint	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
120	Setpoint [+/-]	0= - 0.1°C; 1= + 0.1°C	1 bit DPT 1.007	CW
		0= - 0.5°C; 1= + 0.5°C	1 bit DPT 1.007	CW
		0= - 1°C; 1= + 1°C	1 bit DPT 1.007	CW
		0= - 0.1°F; 1= + 0.1°F	1 bit DPT 1.007	CW
		0= - 0.5°F; 1= + 0.5°F	1 bit DPT 1.007	CW
		0= -1°F; 1= + 1°F	1 bit DPT 1.007	CW
121	Setpoint Comfort	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
	Setpoint Heating Comfort	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
122	Setpoint Night	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
	Setpoint Heating Night	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
123	Setpoint Away	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
	Setpoint Heating Away	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
124	Setpoint Cooling Comfort	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
125	Setpoint Cooling Night	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
126	Setpoint Cooling Away	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
127	Setpoint Comfort (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
	Setpoint Heating Comfort (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
128	Setpoint Night (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
	Setpoint Heating Night (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
129	Setpoint Away (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
	Setpoint Heating Away (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
130	Setpoint Cooling Comfort (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
131	Setpoint Cooling Night (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
132	Setpoint Cooling Away (Status)	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
133	Fan Speed 0	[0, 1]	1 bit DPT 1.002	CT

No	Object Name	Function	Data Point Type	Flags
134	Automatic Fan Speed	0= Disable; 1=Enable	1 bit DPT 1.003	CWT
		0= Enable; 1=Disable	1 bit DPT 1.006	CWT
135	Fan Speed 1	[0, 1]	1 bit DPT 1.002	CWT
136	Fan Speed 2	[0, 1]	1 bit DPT 1.002	CWT
137	Fan Speed 3	[0, 1]	1 bit DPT 1.002	CWT
138	Fan Speed	0=Spd0 (T); 1...3=Spd1...3(WT)	1 Byte DPT 5.010	CWT
		0=Auto; 1...3=Spd1...3		CWT
139	Fan Speed [%]	0=Spd0 (T); [1...255]%=Spd1...3 (WT)	1 Byte DPT 5.100	CWT
		0=Auto; [1...255]=Spd1...3		CWT
140	LCD Fan Speed Status	0=Spd0; 1...3=Spd1...3	1 Byte DPT 5.100	CW
	LCD Fan Speed % Status	0=Spd0; [1...255]=Spd1...3		CW
141	LCD Temperature Unit	0=Celsius; 1=Fahrenheit	1 bit DPT 1.001	CRWT
		0= Fahrenheit; 1= Celsius	1 bit DPT 1.001	CRWT
142	Alternative Function Button Telg.	[0,1]	1 bit DPT 1.001	CWT
143	Setpoint Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)
144	Fan Speed Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)
145	Operating Mode Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)
146 ... 161	IN1, IN2/OUT15, IN3/OUT14, ... IN15/OUT2, OUT1 (Logic Block 1)	Input	1 bit DPT 1.002	CRW
			2 bit DPT 2.002	CRW
			1 Byte DPT 5.010	CRW
		Output	1 bit DPT 1.002	CRT
			2 bit DPT 2.002	CRT
			1 Byte DPT 5.010	CRT
162 ... 177	IN1, IN2/OUT15, IN3/OUT14, ... IN15/OUT2, OUT1 (Logic Block 2)	Input	1 bit DPT 1.002	CRW
			2 bit DPT 2.002	CRW
			1 Byte DPT 5.010	CRW
		Output	1 bit DPT 1.002	CRT
			2 bit DPT 2.002	CRT
			1 Byte DPT 5.010	CRT

4. Parameters and Communication Objects

4.1. General

General parameters include;

- | | | | |
|---------------------------------|-------------------|------------------------------|-------------------|
| 1. In Operation Function | 4. Touch Feedback | 7. Joint Operation | 10. Cleaning Mode |
| 2. Telegram Limitation | 5. Logic Blocks | 8. Built-in Sensor Selection | |
| 3. First Telegram Sending Delay | 6. Window Status | 9. Diagnostics | |

4.1.1. Parameters

Parameter	Settings	Description
GENERAL		
In Operation Telegram	checked/ unchecked	In operation can be used to ensure that device is alive and connected to KNX line.
In Operation Value	0/1	Visible when "In Operation Telegram" checked. Selected value will be sent as device alive operation.
In Operation Sending Interval	10... 300 ...65535 s	Visible when "In Operation Telegram" checked. Cyclic time period for sending in operation value.
Telegram Limiter	checked/ unchecked	Limits the number of telegrams to send in certain time period.
Telegram Limit Period Duration	50ms , 100ms, ..., 30s, 1min	Visible when "Telegram Limiter" checked. Determine the period for sending telegram.
Maximum Telegram Count in Period	1...255	Visible when "Telegram Limiter" checked. Maximum number of telegrams to send in telegram limit period duration.
Telegram Transmission Delay	1...255	This parameter is used to set delay for sending the first telegram when device powered on.
Cleaning Mode	checked/ unchecked	This parameter is used to lock the keys during cleaning the device. When locked device can be cleaned properly.
SWITCH		
Switch Configuration	1...6 Button	Button count of device.
Status LED "Operation Indication" Duration	0.3, 0.75 , 1.5, 2.25, 3 s	This parameter is used to select the LEDs ON duration when status LEDs used as operation indication with buttons.
Touch Feedback	checked/ unchecked	This parameter is used to activate the indication of switches in case of touch. (Switch Buttons only)
Touch Feedback Max Duration (x0.1 s)	0 ...255	This parameter is used to determine the Status LED ON duration after touch and release
Feedback Color	Red , Yellow, Green, Cyan, Blue, Magenta, White, Custom	This parameter is used to define the color of Status LED while its switch button touched/released. Feedback Color will be active as Touch Feedback Max Duration after releasing button.
Exit feedback immediately on Status LED update	checked/ unchecked	This parameter is used to select the way of Touch Feedback Color change to Switch Status color.

Parameter	Settings	Description
THERMOSTAT		
Window Status	checked / unchecked	This parameter is used to enable KNX window sensor input in order to avoid energy loss.
DPT Window Object	0 = Closed; 1 = Open 0 = Open; 1 = Closed	This parameter is used to determine the object type for window sensor input.
Delay for Open Action	0...65535 s	This parameter is used to determine the delay for window open action. Window sensor should be active for delay time to switch protection mode. If "0": Window sensor state changes will be applied immediately.
Joint Operation	checked/ unchecked	This parameter is used to activate the multi thermostat controlling. All EAE thermostats can be synchronized via one group object named as Thermostat Joint Link.
BUILT-IN SENSORS		
Humidity Sensor	checked/ unchecked	This parameter can be enabled If device has Humidity sensor.
Dew Point Sensor	checked/ unchecked	This parameter belongs to Humidity Sensor. Device calculates the Dew Point according to Room Temperature and Room Humidity values.
LOGIC BLOCKS		
Logic Blocks	None, 1, 2	This parameter is used to select logic block count.
DIAGNOSTICS		
Firmware Version	Read Firmware Version	Device Firmware version will be shown.
Hardware Type		Device Hardware type will be shown.
Uptime	Read Uptime	Device up time since the device energized.
Check for Built-in Sensors	Humidity Sensor	Sensors can be checked in case of error.
	Dew Point Sensor	

4.1.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
0	In operation	[0, 1]	1 bit DPT 1.017	CT
In operation value (0,1) selected through “In operation bit” parameter will be sent via the group address which is linked to this communication object				
73	Cleaning Mode	0=Disable; 1=Enable	1 bit DPT 1.003	CW
		0=Enable; 1=Disable	1 bit DPT 1.006	
This object is used to activate lock for all buttons on device.				
89	Thermostat Joint Link	Link the same group address for all thermostats	5 Byte NON-DPT	CWT
All EAE Thermostats can be synchronized via object.				
92	Window Status	0=Closed; 1=Open	1 bit DPT 1.019	CW
		0=Open; 1=Closed	1 bit DPT 1.006	
This parameter enables communication object which will be used to detect window status. When window detected as open, the thermostat will switch to “Protection Mode”. An error icon will be appeared on LCD screen during “Window Open State”. When the window detected as close, the previous operating mode will be switched and the error icon will be disappeared.				
146 ... 161	IN1, IN2/OUT15, IN3/OUT14, ... IN15/OUT2, OUT1 (Logic Block 1)	Input	1 bit DPT 1.002	CRW
			2 bit DPT 2.002	CRW
			1 Byte DPT 5.010	CRW
		Output	1 bit DPT 1.002	CRT
			2 bit DPT 2.002	CRT
			1 Byte DPT 5.010	CRT
162 ... 177	IN1, IN2/OUT15, IN3/OUT14, ... IN15/OUT2, OUT1 (Logic Block 2)	Input	1 bit DPT 1.002	CRW
			2 bit DPT 2.002	CRW
			1 Byte DPT 5.010	CRW
		Output	1 bit DPT 1.002	CRT
			2 bit DPT 2.002	CRT
			1 Byte DPT 5.010	CRT
These objects are able to control logic processes.				

4.2. LED Brightness

This function is used to dim the buttons according to Bright (ON) and Dark (OFF) dim levels. Additionally, the buttons can be dimmed with another methods such as Ambient Light or Proximity dim.

4.2.1. Parameters

Parameter	Setting	Description
SWITCH STATUS & THERMOSTAT BUTTON LEDS		
Bright Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The bright dim level can be set.
Dark Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The dark dim level can be set.
Custom Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The custom dim level can be set.
THERMOSTAT LCD BACKLIGHT		
Bright Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The bright dim level can be set.
Dark Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The dark dim level can be set.
Custom Level	0 = OFF, 1, 2, 3, 4, 5, 6, 7	The custom dim level can be set.
Custom Level Objects	checked/ unchecked	This parameter is used to activate custom level com objects to change custom dim level interactively.
Object DPT	Enumerated , Scaling [%] Level, Scaling [%] Raw	This parameter will be shown If Custom Level Objects are Enabled . Custom dim level can be changed with these objects.
Object Feedback	None , After KNX bus recovery only, On change, Always	This parameter is used to transmit status value of Custom Level brightness.
Value after KNX bus recovery	Reset, Keep	This parameter is used to send custom brightness level after bus voltage return.
AUTO-DIM (Bright -> Dark)		
SWITCH STATUS LEDS		
Ambient Light Dim	unchecked / checked / *Detection Disabled	Auto dim switch status leds to darker according to Day/Night state.
Proximity Dim	unchecked / checked / *Detection Disabled	Auto dim switch status leds to darker according to touch to the buttons.
Button Dim	unchecked / checked / **Button Disabled	Auto dim switch status leds to darker according to button activation on LCD Display > Local Control page.
THERMOSTAT BUTTON LEDS		
Ambient Light Dim	unchecked / checked / *Detection Disabled	Auto dim thermostat button leds to darker according to Day/Night state.
Proximity Dim	unchecked / checked / *Detection Disabled	Auto dim switch status leds to darker according to touch to the buttons.
Button Dim	unchecked / checked / **Button Disabled	Auto dim switch status leds to darker according to button activation on LCD Display > Local Control page.
THERMOSTAT LCD BACKLIGHT		
Ambient Light Dim	unchecked / checked / *Detection Disabled	Auto dim thermostat LCD backlight to darker according to Day/Night state.
Proximity Dim	unchecked / checked / *Detection Disabled	Auto dim switch status leds to darker according to touch to the buttons.
Button Dim	unchecked / checked / **Button Disabled	Auto dim switch status leds to darker according to button activation on LCD Display > Local Control page.
*: If the Proximity or Ambient Light function is not selected in Sensors page, this message appears. **: If the Button Dim is not selected on LCD Display > Local Control page, this message appears.		

4.2.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
79	Day/Night	0=Day; 1=Night	1 bit DPT 1.001	CW
		0=Night; 1=Day	1 bit DPT 1.006	
Day or night mode can be selected via object.				
80	Proximity	0=Absence; 1=Presence	1 bit DPT 1.011	CT
				CW
				CWT
		BIT6: 0=Presence; 1=Absence	1 Byte DPT 26.001	CT
				CW
				CWT
Proximity information value will be sent/received via object.				
75	LED Brightness Custom Level	0=Off, 1...7	1 Byte DPT 5.010	CRW(T)
	LED Brightness Custom Level [%]	0%=0(Off); [0,4...100]% =1...7	1 Byte DPT 5.001	CRW(T)
	LED Brightness Custom Level Raw [%]	0%=Off; [0,4...100]%	1 Byte DPT 5.001	CRW(T)
Custom Brightness level for Status LEDs can be changed via object.				
76	LCD Backlight Brightness Custom Level	0=Off, 1...7	1 Byte DPT 5.010	CRW(T)
	LCD Backlight Brightness Custom Level [%]	0%=0(Off); [0,4...100]% =1...7	1 Byte DPT 5.001	CRW(T)
	LCD Backlight Brightness Custom Level Raw [%]	0%=Off; [0,4...100]%	1 Byte DPT 5.001	CRW(T)
Custom Brightness level for LCD Backlight can be changed via object.				

4.3. LED Color

4.3.1. Parameters

Parameter	Setting	Description
CUSTOM COLOR		
Custom Color	Red, Yellow, Green, Cyan, Blue, Magenta, White, *Thermocolor	This parameter is used to select the type of color changes for custom color option. *:Thermocolor option will be available if Thermocolor in Custom Colors is selected Yes .
Thermocolor in Custom Colors	No / Yes	This parameter is used to add the color according to ambient temp (thermocolor) option to Custom Color menu.
Custom Color Object	checked/unchecked	This parameter allows to change Custom Color via com object.
Object DPT	Enumerated, Step [+/-]	This parameter will be shown If Custom Color Object is Enabled . Custom color can be changed with these objects.
Object Feedback	None, After KNX bus recovery only, On change, Always	This parameter is shown if Custom Color > Object DPT is selected as Enumerated . It is used to transmit status value of Custom Level brightness.
Value after KNX bus recovery	Reset, Keep	This parameter is used to send custom brightness level after bus voltage return.
THERMOCOLOR (A Dynamic LED Color)		
Thermocolor changes with	Control Mode Temperature	This parameter is used to select the type of color changes for thermocolor option.
If Control Mode Selected;		
Heating	Red, Yellow, Green, Cyan, Blue, Magenta, White, None	This parameter is used to select the color when thermostat in Heating mode.
Cooling	Red, Yellow, Green, Cyan, Blue , Magenta, White, None	This parameter is used to select the color when thermostat in Cooling mode.
Change when in Protection Mode	unchecked / checked	This parameter is used to activate color when thermostat in Protection mode.
Protection Mode	Red, Yellow, Green, Cyan, Blue, Magenta, White , None	This parameter is used to select color when thermostat in Protection mode.
Heating/Cooling Colors when Protection is Active	unchecked / checked	This parameter is used to select color for Protection Mode according to Heating/Cooling State colors instead of Protection Mode color.
Change when Regulation is Off	unchecked / checked	This parameter is used to activate color when thermostat regulation is OFF.
Regulation Off	Red, Yellow, Green, Cyan, Blue, Magenta, White, None	This parameter is used to select color when thermostat regulation is OFF.

If Temperature Selected;		
Hot (above setpoint)	Red, Yellow, Green, Cyan, Blue, Magenta, White, None	This parameter is used to select color when the room temperature is higher than setpoint for "Zone (+/-)" value or higher.
Target (near setpoint)	Red, Yellow, Green, Cyan, Blue, Magenta, White , None	This parameter is used to select color when the room temperature is equal to setpoint.
Zone (+/-)	1...2...255 x 0.1K	This parameter is used to define the differences between room temperature and setpoint.
Cold (below setpoint)	Red, Yellow, Green, Cyan, Blue , Magenta, White, None	This parameter is used to select color when the room temperature is lower than setpoint for "Zone (+/-)" value or higher.
When in Protection Mode	Red, Yellow, Green, Cyan, Blue, Magenta, White , None	This parameter is used to select color when thermostat in Protection mode.
Hot/Cold Colors when Protection is Active	unchecked / checked	This parameter is used to select color for Protection Mode according to Hot/Cold State colors instead of Protection Mode color.
When Regulation is Off	Red, Yellow, Green, Cyan, Blue, Magenta, White, None	This parameter is used to select color when thermostat regulation is OFF.

4.3.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
74	LED Custom Color	0=R, 1=Y, 2=G, 3=C, 4=B, 5=M, 6=W, 7=T	1 Byte DPT 5.010	CRW(T)
	LED Custom Color [+/-]	.<>R<>Y<>G<>C<>B<>M<>W<>T<>.	1 bit DPT 1.007	CW
Custom Color for Status LEDs and LCD Backlight can be changed via object.				
R: Red, Y: Yellow, G: Green, C: Cyan, B: Blue, M: Magenta, W: White, T: Thermocolor				

4.4. Cleaning Mode

This function allows to lock the all buttons on device for unwanted control during cleaning.

4.4.1. Parameters

Parameter	Settings	Description
Enter Cleaning Mode with	Object only Object & Button Long Press	This parameter is used to select button locking method.
IF Object Only Selected		
DPT Cleaning Mode Object	0 = Disable; 1 = Enable 0 = Enable; 1 = Disable	This parameter is used to determine the object type for cleaning mode object.
LED Feedback	All On/Off Toggle All On Color Showcase	This parameter is used to determine LED Feedback when Cleaning mode activated. All On/Off Toggle: All LEDs blinking All On: All LEDs fixed Color Showcase: All LEDs color changes every 2 s.
Color	Red , Yellow, Green, Cyan, Blue, Magenta, White	All LEDs color when Cleaning Mode activated.
Timeout	0...65535 s	This parameter determines the Cleaning Mode active duration. 0(zero) : Always Active
Exit Cleaning Mode by Long Pressing	No Any Button	Cleaning Mode deactivation method. If No selected: Mode can be deactivated via object only. If: Any Button selected: Mode can be deactivated touching long to any button as Long Press Duration below.
Long Press Duration	5... 50 ...100 x0.1 s	It is used to determine long press duration for any button to deactivate Cleaning Mode.
IF Object & Button Long Press Selected		
DPT Cleaning Mode Object	0 = Disable; 1 = Enable 0 = Enable; 1 = Disable	This parameter is used to determine the object type for cleaning mode object.
LED Feedback	All On/Off Toggle All On Color Showcase	This parameter is used to determine LED Feedback when Cleaning mode activated. All On/Off Toggle: All LEDs blinking All On: All LEDs fixed Color Showcase: All LEDs color changes every 2 s.
Color	Red , Yellow, Green, Cyan, Blue, Magenta, White	All LEDs color when Cleaning Mode activated.
Timeout	0...65535 s	This parameter determines the Cleaning Mode active duration. 0(zero) : Always Active
Long Press Button	Button 1...6	Assign a button to activate Cleaning Mode.
Long Press Duration	5... 50 ...100 x0.1 s	It is used to determine long press duration for any button to deactivate Cleaning Mode.
Exit Cleaning Mode by Long Pressing	No Same Button Any Button	Cleaning Mode deactivation type can be selected here.

4.4.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
73	Cleaning Mode	0=Disable; 1=Enable	1 bit DPT 1.003	CW
		0=Enable; 1=Disable	1 bit DPT 1.006	
This object activates the Cleaning Mode to prevent unwanted control during cleaning the device.				

4.5. Sensors

These parameters are used to select Ambient Light dimming or Proximity dim.

4.5.1. Ambient Light

This function allows the LED dimming change according to Day or Night time via own com object.

4.5.1.1. Parameters

Parameter	Setting	Description
AMBIENT LIGHT (Day/Night)		
Ambient Light Detection	unchecked / checked	This parameter activates auto-dim according to Day and Night states.
Day/Night Source	Object (External)	Day/Night states are changing via a group object.
DPT Day/Night Object	0 = Day; 1 = Night 0 = Night; 1 = Day	This parameter determines the object value for Day and Night.
Day/Night State after KNX Bus Recovery	Reset / Keep	This parameter is used select the Ambient Light state after KNX bus recovery.

4.5.1.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
79	Day/Night	0=Day; 1=Night	1 bit DPT 1.001	CW(T)
		0=Night; 1=Day	1 bit DPT 1.006	
This object switches Day and Night information thru com object. Device LEDs will be dimmed UP or DOWN If Ambient Light dim is properly configured.				

4.5.2. Proximity

This function is used to dim the LEDs when device not using for a certain time.

4.5.2.1. Parameters

Parameter	Setting	Description
PROXIMITY (Presence/Absence)		
Proximity Detection	unchecked / checked	This parameter activates auto-dim according to proximity state.
Proximity Source	Button Press , Object, Button Press and Object	This parameter is used select the proximity type.
Presence Timeout	1... 10 ...255 s	This parameter defines the timeout for Presence. When it is reached, the device will be in Absent mode and dimming will be applied.
Send Proximity Status	unchecked / checked	This parameter is used to send Proximity status via group object.
Proximity Object	Single Generator , Multi Generator	This parameter is used to select the sending/receiving type of proximity
Presence Transmit Repeat Interval	0 ...255 s	This parameter is used to determine the repeat interval for proximity status.
Proximity Generator ID	1 , 2, 3	This parameter will be shown if "Send Proximity Status" function box is checked. It is used for Multi Generator ID assignment. Sends 1-byte object.
Object Monitoring Timeout	0 ...255	This parameter is used to determine the timeout for proximity object receiving. Device will be in Absence mode end of the time if there is no presence.

4.5.2.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
80	Proximity	0=Absence; 1=Presence	1 bit DPT 1.011	CT
				CW
				CWT
		BIT6: 0=Presence; 1=Absence	1 Byte DPT 26.001	CT
				CW
				CWT
This object is used between devices to activate/deactivate Proximity dim simultaneously.				

4.5.3. Humidity

This parameter page is used to configure humidity options such as alarms, offset and vice versa.

4.5.3.1. Parameters

Parameter	Setting	Description
Offset	-128... 0 ...127 x0.1%RH	This parameter is used to change offset of transmitting humidity.
Send Humidity	Cyclic Cyclic and Change	This parameter is used select humidity transmitting method.
Cyclic Sending Interval	0... 60 ...65535 s	This parameter defines the wait time between two humidity information transmitting automatically via com object.
Minimum Change	1 ...100 %RH	This parameter is shown If Send Humidity selected as Cyclic and Change . Humidity information will be sent immediately If it changes positively/negatively as Minimum Change value.
Alarm Objects	unchecked / checked	This parameter is used to activate alarms in case of High/Low humidity levels.
High Humidity Alarm	0... 60 ...100 %RH	This parameter is used to determine the high humidity level.
Low Humidity Alarm	0... 30 ...100 %RH	This parameter is used to determine the low humidity level.
Alarm Exit Hysteresis	0... 1 ...100 %RH	This parameter is used to determine the hysteresis to prevent alarm- no alarm oscillation.
Alarm Delay	0 ...65535 s	Wait time after High or Low humidity level reached. 0(zero) : No wait
Send Alarm Cyclic	Never Alarm States only No Alarm & Alarm States	It is used to transmit alarm information in a certain period. Alarm States only : Alarm info will be transmitted when High/Low Humidity levels reached only. No Alarm&Alarm States: Alarm info always will be sent whether the alarm is triggered or not.
Cyclic Sending Interval	1... 60 ...65535 s	Alarm info transmitting period.
Send Humidity on Alarm	unchecked / checked	Humidity info also will be transmitted additionally beside of Alarm information.

4.5.3.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
84	Humidity	0...100%RH	2 Byte DPT 9.007	CRT
Humidity information object.				
85	Low Humidity Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
Sends 1 if Low Humidity Level is reached.				
86	High Humidity Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
Sends 1 if High Humidity Level is reached.				

4.5.4. Dew Point

4.5.4.1. Parameters

Parameter	Setting	Description
Dew Point Temperature Unit	Celsius(°C) / Fahrenheit(°F)	This parameter is used to change temperature unit between celsius and fahrenheit.
Send Dew Point Temperature	Cyclic Cyclic and Change	This parameter is used select dew point temperature info transmitting method.
Cyclic Sending Interval	0... 60 ...65535 s	This parameter defines the wait time between two dew point temperature information transmitting automatically via com object.
Minimum Change	1...255 x0.1K	This parameter is shown If Send Dew Point Temperature is selected as Cyclic and Change . Temperature information will be sent immediately If it changes positively/negatively as Minimum Change value.
Alarm Object	unchecked / checked	This parameter is used to activate alarms in case of Dew Point Temperature reachment.
Alarm Threshold	0... 20 ...255 x0.1K	This parameter is used to determine the threshold between Ambient and *Dew Point Temperatures.
Alarm Exit Hysteresis	0... 10 ...255 x0.1K	This parameter is used to determine the hysteresis to exit alarm.
Alarm Delay	0...65535 s	Wait time for alarm if Dew Point Temp is in threshold value. 0(zero) : No wait
Send Alarm Cyclic	Never Alarm States only No Alarm & Alarm States	It is used to transmit alarm information in a certain period. Alarm States only : Alarm info will be transmitted when High/Low Humidity levels reached only. No Alarm&Alarm States: Alarm info always will be sent whether the alarm is triggered or not.
Cyclic Sending Interval	1... 60 ...65535 s	Alarm info transmitting period.
Send Dew Point Temperature on Alarm	unchecked / checked	Humidity info also will be transmitted additionally beside of Alarm information.
*: Dew Point Temperature calculation must be done with this formula. $Td = T - (100 - RH) * 0,2$		

4.5.4.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
87	Dew Point Temperature	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
It is calculated with Ambient Temperature and Humidity. Here is the formula to obtain Dew Point Limit Temperature. $Td = T - (100 - RH) * 0,2$				
88	Dew Point Alarm	0=No Alarm; 1=Alarm	1 bit DPT 1.005	CRT
It sends 1 in case of alarm triggered.				

4.6. Switch

Select the desired operation from the “Button N” (N: Button number) parameter in General Tab in ETS Configuration. Push buttons have functions as switch, switch and dim, shutter and value operation. Push buttons are numbered and can be shown in General Tab. Every function enables different parameters and communication objects that will be explained in the following chapters.

LED Status	Brightness	Color
ON	Bright , Dark, Custom, Max, Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom
OFF	Bright, Dark, Custom, Max, Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom
Disabled	Bright, Dark, Custom, Max, Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom

Parameter	Settings	Description
Name	Max. 32 Characters	Button name can be entered optionally. Written characters will be shown on left menu tabs right near of “Button x” tabs. Ex. Button 2 Kitchen
BUTTON LOCK		
Button Lock Object DPT	0 = Unlock; 1 = Lock 0 = Lock; 1 = Unlock	Selects object type for lock object.
Button Lock Object Transmits Status	unchecked / checked	Lock state will be transmitted via Lock Object itself.
Lock State after KNX Bus Recovery	Reset / Keep	Lock state can be selected after bus return.
LED Function when Locked	Active / Disable	Enable or disable LED feedback from the button.
FUNCTION		
Button Function	No Function Switching Dimming Shutter Value Operation	This parameter is used to select button functional according to demands. The functions will be explained below.

Push buttons also have status LEDs which can be configured to indicate state of the operation that is configured.

4.6.1. Switch Function

Selecting “Switch” as “Push Button Function” enables to send 1 bit On(1)/Off(0) telegrams to the group address that is linked to respective communication object. Touching and releasing buttons can be assigned to different commands (On, Off, Toggle and No Command). Status LEDs can be configured to notify the current status of operation directly with buttons or using communication objects for confirmation to show current status.

4.6.1.1. Parameters

Parameter	Settings	Description
Command on Press	On / Off / Toggle / No command	Selects button function when button touched.
Command on Release	On / Off / Toggle / No command	Selects button function when button released.
Separate Switch Status Object	checked / unchecked	This parameter defines the additional object to write switch status.
Function of LED	LED Status ON LED Status OFF Operation Indication Status Indication Inverted Status Indication	This parameter is used to select status LED function of button.

4.6.1.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
1, 7, 13, 19, 25, 31	Button 1...6 [Press]	Switching --> On/Off	1 bit DPT 1.001	CT
	Button 1...6 [Release]	Switching <-> On/Off & Status	1 bit DPT 1.001	CWT
	Button 1...6 [Press/Release]			
4, 10, 16, 22, 28, 34	Button 1...6 Status	Switching <-- On/Off Status	1 bit DPT 1.001	CW
5, 11, 17, 23, 29, 35	Button 1...6 LED Status	[0, 1]	1 bit DPT 1.001	CW
6, 12, 18, 24, 30, 36	Button 1...6 Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW
	Button 1...6 Lock (T)	0=Lock; 1=Unlock	1 bit DPT 1.001	CRWT

4.6.2. Dimming Function

When push button function selected as “Switch and Dim” push button can be configured in three different ways to control brightness value.

Function	Short Touch	Long Touch
Darker(Short Touch Off)	Off (%0)	Decrease, (%XX)
Brighter(Short Touch On)	On(%100)	Increase,(%XX)
Darker/Brighter(Short Touch Toggle)	Toggle between Darker/Brighter	Decrease, (%XX) / Increase,(%XX)

%XX values can have different values relative to the “Dimming Type” parameter. “Dimming Type” parameter allows two different types of dimming functionality “Start Stop” and “Step Wise”.

Dimming - Start Stop Type

When push button touched (and not released) and touched duration exceeds “Long Touch Duration” time “Increase, %100” (When button in Brighter mode) or “Decrease, %100” (When button in Darker mode) dimming level will be send using respective communication object. When button released “Increase, Break” or “Decrease, Break” value will be sent.

Dimming - Step Wise Type

When push button touched (and not released) and touched duration exceeds “Long Touch Duration” time, a step value level configured in “Step Value” parameter will be send using respective communication object. If button mode is “Darker”, “Decrease, % [Step Value]”, else button mode is “Brighter”, “Increase, % [Step Value]” values will be sent. Until button is released same step value will be send periodically with a time interval defined in “Step Send Interval”.

4.6.2.1. Parameters

Parameter	Settings	Description
Dim Operation	Darker (Short Touch Off) Brighter (Short Touch On) Darker/Brighter (Short Touch Toggle)	Select push button dim operation. (Explained on Chapter 4.4.2)
Dim Direction after Switching On	Darker / Brighter	Dim direction can be selected after switching on the light(s).
Long Press Duration	100ms ... 500ms ... 10s	Long Press time to start dimming.
Dimming Type	Start Stop / Step Wise	Select dimming type. (See Chapter 4.6.2)
Step Value	%100 / %50 / %25 / %12.5 / %6.25 / %3.13 / % 1.56	Visible when Dimming Type is Step Wise . Selects the dimming resolution that will be sending at every " Step Send Interval ".
Step Send Interval	100ms ... 1s ... 10s	Visible when Dimming Type is Step Wise . Selects the time interval to send dimming increase/decrease values periodically.
Separate Switch Status Object	checked / unchecked	This parameter defines the additional object to write switch status.
Function of LED	LED Status ON LED Status OFF Operation Indication Status Indication Inverted Status Indication	This parameter is used to select status LED function of button.

4.6.2.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
1, 7, 13, 19, 25, 31	Button 1...6 [Short Press]	Dimming --> On/Off	1 bit DPT 1.001	CT
		Dimming <--> On/Off & Status	1 bit DPT 1.001	CWT
2, 8, 14, 20, 26, 32	Button 1...6 [Short Press]	Dimming --> Dim [+/-]	4 bit DPT 3.007	CT
3, 9, 15, 21, 27, 33	Button 1...6 [Double Press]	Dimming --> Rel. Dim [+/-]	4 bit DPT 3.007	CT
		Dimming --> Abs. Dim [%]	1 Byte DPT 5.001	CT
		Dimming <--> Abs. Dim [%]	1 Byte DPT 5.001	CWT
		Dimming --> Color Temperature	2 Byte DPT 7.600	CT
		Dimming <--> Color Temperature	2 Byte DPT 7.600	CWT
4, 10, 16, 22, 28, 34	Button 1...6 Status	Dimming <-- On/Off Status	1 bit DPT 1.001	CW
6, 12, 18, 24, 30, 36	Button 1...6 Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW
	Button 1...6 Lock (T)	0=Lock; 1=Unlock	1 bit DPT 1.001	CRW

4.6.3. Shutter

Selecting “Shutter” for “Push Button Function” enables shutter operation for push buttons. Shutter functions can be configured to control two different shutter operations “Shutter/Venetian Blind” function or “Blind/Roller/Awning” function. In both functions push button can be configured as 3 different button function; Up, Down and Toggle. When push button selected as up or down, that button can only move the blind and lamella to the configured direction. For example, if configured as up button, push button can be used to move the blind up and adjust the lamella down. If push button configured as toggle button, single button can be used to move the blind up – down and adjust lamella up – down.

Venetian Blind Function

When “Controller Type” configured as “Shutter/Venetian Blind”, lamella operations of blind control will be enabled as “short press” function of the push button. Also, “Button Function” parameter enables the use of push button 3 different ways;

Up: “Long Press” moves the blind upwards; “Short Press” operates two different ways, short pressed while the blind is moving, stops the blind, short pressed while the blind is not moving adjust the lamella position down.

Down: “Long Press” moves the blind downwards; “Short Press” operates two different ways, short pressed while the blind is moving, stops the blind, short pressed while the blind is not moving adjust the lamella position up.

Toggle: “Long Press” moves the blind upwards or downwards toggling the last “Long Press” action. For example, if last state was up, when push button long pressed, it will send “Down” telegram.

Every time push button long pressed it will toggle its last state. If push button short pressed while the blind is moving upward or downward “Short Press” will stop the blind, if the blind is not moving “Short Press” will adjust the lamella. Lamella adjustment will operate respective to the last state, for example if the last “Long Press” action was up, then lamella will be adjusted down when push button short pressed and if the last “Long Press” action was down, then lamella will be adjusted up when push button short pressed.

Roller Shutter

When “Controller Type” configured as “Blind/Roller/Awning Function” lamella operations of blind control will be disabled and “short press” will only stop the movement of the blind. “Button Function” parameter enables the use of push button 3 different ways;

Up: “Short Press” moves the blind upwards; “Short Press” stops the blind.

Down: “Short Press” moves the blind downwards; “Short Press” stops the blind.

Toggle: “Short Press” action moves the blind downwards – stops – upwards – stops.

For example, if last state was up, when push button short pressed it will send “Stop” telegram.

Every time push button short pressed it will follow the steps below.

Down -> Stop -> Up -> Stop

Note: If Top or Bottom Position object gets a value “1” and short pressed, blind will be driven opposite way.

4.6.3.1. Parameters

Parameter	Settings	Description
Push Button Function	Up / Down / Toggle	See Chapter 4.6.3
Control Type	Venetian Blind Roller Shutter (button-operation) Roller Shutter (switch-operation)	Selects control type of blinds. Venetian Blind function has Lamella Control additionally unlike the Roller Shutter .
Long Press Duration	100ms ... 500ms ... 10s	Wait time for long press action. This parameter will be shown if Control Type is selected as Venetian Blind .
Short Press Action on (Roller Shutter Button Operation only)	Press / Release	This is used to determine the short action type. Press: Short Press action will be executed as soon as you touch the button. Release: Short Press action will be executed while releasing button after press.
Function of LED	LED Status ON LED Status OFF Operation Indication Status and Movement Indication Inverted Status and Movement Indication Movement Indication	This parameter is used to select status LED function of button.

4.6.3.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
1, 7, 13, 19, 25, 31	Button 1...6 [Long Press] Button 1...6 [Press] Button 1...6 [Release]	Shutter <-> Up/Down	1 bit DPT 1.008	CWT
2, 8, 14, 20, 26, 32	Button 1...6 [Press] Button 1...6 [Release] Button 1...6 [Short Press]	Shutter <-> Stop Shutter <-> Stop/Adjust	1 bit DPT 1.017 1 bit DPT 1.007	CWT CWT
3, 9, 15, 21, 27, 33	Button 1...6 Status	Shutter <-- Top Position	1 bit DPT 1.002	CW
4, 10, 16, 22, 28, 34	Button 1...6 Status	Shutter <-- Bottom Position	1 bit DPT 1.002	CW
6, 12, 18, 24, 30, 36	Button 1...6 Lock Button 1...6 Lock (T)	0=Unlock; 1=Lock 0=Lock; 1=Unlock	1 bit DPT 1.001 1 bit DPT 1.001	CRW CRW

4.6.4. Value Operation

Push button can be configured to send predefined values from different Data Types. Additionally, long, short or double press actions can be selected for each Value transmitting individually. Up to 4 value can be sent via one button.

4.6.4.1. Parameters

Parameter	Settings		Description
Value 1	None / Short Press / Double Press / Triple / Long Press (Start) / Long Press Repeat / Long Press Release (Stop)		Value transmitting methods can be selected.
Value 2	None / Short Press / Double Press / Triple / Long Press (Start) / Long Press Repeat / Long Press Release (Stop)		
Value 3			
Value 4			
Data Type	1-bit 1-bit HVAC control mode 1-bit toggle 2-bit priority control 4-bit dimming control 4-bit blind control 1-byte unsigned 1-byte signed 1-byte HVAC opr. mode 1-byte percentage	1-byte counter/sequence 1-byte scene activate 1-byte scene learn 2-byte unsigned 2-byte signed 2-byte float 3-byte color 4-byte unsigned 4-byte signed 4-byte float	Data type can be selected individually for each Value field.
Value	0/1		Visible when “Data Type” selected as “1 bit value”.
	Cool / Heat		Visible when “Data Type” selected as “1 bit HVAC C. Mode”.
	00b No Priority, OFF / 01b No Priority, ON 10b Priority, OFF / 11b Priority, ON		Visible when “Data Type” selected as “2 bit priority control”.
	Decrease, Break / Decrease, 100 % ... 1% Increase, Break / Increase, 100% ... 1%		Visible when “Data Type” selected as “4 bit dimming control”.
	Up, Break / Up, 100 % ... 1% Down, Break / Down, 100% ... 1%		Visible when “Data Type” selected as “4 bit blind control”.
	0...255		Visible when Data Type is selected as “1-byte unsigned”
	-128...0...127		Visible when Data Type is selected as “1-byte signed”
	Auto / Comfort / Standby / Economy / Building Protection		Visible when Data Type is selected as “1-byte HVAC operating mode”
	0...100 %		Visible when Data Type is selected as “1-byte percentage”
	0...65535		Visible when Data Type is selected as “2-byte unsigned”
	–32768...0...32767		Visible when Data Type is selected as “2-byte signed”
	–671088...0...670760		Visible when Data Type is selected as “2-byte float”

Parameter	Settings	Description
Value	#000000...#FFFFFF	Visible when Data Type is selected as "3-byte color"
	0...4294967295	Visible when Data Type is selected as "4-byte unsigned"
	-2147483648...0...2147483647	Visible when Data Type is selected as "4-byte signed"
	-1E+38...0...1E+38	Visible when Data Type is selected as "4-byte float"
Begin	0/1	Visible when Data Type is selected as "1-bit toggle"
	0...255	Visible when Data Type is selected as "1-byte counter/sequence"
End	0...255	
Step	0...1...255	
Step Direction	Up / Down	
Counting Sequence	Cyclic / Non-Cyclic	
Scene	1...64	Visible when Data Type is selected as "1-byte scene activate"
		Visible when Data Type is selected as "1-byte scene learn"
Multi Press Timeout	20...200 x10 ms	Double or Triple press action time period.
Long Press Duration	100ms...500ms...10s	Select time period for long press operation
Repeat [Long Press] Telegram	checked / unchecked	Visible if any Long Press action selected. Long Press values will be sent cyclically depends on interval unless releasing.
Long Press Repeat Interval	100ms...200ms...10s	This parameter is used to set interval timing for long press repeating.
Function of LED	LED Status ON LED Status OFF Operation Indication Status Indication Inverted Status Indication	This parameter is used to select status LED function of button.
LED Blinking when Status ON	checked / unchecked	This parameter is visible when Function of LED selected as Status Indication . This parameter activate blinking instead of fixed lighting if LED Status com object state is ON .
Show Infor	checked / unchecked	This parameter activates notes how the button actions work.

4.6.4.1. Communication Objects

No	Object Name	Function	Data Point Type	Flags
1, 7, 13, 19, 25, 31	Button 1...6 [Short Press 1...4] Button 1...6 [Double Press 1...4] Button 1...6 [Triple Press 1...4] Button 1...6 [Long Press 1...4] Button 1...6 [Long Press Repeat 1...4] Button 1...6 [Long Press Release 1...4]	Value --> 1-bit	1 bit DPT 1.001	CT
2, 8, 14, 20, 26, 32		Value --> 1-bit HVAC Control Mode	1 bit DPT 1.100	CT
3, 9, 15, 21, 27, 33		Value <--> 1-bit toggle	1 bit DPT 1.001	CT
4, 10, 16, 22, 28, 34		Value --> 2-bit priority control	2 bit DPT 2.001	CT
		Value --> 4-bit dimming control	4 bit DPT 3.007	CT
		Value --> 4-bit blind control	4 bit DPT 3.008	CT
		Value --> 1-byte unsigned	1 Byte DPT 5.010	CT
		Value --> 1-byte signed	1 Byte DPT 6.010	CT
		Value --> 1-byte HVAC Mode	1 Byte DPT 20.102	CT
		Value --> 1-byte percentage	1 Byte DPT 5.001	CT
		Value <--> 1-byte counter/sequence	1 Byte DPT 5.010	CWT
		Value --> 1-byte scene activate	1 Byte DPT 18.001	CT
		Value --> 1-byte scene learn	1 Byte DPT 18.001	CT
		Value --> 2-byte unsigned	2 Byte DPT 7.001	CT
		Value --> 2-byte signed	2 Byte DPT 8.001	CT
		Value --> 2-byte float	2 Byte DPT 9.001	CT
		Value --> 3-byte color	3 Byte DPT 232.600	CT
		Value --> 4-byte unsigned	4 Byte DPT 12.001	CT
		Value --> 4-byte signed	4 Byte DPT 13.001	CT
		Value --> 4-byte float	4 Byte DPT 14.005	CT
5, 11, 17, 23, 29, 35	Button 1...6 LED Status	[0,1]	1 bit DPT 1.001	CW
Confirmation for On/Off switch telegrams will be received from this communication object. If these communications object visible, it must link to an appropriate group address. Otherwise status LEDs will not function correctly.				
6, 12, 18, 24, 30, 36	Button 1...6 Lock	0=Unlock; 1=Lock 0=Lock; 1=Unlock	1 bit DPT 1.001 1 bit DPT 1.006	CRW (T)
	Button 1...6 Lock(T)			
Push button can be locked/unlocked via this object. Additionally, Switch Lock status can be taken via same object.				

4.7. Thermostat

4.7.1. Temperature Sensor

Temperature sensor and temperature status parameters should be configured from “Temperature Sensor” tab.

4.7.1.1. Parameters

Parameter	Settings	Description
Temperature Unit	Celsius(°C) / Fahrenheit(°F)	Select temperature unit. After selection, all temperature related parameters and communication objects should be entered as selected unit.
LCD Temperature Unit Object	checked / unchecked	Temperature unit can be changed via object.
DPT of Object	0 = Celsius; 1 = Fahrenheit 0 = Fahrenheit; 1 = Celsius	Object type of LCD Temperature Unit Object .
LCD Initial Temperature Unit	Same / Celsius / Fahrenheit / Keep Previous	LCD Temperature Unit Type after bus return.
Internal Sensor Offset	-128... 0 ...127 x0.1K	Offset value entered here will be added to measured temperature. It can be used to compensate for temperature difference caused by thermostat placement. Entered value will be multiplied with 0.1
Send Temperature	Cyclic / Cyclic and Change	Selects whether temperature will be sent periodically or periodically and in case of a change in temperature. Minimum change value defined in “Minimum Difference” parameter.
Cyclic Sending Interval	10... 30 ...65535 s	Cyclic time period to send temperature from “Current Temperature” communication object.
Minimum Change	1 ...255 (0.1K)	Only visible if “Send Temperature” selected as “Cyclic and Change”. Selects minimum change in temperature that will trigger transmission of temperature.
Internal Sensor Low-Pass Filtering	checked / unchecked	This parameter is used to regulate internal sensor temperature readings.
Time Constant	2 ...20	This parameter determines the period to calculate and takes the average of temperature readings in that period. Higher values greater but the slowest.
Temperature Measurement	Internal Sensor External Sensor Weighted Average	Temperature info can be taken from internal, external KNX temp sensor or weighted average of both sensors. If External or Weighted is selected, “ External Temperature Sensor ” group object will be appeared.
External Sensor Temp. Unit	Celsius Fahrenheit Same	External sensor temp unit can be set as desired. If the “ Same ” is selected, the temp unit will be the same as well as Main Temperature Unit.
External Sensor Monitoring Timeout	15... 30 ...65535 s	If “ External Temperature Sensor ” object value has not been updated at the end of the monitoring timeout, the temperature reading will fall back to Internal Sensor.

Parameter	Settings	Description
External Sensor Weight	1... 50 ...99 %	This parameter appears when the Temperature Measurement is selected as " Weighted Average ". In this case, External Temperature value weightness can be selected. For e.g. Weight is 20% , Internal Sensor is 24°C and External Sensor is 26°C. The result will be = $(24 \times 0.8) + (26 \times 0.2) = \mathbf{24.4^{\circ}C}$
Temperature Shown on LCD	Internal Sensor External Sensor	This parameter allows to show current temperature from Internal or External Sensor on LCD Screen
Temperature Shown on KNX	Internal Sensor External Sensor	This parameter allows to show current temperature from Internal or External Sensor via KNX object "Current Temperature.
Spot Temperature Sensor	Disabled / via Spot Temperature Sensor / via Spot Heat/Cool Protection Objects	This parameter allows the limit the room temperature via using an external KNX Temperature sensor or according to Heat/Cool Protection objects. It is using for heat / cool protection. When the heat or cool limit temperature is reached or Heat/Cool protection objects enabled, the thermostat controller output will be set to zero. When this parameter is activated, a " Spot Temperature Sensor " object will be appeared.
Monitoring Timeout	15... 60 ...65535 s	If "Spot Temperature Sensor" object value has not been updated at the end of the monitoring timeout, the temperature reading will fall back to Internal Sensor.
Display LCD Warning Icon	No Icon ON Icon Blinking Icon Blinking Override	This parameter is used select warning icon on LCD Display during spot protection.
<i>via Spot Temperature Sensor</i>		
Sensor Temp. Unit	Celsius Fahrenheit Same	Spot sensor temp unit can be set as desired. If the " Same " is selected, the temp unit will be the same as well as Main Temperature Unit.
Heat Limit Temperature	0... 28 ...255 K	Heat Protection Value of Spot Temperature Sensor
Cool Limit Temperature	0... 18 ...255 K	Cool Protection Value of Spot Temperature Sensor
Limit Protection Deactivation Hysteresis	1... 20 ...255 x0.1K	This parameter determines the heat/cool limit deactivation hysteresis levels. It prevents switching between protection and regular mode due to small temperature changes.
Limit Protection Activation Delay	0 ...65535 s	This parameter determines the switching delay to protection mode when the limit reached. It prevents switching between protection and regular mode due to limit temperature reaching for a short time.
Monitoring Timeout	15... 60 ...65535 s	If "Spot Temperature Sensor" object value has not been updated at the end of the monitoring timeout, the temperature reading will fall back to Internal Sensor.
Display LCD Warning Icon	No Icon ON Icon Blinking Icon Blinking Override	This parameter is used select warning icon on LCD Display during spot protection.

Parameter	Settings	Description
Protection Activation Delay	0...65535	This parameter is used to determine delay time when Spot Protection object value written as Enable . 0(zero) = Instant Activation

4.7.1.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
113	Ambient Temperature	°C	2 Byte DPT 9.001	CRT
		°F	2 Byte DPT 9.027	CRT
This group object informs current temperature of room.				
114	External Temperature Sensor	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
This group object is used to gather temperature information from another source.				
115	Spot Temperature Sensor	°C	2 Byte DPT 9.001	CW
		°F	2 Byte DPT 9.027	CW
This group object is used to gather temperature information from another source. Additionally, it has special function belongs to Spot Temperature function.				
115	Spot Heat Protection	0=Disable; 1=Enable	1 bit DPT 1.003	CRW
116	Spot Cool Protection	0=Disable; 1=Enable	1 bit DPT 1.003	CRW
This group objects activates/deactivates special function of Spot Temperature function.				

4.7.2. Thermostat

Parameters related to thermostat control should be configured in this tab. Whether thermostat will be used for heating, cooling or both and heating, cooling or both with additional stage should be selected here. When any control is activated a new tab will be open under “Thermostat Parameters” tab. Controller operation should be configured in respective tabs for heating, cooling and if enabled fan control. When control mode selected as “Heat/Cool”, configuration parameters for switchover (transition from heating to cooling or vice versa) conditions should be entered here.

4.7.2.1. Parameters

Parameter	Settings	Description
Control Mode	Heat Cool Heat/Cool Heat with Additional Stage Cool with Additional Stage Heat/Cool with Heat Additional Stage Heat/Cool with Cool Additional Stage Heat/Cool with Heat/Cool Additional Stage	This parameter allows to choose the control mode of thermostat which is used for heating only, cooling only or both and heating, cooling or both with additional stages.
Control Objects of Main Stage	Seperate / Joint	Only visible when “Control Mode” is “Heat/Cool” or “Heat/Cool w/Additional Stage”. This parameters allows to choose the control objects of Main Stage are merged or not.
Control Objects of Additional Stage	Seperate / Joint	Only visible when “Control Mode” is “Heat/Cool with Heat/Cool Additional Stage”. This parameters allows to choose the control objects of Additional Stage are merged or not.
Manual Stage Control	checked / unchecked	This parameter activates to manual control to switch between Main and Additional stages.
Stage Selection	[2 Way] Main <-> Main + Add. [3 Way] Main <-> Add. <-> Main + Add.	Selects the stage switching types.
DPT Stage Select Object	Individual (1-bit) Enumerated (1-byte) Step [+/-]	Select the group object type for switching the stages. [2 Way only]
DPT Stage Select Object	Enumerated (1-byte) Step [+/-]	Select the group object type for switching the stages. [3 Way only]
DPT Status Object	Individual (1-bit) Enumerated (1-byte)	Select the status group object type of stage selection.
Status Object Feedback	On Change Always	Select the status group object sending type.

Parameter	Settings	Description
CONTROL MODE (Heat, Cool, Heat/Cool)		
Switchover Method	Automatic Manual (via Object) Manual (Local and via Object)	Selects whether control mode switchover will be controlled by thermostat or controlled manually using related communication object or local button.
Automatic Switchover in Building Protection Mode	Enable / Disable	This parameter is used to activate Automatic Switchover during Protection Mode even if Switchover Method is Manual .
Heat/Cool Switchover Hysteresis (+/-)	5... 15 ...255 x0.1K	This parameter allows to set Temperature difference between ambient temperature and setpoint temperature to change Control mode. When the difference value is reached, the control mode will be changed automatically (if control mode switchover is automatic) or Heating or Cooling control will be shut down until the Control Mode change manually.
DPT Switchover Object	1 Bit [DPT_Heat/Cool] 1 Byte [DPT_HVAC_Control_Mode]	Selects the control mode switchover communication object type.
Switchover Cyclic Sending Interval	1... 5 ...255 min	Selects cyclic time period (in minutes) to transmit control mode switchover object.
Operating Mode (Comfort, Night, Away, Protect)		
Operating Modes	Comfort Comfort, Protection Comfort, Night, Protection Comfort, Night, Away, Protection	This parameter allows to select Operating Modes.
DPT Operating Mode Object	1 Byte [DPT_HVAC_Mode] Bit Objects	Selects the data type for operating mode switchover communication objects type.
DPT Operating Mode Status Object	1 Byte [DPT_HVAC_Mode] Bit Objects	Selects the data type for operating mode status communication objects type.

4.7.2.2. Control Types

Thermostat uses 5 different control types; these are PI Continuous, PI-PWM, On/Off, Fan Coil and Split. This control types can be used for Additional Control as well. Operation of every control type will be explained in the following chapters.

	Control Type	Output Type	Fan
PI Continuous	PI	1 byte (%0...%100)	Disabled
PI-PWM	PI	1 bit (On - Off)	Disabled
On/Off	On/Off	1 bit(On - Off)	Disabled
Fan Coil	PI	1 byte (%0...%100)	Enabled
Split	None	None	Enabled

Table 28

4.7.2.2.1. Main Stages

4.7.2.2.1.1. PI Continuous

Uses PI algorithm to calculate control signal and 1 byte (%0...%100) floating values as output, PI values should be selected compatible with the room that wants to be controlled. Default values are given for an average room and for different rooms PI values must be readjusted for better performance. As a general rule;

KP value: Changes the speed of the control and decreasing KP value increase the control speed. If given too low might cause overshoot, and given too large cause control to operate too slow.

KI value: More inactive the system smaller KI value should be.

Note finding optimum values for a specific room might require some trial and error. Using default values as a reference point and increase and decreasing these values according to the directions given above might increase controller performance.

4.7.2.2.1.2. PI PWM

Uses PI algorithm as controller to calculate control signal and 1 bit value as output, since PI algorithm outputs 1 byte floating value PWM method used to realize this output as 1 bit. PWM (Pulse with Modulation) requires a PWM cycle as period and uses control output to calculate duty cycle. For example, PWM cycle: 10 min, PI output: %20, Then an “on” telegram will be send at the beginning of 10 min cycle and “off” telegram at $10 \times 20 / 100 = 2$ min. Note that PI values and PWM cycle should be selected appropriate to room. As a general rule more inactive the system larger the PWM cycle should be.

4.7.2.2.1.3. On/Off

On/Off controller operate as a simple switch around the given setpoint using hysteresis values. Hysteresis values prevent the thermostat from oscillation and give larger margin to turning heat or cool on or off. When system is more active hysteresis values should be given larger and more inactive values can be given smaller.

4.7.2.2.1.4. Fan Coil

Fan coil uses the same control type and same output type as “PI Continuous”, only difference fan coil enables “Fan Control” parameters and communication objects

4.7.2.2.1.5. Split Unit

Split controller does not control directly the split AC, so ambient temperature must be controlled by split AC's controller. Therefore, “Ambient Temperature” and “Setpoint Temperature” of split ACs communication objects should be linked to “Current Temperature” and “Current Setpoint” communication objects. Otherwise, split unit will be unaware of setpoint and ambient temperature and temperature control will not function correctly.

“Split Heat” and “Split Cool” communication objects are given to only to notify the split AC when there is a control mode change (heat - cool). Also, If both heating and cooling controller is configured as “Split Unit”, “Split Heat/Cool” communication object can be merged in “Thermostat Parameters”.

4.7.2.2.2. Additional Stages

Additional stages can be combined with 5 different ways which are heating with additional heating, cooling with additional cooling, heat/cool with additional heating, heating/cooling with additional cooling and heating/cooling with additional heating/cooling.

Additional stages can be activated always with main controller stage or difference to setpoint or manually.

4.7.2.2.2.1. PI Continuous Additional Stage

This control type is the same as PI-Continuous except activation process. The activation process will be explained below.

4.7.2.2.2.2. PI PWM Additional Stage

This control type is the same as PI-PWM except activation process. The activation process will be explained below.

4.7.2.2.2.3. On/Off Additional Stage

This control type is the same as On/Off except activation process. The activation process will be explained below.

4.7.2.2.2.4. Fan coil Additional Stage

This control type is the same as Fan Coil except activation process. The activation process will be explained below.

4.7.2.2.2.5. Split Unit Additional Stage

This control type is the same as Split Unit except activation process. The activation process will be explained below.

4.7.2.2.3. Heating Control Main Stages

Selection of the heating control type, parameters of the selected control type should be configured here.

5 Heating Control types are available which are PI Continuous, PI PWM, On/Off, FanCoil and Split Unit.

4.7.2.2.3.1. PI Continuous

4.7.2.2.3.1.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is %80, then inverted output is %20.
Sending of Control Value	Cyclic / Cyclic and Change	Control values will be sent cyclically only or cyclical and "Minimum Change" of heating control value is reached.
Cyclic Sending Interval	1... 5 ...255 min	Time period to send heating control value over "Heating Control Value" communication object.
Minimum Change	1... 4 ...25 %	This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines minimum control output change for transmitting the heating control value.
Maximum Control Signal	0... 100 %	Maximum control signal value.
Minimum Control Signal	0 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1

Table 29

4.7.2.2.3.2. PIPWM

4.7.2.2.3.2.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is 1, then inverted output is 0.
PWM period	1... 10 ...255 min	This parameter determines PWM period.
Signal Minimum Switching Time	0 ...255 s	This parameter determines additional time for minimum switching time. For e.g. The valve opening delay time can be covered with this parameter.
Maximum Control Signal	0... 100 %	Maximum control signal value.
Minimum Control Signal	0... 5 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1

Table 31

*[4] "PWM Cycle" and "Minimum Control Signal" parameters should be configured considering the limitations of the actuator. For example; when actuator is Solenoid valve with a response time of 120 seconds,

- PWM cycle configured as 10 minutes
- "Minimum Control Signal" should be bigger than $120 \cdot 100 / (10 \cdot 60) = \%20$
- PWM cycle configured as 20 minutes
- "Minimum Control Signal" should be bigger than $120 \cdot 100 / (20 \cdot 60) = \%10$

4.7.2.2.3.3. On/Off

4.7.2.2.3.3.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is 1, then inverted output is 0.
Cyclic Sending Interval	1... 5 ...255	Time period to send heating control value over "Heating Control Value" communication object.
Hysteresis (1/10 K)	1... 10 ...255	Hysteresis value (Chapter 4.4.3.1.3)
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

Table 33

4.7.2.2.3.4. Fan Coil

Heating control parameters for fan coil controller type should be configured here.

4.7.2.2.3.4.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is %80, then inverted output is %20.
Sending of Control Value	Cyclic / Cyclic and Change	Control values will be sent cyclically only or cyclical and "Minimum Change" of heating control value is reached.
Cyclic Sending Interval	1... 5 ...255 min	Time period to send heating control value over "Heating Control Value" communication object.
Minimum Change	1... 4 ...25 %	This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines minimum control output change for transmitting the heating control value.
Maximum Control Signal	0 ...100 %	Maximum control signal value.
Minimum Control Signal	0 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"

Parameter	Settings	Description
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1

Table 35

4.7.2.2.3.5. Split Unit

Split unit controller does not directly control temperature, since temperature control is split unit's responsibility. "CurrentTemperature" and "CurrentSetpoint" communication objects should be linked to split units "Ambient Temperature" and "Setpoint Temperature" communication objects.

4.7.2.2.3.5.1. Parameters

Parameter	Settings	Description
Cyclic Sending Interval	1...5...255 min	Time period to send heating control value over "Heating Control Value" communication object.
Communication Error Object	Enable / Disable	Enables "Split Heat Error" communication object. "True" telegram from this communication objects cause thermostat to enter "Protection Mode" with error. (For more information Chapter 4.5.2)
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

Table 37

4.7.2.2.4. Heating Control Additional Stages

Selection of the additional heating control type, parameters of the selected control type should be configured here.

5 Additional Heating Control types are available which are PI Continuous, PI PWM, On/Off, FanCoil and Split Unit.

4.7.2.2.4.1. PI Continuous

4.7.2.2.4.1.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is %80, then inverted output is %20.
Sending of Control Value	Cyclic / Cyclic and Change	Control values will be sent cyclically only or cyclical and "Minimum Change" of heating control value is reached.
Cyclic Sending Interval	1... 5 ...255 min	Time period to send heating control value over "Heating Control Value" communication object.
Minimum Change	1... 4 ...25 %	This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines minimum control output change for transmitting the heating control value.
Maximum Control Signal	0... 100 %	Maximum control signal value.
Minimum Control Signal	0 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI / Disabled	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.

Parameter	Settings	Description
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1
Additional Stage Activation	Always / On Difference to Setpoint	Additional Stage can be activated always or depends to setpoint difference.
Activation Difference (Away from Setpoint)	10... 40 ...255 x 0.1K	Additional stage will be activated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Deactivation Difference (Close to Setpoint)	1... 10 ...255 x 0.1K	Additional stage will be deactivated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Controller Algorithm Hysteresis Override	checked / unchecked	The controller algorithm will be disabled when this parameter is selected. When this parameter is selected, the maximum control signal of additional stage will be applied.

Table 29

4.7.2.2.4.2. PIPWM

For more information how the PI parameters and PWM cycle should be selected on Chapter 4.7.2.2.2.2.

4.7.2.2.4.2.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is 1, then inverted output is 0.
PWM period	1... 10 ...255 min	This parameter determines PWM period.
Signal Minimum Switching Time	0 ...255 s	This parameter determines additional time for minimum switching time. For e.g. The valve opening delay time can be covered with this parameter.
Maximum Control Signal	0... 100 %	Maximum control signal value.
Minimum Control Signal	0... 5 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1
Additional Stage Activation	Always / On Difference to Setpoint	Additional Stage can be activated always or depends to setpoint difference.

Parameter	Settings	Description
Activation Difference (Away from Setpoint)	10... 40 ...255 x 0.1K	Additional stage will be activated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Deactivation Difference (Close to Setpoint)	1... 10 ...255 x 0.1K	Additional stage will be deactivated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Controller Algorithm Hysteresis Override	checked / unchecked	The controller algorithm will be disabled when this parameter is selected. When this parameter is selected, the control signal of additional stage will be "1" during activated.

Table 31

*[4] "PWM Cycle" and "Minimum Control Signal" parameters should be configured considering the limitations of the actuator. For example; when actuator is Solenoid valve with a response time of 120 seconds,

- PWM cycle configured as 10 minutes
- "Minimum Control Signal" should be bigger than $120 \cdot 100 / (10 \cdot 60) = \%20$
- PWM cycle configured as 20 minutes
- "Minimum Control Signal" should be bigger than $120 \cdot 100 / (20 \cdot 60) = \%10$

4.7.2.2.4.3. On/Off

Heating control parameters for on/off controller type should be configured here. For more information about on/off controller read Chapter 4.7.2.2.2.3.

4.7.2.2.4.3.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is 1, then inverted output is 0.
Cyclic Sending Interval	1... 5 ...255 min	Time period to send heating control value over "Additional Heating Control Value" communication object.
Hysteresis (1/10 K)	1... 10 ...255 x 0.1K	Hysteresis value (Chapter 4.4.3.1.3) This parameter will be enabled if the Additional Stage Activation is selected "Always"
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Additional Stage Activation	Always / On Difference to Setpoint	Additional Stage can be activated always or depends to setpoint difference.

Parameter	Settings	Description
Activation Difference (Away from Setpoint)	10... 40 ...255 x 0.1K	Additional stage will be activated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Deactivation Difference (Close to Setpoint)	1... 10 ...255 x 0.1K	Additional stage will be deactivated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1

Table 33

4.7.2.2.4.4. Fan Coil

Heating control parameters for fan coil controller type should be configured here.

4.7.2.2.4.4.1. Parameters

Parameter	Settings	Description
Control Value	Normal / Inverse	Invert the output of the controller. For example, if normal output is %80, then inverted output is %20.
Control Value	Cyclic / Cyclic and Change	Control values will be sent cyclically only or cyclical and "Minimum Change" of heating control value is reached.
Cyclic Sending Interval	1...5...255 min	Time period to send heating control value over "Heating Control Value" communication object.
Minimum Change	1... 4 ...25 %	This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines minimum control output change for transmitting the additional heating control value.
Fan Speed	Auto, Fan Speed 1, 2, 3	Fan Speed of the Additional Fan Coil can be chosen when it is activated.
Maximum Control Signal	0... 100 %	Maximum control signal value.
Minimum Control Signal	0 ...100 %	Minimum control signal value
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Controller Algorithm	PID / Alternative PI / Disabled	Controller algorithm can be selected via using this parameter.
Proportional Band	1... 30 ...255 x 0.1°C	This parameter shown when the "Controller Algorithm" is selected as "PID"
Ti	0... 60 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Td	0 ...255 min	This parameter shown when the "Controller Algorithm" is selected as "PID"
Proportional Gain KP	1... 66 ...255	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Proportional gain of PI algorithm
Integral Gain Ki	1... 32 ...255 /1000	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Integral gain of PI algorithm, given value divided by 1000.
Reverse Differential Action Band	5... 15 ...255 x 0.1	This parameter shown when the "Controller Algorithm" is selected as "Alternative PI". Reverse Differential Action Band, given value multiplied by 0.1

Parameter	Settings	Description
Additional Stage Activation	Always / On Difference to Setpoint	Additional Stage can be activated always or depends to setpoint difference.
Activation Difference (Away from Setpoint)	10... 40 ...255 x 0.1K	Additional stage will be activated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Deactivation Difference (Close to Setpoint)	1... 10 ...255 x 0.1K	Additional stage will be deactivated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Controller Algorithm Hysteresis Override	checked / unchecked	The controller algorithm will be disabled when this parameter is selected. When this parameter is selected, the control signal of additional stage will be 100% during activated.

Table 35

4.7.2.2.4.5. Split Unit

Split unit controller does not directly control temperature, since temperature control is split unit's responsibility "Current Temperature" and "Current Setpoint" communication objects should be linked to split units "Ambient Temperature" and "Setpoint Temperature" communication objects.

4.7.2.2.4.5.1. Parameters

Parameter	Setting	Description
Cyclic Sending Interval	1... 5 ...255 min	Time period to send heating control value over "Additional Heating Control Value" communication object.
Fan Speed	Auto, Fan Speed 1, 2, 3	Fan Speed of the Additional Fan Coil can be chosen when it is activated.
Spot Heat Protection	checked / unchecked	This parameter enables the Heat Protection via using Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.
Additional Stage Activation	Always / On Difference to Setpoint	Additional Stage can be activated always or depends to setpoint difference.
Activation Difference (Away from Setpoint)	10... 40 ...255 x 0.1K	Additional stage will be activated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1
Deactivation Difference (Close to Setpoint)	1... 10 ...255 x 0.1K	Additional stage will be deactivated depends on temperature difference between current temperature and setpoint. Given value will be multiplied with 0.1

Table 37

4.7.2.2.5. Cooling Control Main Stages

Cooling control Main Stage parameters are the same as Heating Control Main Stage.

4.7.2.2.6. Cooling Control Additional Stages

Cooling control Additional Stage parameters are the same as Heating Control Additional Stage.

4.7.2.3. Fan Control

When heating control or cooling control selected as “Fan Coil” or “Split Unit”, “Fan Control” tab will be visible. Note that, if both heat and cool controllers configured as “Fan Coil” or “Split Unit”, only one set of communication objects and parameters for fan control will be enabled.

When fan control enabled, “Fan Speed” parameters of different operating modes in “Setpoints” tab will also be visible and “LCD Fan Speed” icons will be activated. Since fan speed communication objects are used as control objects and status objects, change in fan speed will be visible from LCD Fan Speed icons.

4.7.2.3.1. Parameter

Parameter	Settings	Description
Fan Speeds	1, 2, 3	Selects the total fan speed count.
Automatic Fan Available	checked / unchecked	Selects the automatic fan function availability.
Send Fan Speed Cyclically	checked / unchecked	This parameter allows to transmit the fan speed status cyclically
Cyclic Sending Interval	1...5...255 min	It is used to determine period time to send Fan Speed status.
Also Send Auto-Fan Value	checked / unchecked	This parameter allows to transmit the "Fan Auto" status in every cycle.
Writing to Manual Fan Speed Objects when Automatic Fan Enabled	Disables Automatic Fan Keeps Automatic Fan Enabled	This parameter determines the automatic fan deactivation during manual fan speed changes via object.
FAN COIL		
Automatic Fan Control	External (Actuator) Internal (Thermostat)	This parameter is used to select the device which controls the Automatic Fan operation.
External (Actuator)		
Fan Turn Off Action when Control Value is 0	Send Speed=0 Send Auto=Enable Send Auto=Disable -> Speed=0 None	This parameter is used to select the Fan Turn Off action when control value is zero.
Enable Automatic Fan when Control Unit is Inactive	checked / unchecked	This parameter is shown when Fan Turn Off Action Control Value is 0 is selected as None . It is used to activate Automatic Fan function if the Control Value is zero and Fan Level is in between 1 and 3.
Fan Coil Control Style Objects Operation	Loose / Strict	Fan coil control style objects are dedicated strictly for controlling fan coil units to provide “Speed=0” fan turn off action in their inactive state when used together with split units.

Parameter	Settings	Description
Internal (Thermostat)		
Synchronize with Control Value	Internal / Transmitted	This parameter is used to select the Automatic Fan Speed threshold sources.
Hysteresis	0... 10 ...255 xCV	This parameter is used to determine hysteresis between fan speed level activations.
Minimum Switching Time	0 ...255 s	This parameter determines the minimum duration to stay in current fan level.
Fan Turn Off Action when Control Value is 0	Send Speed=0 If Auto Enabled, send Speed=0	This parameter is used to select the Fan Turn Off action when control value is zero.
Fan Coil Control Style Objects Operation	Loose / Strict	Fan coil control style objects are dedicated strictly for controlling fan coil units to provide "Speed=0" fan turn off action in their inactive state when used together with split units.
FAN OBJECTS		
DPT Automatic Fan Speed	0 = Disable; 1 = Enable [DPT_Enable] 0 = Enable; 1 = Disable	Telegram value to enable automatic fan speed might differ between different actuators; use this parameter to change the telegram value for enabling automatic fan speed.
Enumerated Object	checked (permanent object)	This parameter is used to control fan levels via 1-byte enumerated object. 0(OFF), 1, 2 or 3
Control Style	Fan Coil (0 = Speed 0) Split Unit (0 = Auto)	This parameter belongs to Enumerated Object .
Scaling [%] Object	checked / unchecked	This parameter is used to control fan levels via 1-byte percentage object. 0%(OFF), 33%(1), 66%(2) or 100%(3)
Control Style	Fan Coil (0 = Speed 0) Split Unit (0 = Auto)	This parameter belongs to Scaling [%] Object .
Bit Objects	checked / unchecked	This parameter is used to control fan levels via 1-bit objects. Each fan level has own group object.
Reset Values of Unselected Fan Objects	Yes / No	This parameter allows to transmit status of unused fan level in every fan speed change.
Additional Method for Turning Off Fan (Fan Coil only)	Disabled Transmit "0" at Fan Speed 1 Transmit "0" at Fan Speed 2 Transmit "0" at Fan Speed 3 Transmit "0" at Fan Speed 1 & 2 & 3	This parameter allows to transmit "0" value for turning off the fan levels.
LCD Fan Speed Status from Object (In Automatic Fan)	checked / unchecked	This parameter is used to show actual fan speed on Thermostat device LCD screen when Fan Levels are in Auto Mode.
Choose DPT	Enumerated / Scaling [%]	This parameter is used to select the fan speed object type to show on device LCD screen.

4.7.3. Setpoints

Setpoint settings can be set in this page.

4.7.3.1. Parameters

Parameter	Settings	Description
Send Setpoint	Cyclic / Cyclic and Change	Control values will be sent cyclically only or cyclical and "Minimum Change" of heating control value is reached.
Cyclic Sending Interval	10... 60 ...65535 s	Time period to send heating control value over "Heating Control Value" communication object.
Setpoint Button Step Value	0.1K, 0.5K , 1K	This parameter determines the step value of Setpoint by setpoint button press.
Setpoint Object Step Value	0.1°C/°F, 0.5°C/°F , 1°C/°F	This parameter determines the step value of Setpoint by setpoint step group object.
Operating Mode Setpoint Objects	Enable / Disable	This parameter is used to allow additional objects to change setpoint degrees via object for each Operating mode individually.
SETPOINT LIMITS		
Maximum Setpoint	0... 40 ...99 °C / °F	This parameter determines the maximum value of Setpoint.
Minimum Setpoint	0 ...99 °C / °F	This parameter determines the minimum value of Setpoint.
HEATING & COOLING SETPOINTS		
Multi Setpoint	Enable / Disable	This parameter will be available If the Control Mode Switchover is selected as "Manual" in Thermostat Parameters Screen. It is used to determine setpoints according to control mode.
RETURN TO ETS PROGRAMMED VALUES		
After KNX Bus Recovery	Yes / No	Setpoint values will be returned to last ETS programmed values after KNX Bus return.
After Operating Mode Change	Yes / No	Setpoint values will be returned to last ETS programmed values in any operating mode changes
After Control Mode Change	Yes / No	Setpoint values will be returned to last ETS programmed values in any control mode changes.
Reset on Site Object	Yes / No	Setpoint values will be returned to last ETS programmed values if Reset on Site Object receives its own activation value.
Reset on Site Value	0 / 1 / Any Value	This parameter allows to determine value to activate Reset on Site function by its own group object.
COMFORT MODE		
Setpoint	0... 25 ...99 °C / °F	This parameter allows to set default Setpoint Temperature of Comfort Mode.
Setpoint Heating	0... 25 ...99 °C / °F	Multi Setpoint parameter must be enabled to see these parameters. Heating and Cooling setpoints for Comfort Mode can be set independently.
Setpoint Cooling	0... 25 ...99 °C / °F	

Parameter	Settings	Description
Range Limit (+/-)	1...5...30 K or None	This parameter is used to determine setpoint allowance for Comfort Mode. For e.g. Limit is 5 and Comfort Setpoint 25 C. The setpoint can decrease until 20 C, increase until 30 C.
Fan Speed	Auto / Fan Speed 1 / 2 / 3	Fan speed value can be set for Comfort Mode.
Use Above Fan Speed for All Operating Modes	checked / unchecked	This parameter is used to apply preset fan levels the same for all operating modes.
NIGHT MODE		
Setpoint	0... 23 ...99 °C / °F	This parameter allows to set default Setpoint Temperature of Comfort Mode.
Setpoint Heating	0... 23 ...99 °C / °F	Multi Setpoint parameter must be enabled to see these parameters. Heating and Cooling setpoints for Night Mode can be set independently.
Setpoint Cooling	0... 23 ...99 °C / °F	
Range Limit (+/-)	1...5...30 K or None	This parameter is used to determine setpoint allowance for Night Mode. For e.g. Limit is 5 and Night Setpoint 25 C. The setpoint can decrease until 20 C, increase until 30 C.
Fan Speed	Auto / Fan Speed 1 / 2 / 3	Fan speed value can be set for Night Mode.
AWAY MODE		
Setpoint	0... 21 ...99 °C / °F	This parameter allows to set default Setpoint Temperature of Comfort Mode.
Setpoint Heating	0... 21 ...99 °C / °F	Multi Setpoint parameter must be enabled to see these parameters. Heating and Cooling setpoints for Away Mode can be set independently.
Setpoint Cooling	0... 21 ...99 °C / °F	
Range Limit (+/-)	1...5...30 K or None	This parameter is used to determine setpoint allowance for Away Mode. For e.g. Limit is 5 and Away Setpoint 25 C. The setpoint can decrease until 20 C, increase until 30 C.
Fan Speed	Auto / Fan Speed 1 / 2 / 3	Fan speed value can be set for Away Mode.
PROTECTION MODE		
Heat Protection Limit	0... 40 ...99 °C / °F	This parameter allows to define Heat Protection. When the heat protection limit temperature reached, the cooling mode will be activated automatically.
Frost Protection Limit	0... 5 ...99 °C / °F	This parameter allows to define Frost Protection. When the frost protection limit temperature reached, the heating mode will be activated automatically.
Protection Deactivation Hysteresis	10... 20 ...255 x0.1	This parameter determines the deactivation hysteresis of Protection Mode
Fan Speed (Unchangeable)	Auto / Fan Speed 1 / 2 / 3	Fan speed value can be set for Protection Mode. NOTE: Fan Speed can not be changed during protection mode.

Table 41

4.8. LCD Display

Device buttons can be enabled/disabled in this page.

4.8.1. Display Customization

Parameter	Settings	Description
SEGMENT DISPLAY		
Setpoint Segment	Enable / Disable	This parameter is used to show Setpoint always or during changes.
Temperature Segment in Protection Mode	Enable / Disable	This parameter is used to show Ambient Temperature even in Protection mode.
Temperature Segment during Regulation OFF	Enable / Disable	This parameter is used to show Ambient Temperature when regulation is OFF.
Icon Blinking on Protection Activation	Enable / Disable	This parameter is used to select blinking if Protection Mode activated and triggered.
Heat/Cool Icon Mode in Protection Mode	Standard: "Control Mode" Reversed: "Protected Mode"	This parameter is used to show current protection type or control mode to be activated.
DISPLAY CYCLING		
Humidity Display Cycling	checked / unchecked	This parameter is used to activate/deactivate cyclic sending of temperature and humidity value.
Temperature Cycle Time	1... 8.255 s	This parameter is used to define cycle time to send the current temperature.
Humidity Cycle Time	0... 2.255 s	This parameter is used to define cycle time to send the current humidity.

4.8.2. LED Configuration

Parameter	Settings	Description
LCD BACKLIGHT		
Brightness	Bright , Dark, Custom, Max Min, Off	This parameter is used to select dim level of LCD Backlight.
Color	Red, Yellow, Green, Cyan, Blue, Magenta, White , Thermocolor, Custom	This parameter is used to select color of LCD Backlight.
THERMOSTAT BUTTON LEDS - Together		
Configure	Together / Individually	This parameter is used to select dim and colors for thermostat button leds for all together or individually.
Brightness	Bright, Dark, Custom, Max Min, Off	This parameter is used to select dim level of Thermostat Button LEDs.
Color	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom	This parameter is used to select color of Thermostat Button LEDs.
THERMOSTAT BUTTON LEDS - Individual		
Button LED	Brightness	Color
Fan Speed	Bright, Dark, Custom, Max Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom
Operating Mode	Bright, Dark, Custom, Max Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom
Setpoint +	Bright, Dark, Custom, Max Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom
Setpoint -	Bright, Dark, Custom, Max Min, Off	Red , Yellow, Green, Cyan, Blue, Magenta, White, Thermocolor, Custom

4.8.3. Alternative Function

4.8.3.1. Parameters

ALTERNATIVE FUNCTION MENUS		
Function Menu	Available	
Control Stage Select	No (Manual stage control not enabled) / Yes	
Show Humidity	No (Humidity sensor not enabled) / Yes	
Parameter	Settings	Description
Mode + Setpoint Increment Button	None Control Stage Select Show Humidity [Action] Toggle Unit °C/°F [Action] Send Telegram*	This parameter is used to select action during complex touching relevant buttons.
Mode + Setpoint Decrement Button	None Control Stage Select Show Humidity [Action] Toggle Unit °C/°F [Action] Send Telegram*	This parameter is used to select action during complex touching relevant buttons.
Mode + Fan Speed Button	None Control Stage Select Show Humidity [Action] Toggle Unit °C/°F [Action] Send Telegram*	This parameter is used to select action during complex touching relevant buttons.
Menu Timeout	0...255 s	This parameter is used to determine timeout for executed action via device buttons.

4.8.3.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
142	*Alternative Function Button Telg.	[0,1]	1 bit DPT 1.001	CWT
Mode + Setpoint Increment Button --> 1 Mode + Setpoint Decrement Button --> 0 Mode + Fan Speed Button --> 0/1 Toggle				

4.8.4. Local Control

4.8.4.1. Parameters

Parameter	Settings	Description	
Setpoint Button	Unlocked / Locked	Unlock/Lock setpoint buttons on thermostat.	
Fan Speed Button	Unlocked / Locked	Unlock/Lock Fan Speed buttons on thermostat.	
Operating Mode Button	Unlocked / Locked	Unlock/Lock operating mode button on thermostat.	
Control Lock Objects	unchecked / checked	Activates the additional lock objects for relevant buttons.	
BUTTON LOCK			
Button Lock Object DPT	0 = Unlock; 1 = Lock 0 = Lock; 1 = Unlock	Selects object type for lock object.	
Button Lock Object Transmits Status	unchecked / checked	Lock state will be trasmitted via Lock Object itself.	
Lock State after KNX Bus Recovery	Reset / Keep	Lock state can be selected after bus return.	
LED Function when Locked	Active / Disable	Enable or disable LED feedback from the button.	
LONG PRESS ACTIONS			
Button	Long Press Action	Long Press Time	Enabled
Setpoint +/-	Heat/Cool Switchover	2.5 s	Unchecked Checked (if Local Switchover Active)
Fan Speed	None Dim Button Toggle Unit °C/°F	2.5 s	unchecked / checked checked only (if Toggle)
Operating Mode	Regulation Off (Short Press for On)	2.5...5 s	checked only

When any of the thermostat buttons disabled “Lock Icon” on the thermostat will be shown.

NOTE: Disabling buttons will not affect secondary functions of those buttons.

4.8.4.2. Communication Objects

No	Object Name	Function	Data Point Type	Flags
143	Setpoint Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)
144	Fan Speed Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)
145	Operating Mode Button Lock	0=Unlock; 1=Lock	1 bit DPT 1.001	CRW(T)
		0=Lock; 1=Unlock	1 bit DPT 1.001	CRW(T)

4.9. Logic Block 1...2**

4.9.1. I/O Configuration

Logic Input and Output counts should be selected in this page.

Parameter	Setting	Description
I/O Config	1 Input / 15 Output 2 Input / 14 Output 3 Input / 13 Output 4 Input / 12 Output 5 Input / 11 Output 6 Input / 10 Output 7 Input / 9 Output 8 Input / 8 Output 9 Input / 7 Output 10 Input / 6 Output 11 Input / 5 Output 12 Input / 4 Output 13 Input / 3 Output 14 Input / 2 Output 15 Input / 1 Output	Logic Input and Output configuration can be selected.

4.9.2. Inputs

4.9.2.1. IN1...15

Parameter	Settings	Description
Name	32 chracters are allowed. (Optional)	Any name can be defined for each Input. Name will be shown in ETS Parameters and Group Objects page.
Data Type	1-bit / 2-bit / 1-byte	Logic Input Data Type can be selected.
Preprocess (if Data Type : 2-bit) (if Data Type : 1-byte)	Passthrough, NOT, always True, always False, equal, NOT equal, in range, NOT in range, matches any of two, NOT matches any of two, bits SET, NOT bits SET, bits CLEAR, NOT bits CLEAR, thresholds, NOT thresholds	<u>Passthrough</u>: Input will be processed as it is. 0 is OFF, 1...255 is ON <u>NOT</u>: Input will be reverted. 0 is ON, 1...255 is OFF <u>always True</u>: Process will always be True regardless to input value. <u>always False</u>: Process will always be False regardless to input value. <u>equal</u>: If the Input value is equal to ETS written value, the result will be "True". <u>NOT equal</u>: If the Input value is NOT equal to ETS written value, the result will be "True". <u>in range</u>: If the Input value is in range between written values on ETS, the result will be "True". <u>NOT in range</u>: If the Input value is NOT in range between written values on ETS, the result will be "True". <u>matches any of two</u>: If the Input value matches with the any of values on ETS, the result will be "True". <u>NOT matches any of two</u>: If the Input value does NOT match with the any of values on ETS, the result will be "True". <u>bits SET</u>: If all masked bits of the Input Value is set, the result will be "True". <u>NOT bits SET</u>: If all masked bits of the input value is set, the result will be "False" <u>bits CLEAR</u>: If all masked bits of the Input Value is clear, the result will be "True". <u>NOT bits CLEAR</u>: If all masked bits of the Input Value is clear, the result will be "False". <u>thresholds</u>: Input value must be; equal or greater than "True if > =" value for result "True". equal or lower than "False < =" value fo result "False". <u>NOT thresholds</u>: Input value must be; equal or greater than "True if > =" value for result "False". equal or lower than "False < =" value fo result "True".

Preprocess (if Data Type : 1-bit)	Passthrough , NOT, always True, always False	<u>Passthrough</u>: Input will be processed as it is. <u>NOT</u>: Input will be reverted. <u>always True</u>: Process will always be True regardless to input value. <u>always False</u>: Process will always be False regardless to input value.
Initial State	False / True	This parameter is used to select initial value of related input when device energized(or reset).
State after KNX bus recovery	Initial / Last	This parameter is used to select the related input state after bus voltage recovery.

4.9.3. Outputs

4.9.3.1. OUT1...15

Parameter	Settings	Description
Name	32 chracters are allowed. (Optional)	Any name can be defined for each Output. Name will be shown in ETS Parameters and Group Objects page.
Register	checked/ unchecked	This function is used to set the chosen output as Input Operand. Result of relevant output can be used as input for another Output.
OPERANDS		
IN1...IN15	checked/ unchecked	This parameter is used to select Logic Input(s) which needs for reletad Output operation.
STATE	checked/ unchecked	This parameter defines the value of result. It can be used as operand in Output operation.
FUNCTION		
Description	80 chracters are allowed. (Optional)	Any name can be defined for description of function. Description will not shown anywhere.
Data Type	1-bit / 2-bit / 1-byte	Output operation data type can be selected individually.
Operation	Passthrough (unary)	<u>Passthrough</u> : It should be used with single operand only. Result will be the same as related operand value.
	NOT (unary)	<u>NOT</u> : It should be used with single operand only. Result will be reverted according to related operand value.
	AND	<u>AND</u> : Selected Inputs will be multiplied consecutively and result value will be sent after.
	NAND	<u>NAND</u> : Selected Inputs will be multiplied consecutively and result value will be sent as inverted after.
	OR	<u>OR</u> : Selected Inputs will be summed consecutively and result value will be sent after.
	NOR	<u>NOR</u> : Selected Inputs will be summed consecutively and result value will be sent as inverted after.
	XOR	<u>XOR</u> : Selected Inputs will be summed consecutively and result value will be sent after.
	XNOR	<u>XNOR</u> : Selected Inputs will be summed consecutively and result value will be sent as inverted after.
	Sum is 1	<u>Sum is 1</u> : If the one of the Input is "True" and rest of all is "False" the result will be "True". If multiple inputs are "True" or all "False", then result will be "False".
	NOT Sum is 1	<u>NOT Sum is 1</u> : If the one of the Input is "True" and rest of all is "False" the result will be "False". If multiple inputs are "True" or all "False", then result will be "True".
	Sum is 0 or 1	<u>Sum is 0 or 1</u> : If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "True". If 2 or more inputs are "True", the result will be "False".
	NOT Sum is 0 or 1	<u>NOT Sum is 0 or 1</u> : If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "True". If 2 or more inputs are "True", the result will be "False".
	All 0's or All 1's	<u>All 0's or All 1's</u> : If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "True". If 2 or more inputs are "True", the result will be "False".
	NOT All 0's or All 1's	<u>NOT All 0's or All 1's</u> : If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "True". If 2 or more inputs are "True", the result will be "False".

Parameter	Settings	Description
Operation (continues...)	Settings (continues...)	NOT Sum is 1 or 0: If the one of the input is "True" and rest of all are "False" or all inputs are "False", the result will be "False". If 2 or more inputs are "True", the result will be "True".
		All 0's or All 1's: If all inputs are "False" or "True", the result will be "True".
		NOT All 0's or All 1's: If all inputs are "False" or "True", the result will be "False".
Trigger	operand update	<u>operand update</u> : Output will be processed If any operand value changed.
	operand update with blocking condition	<u>operand update with blocking condition</u> : Output won't be processed regardless to operand change, if blocking operand is active.
	operand update with set/reset STATE	<u>operand update with set/reset STATE</u> : This function should be used with STATE operand. This function allows to change the output state according to selected Input or Registered Output(if exist) value.
	input select	<u>input select</u> : Output will be processed if the selected Input or Registered Output(if exist) has trigger value.
Sending blocked when	IN1 ... 15 or REG OUT 1...15	This function is used to block the output sending If selected Input or Registered Output has its selected value.
Send pending telegram after unblocking	unchecked /checked	This function is used to send output state after unblocking.
Send value when expression is	False True True or False	This function is used to send the output result if the Output expression value is as selected.
False Value (1-bit)	0 / 1	
True Value (1-bit)	0 / 1	
False Value (1-byte)	0...255	
True Value (1-byte)	0...1...255	
False Value (2-bit)	00b No Priority, OFF / 01b No Priority, ON / 10b Priority, OFF / 11b Priority, ON	
True Value (2-bit)	00b No Priority, OFF / 01b No Priority, ON / 10b Priority, OFF / 11b Priority, ON	
Send only on change	unchecked /checked	This function is used select the type of output sending.
Send initial state after KNX bus recovery	unchecked /checked	This function is used to send initial state of related output after KNX bus recovery.
Initial state	False / True	This parameter is used to select initial value of related output when device energized(or reset).
State after KNX bus recovery	Initial / Last	This parameter is used to select the related output state after KNX bus recovery.
Timer	none	<u>delayed sending</u> : This parameter is used to determine delay for output sending.
	delayed sending	
	periodical sending	<u>periodical sending</u> : This parameter is used to send the output state cyclically.
	state hold timeout	<u>state hold timeout</u> : This parameter allows to keep the state in case of state changes.