

EAE KNX ROSA THERMOSTAT



Product Order Nr: 48XXX

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1. General Features

Rosa thermostats offer a wide range of functional flexibility with integrated programmable touch buttons. (up to 8 buttons – 4 fold)

EAE Rosa Thermostat has various functions such as lighting control, shutter/blind control, scene calling. Each button can be programmed independently for a different function.



Rosa Thermostat has;

- Temperature Adjustment on Digital LCD
 - Integrated Temperature Sensor (°C/ °F)
 - Fan Speed Adjustment (1, 2, 3, Auto)
 - Different Operation Modes (Comfort, Night, Away, OFF)
 - Fully Automatic Function Mode (Heat – Cool transition)
 - Control Flexibility for all HVAC units including VRF-VRV and AC
 - PI proportional, PI PWM, Hysteresis, Fan coil, Split unit controls
 - Easy mount into 60x60 mm standard switch junction boxes
 - 2 – 8 independent programmable buttons
- **Switching**
 - **Dimming**
 - **Blind Control**
 - **Value Transmitting**
 - **Scene Control**

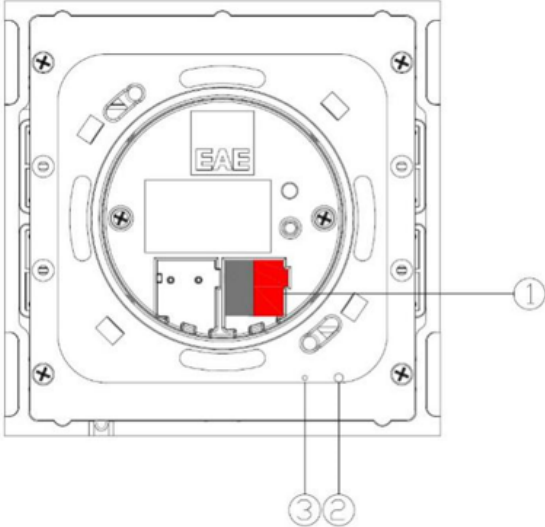
2. Device Technology

2.1. Device Peripherals



1. Programmable Button Group 1
2. Fan Speed (1, 2, 3, A)
3. Operation Mode (Comfort, Night, Away, OFF)
4. Setpoint Temperature UP
5. Setpoint Temperature DOWN
6. Programmable Button Group 2

2.2. Connection Diagram



- 1. KNX Port Terminal
- 2. Programming Button
- 3. Programming LED

2.3. Technical Data

Type of protection	IP 20	EN 60 529
Safety class	II	EN 61 140
Power supply	- Voltage - Current consumption	21V... 30V DC, SELV ≤ 10 mA
Connections	- Screw terminals - Max tightening torque - KNX	0,5...3,31 mm ² solid and stranded wire 0,5...3,31 mm ² stranded wire with ferrule 0.5 Nm Bus connect terminal
Installation	- 35mm mounting rail	EN 60 715
Operating elements	- LED (red) and prg. Button	For physical address
Temperature range	- Ambient - Storage	-5° C + 45° C -25° C + 55° C
Humidity	- max. air humidity	95 % no moisture condensation
Dimensions	Front side Side – Surface mounted part Side – Flush mounted part	90 x 100 mm 12 mm 18.8 mm
Weight	0,1 Kg	
Box	Metal – Surface Polycarbonate – Flush mounted part	
CE	In accordance with the EMC guideline and low voltage	
Application program	Communications objects	Number of addresses(max)
	44	255

NOTE: Device default physical address is 15.15.255. In order to configure the FCA, ETS application file “.knxprod” is needed. It’s possible to download the file on EAE website. ETS 4 or higher is required for programming the device. Parameter settings and related group addresses can be changed by ETS. Learn more by reading ETS help file.

3. Communication Object Table

Object Number	Name	Function Text	Object Size	DPT
0	In Operation	[0,1]	1 Bit	1.xxx
1, 9, 17, 25	Rocker 1, 2, 3, 4	Telegr.switch	1 Bit	1.001
		Telegr.shutter UP/DOWN	1 Bit	1.008
		Telegr.value[0,1]	1 Bit	1.002
		Telegr.value[0...255]	1 Byte	5.010
		Telegr.value[-128...127]	1 Byte	6.010
		Telegr.value[0...100%]	1 Byte	5.001
		Telegr.value[0...65535]	2 Bytes	7.001
		Telegr.value[-32768...32767]	2 Bytes	8.001
		Telegr.value(2-byte float)	2 Bytes	9.xxx
		Telegr.value(4-byte float)	4 Bytes	14.xxx
		Telegr.value(4-byte unsigned)	4 Bytes	12.001
		Telegr.value(4-byte signed)	4 Bytes	13.001
	Button 1, 3, 5, 7	Telegr.switch	1 Bit	1.001
		Telegr.shutter UP/DOWN	1 Bit	1.008
		Telegr.value[0,1]	1 Bit	1.002
		Telegr.value[0...255]	1 Byte	5.010
		Telegr.value[-128...127]	1 Byte	6.010
		Telegr.value[0...100%]	1 Byte	5.001
		Telegr.value[0...65535]	2 Bytes	7.001
		Telegr.value[-32768...32767]	2 Bytes	8.001
		Telegr.value(2-byte float)	2 Bytes	9.xxx
		Telegr.value(4-byte float)	4 Bytes	14.xxx
		Telegr.value(4-byte unsigned)	4 Bytes	12.001
		Telegr.value(4-byte signed)	4 Bytes	13.001
2, 10, 18, 26	Rocker 1, 2, 3, 4	Telegr.dimming	4 Bit	3.007
		Telegr.STOP / Lamella adj.	1 Bit	1.002
	Button 1, 3, 5, 7	Telegr.dimming	4 Bit	3.007
		Telegr.STOP / Lamella adj.	1 Bit	1.002
	Button 1, 3, 5, 7 - long	Telegr.value[0,1]	1 Bit	1.002
		Telegr.value[0...255]	1 Byte	5.010
		Telegr.value[-128...127]	1 Byte	6.010
		Telegr.value[0...100%]	1 Byte	5.001
		Telegr.value[0...65535]	2 Bytes	7.001
		Telegr.value[-32768...32767]	2 Bytes	8.001
		Telegr.value(2-byte float)	2 Bytes	9.xxx
		Telegr.value(4-byte float)	4 Bytes	14.xxx
Telegr.value(4-byte unsigned)	4 Bytes	12.001		
Telegr.value(4-byte signed)	4 Bytes	13.001		

Object Number	Name	Function Text	Object Size	DPT
3, 11, 19, 27	Rocker 1, 2, 3, 4	Top Position	1 Bit	1.002
		Status Comm.Obj.	1 Bit	1.002
	Button 1, 3, 5, 7	Top Position	1 Bit	1.002
		Status Comm.Obj.	1 Bit	1.002
4, 12, 20, 28	Rocker 1, 2, 3, 4	Bottom Position	1 Bit	1.002
	Button 1, 3, 5, 7	Bottom Position	1 Bit	1.002
5, 13, 21, 29	Button 2, 4, 6, 8	Telegr.switch	1 Bit	1.001
		Telegr.shutter UP/DOWN	1 Bit	1.008
		Telegr.value[0,1]	1 Bit	1.002
		Telegr.value[0...255]	1 Byte	5.010
		Telegr.value[-128...127]	1 Byte	6.010
		Telegr.value[0...100%]	1 Byte	5.001
		Telegr.value[0...65535]	2 Bytes	7.001
		Telegr.value[-32768...32767]	2 Bytes	8.001
		Telegr.value(2-byte float)	2 Bytes	9.xxx
		Telegr.value(4-byte float)	4 Bytes	14.xxx
		Telegr.value(4-byte unsigned)	4 Bytes	12.001
		Telegr.value(4-byte signed)	4 Bytes	13.001
6, 14, 22, 30	Button 2, 4, 6, 8	Telegr.dimming	4 Bit	3.007
		Telegr.STOP / Lamella adj.	1 Bit	1.002
	Button 2, 4, 6, 8 - long	Telegr.value[0,1]	1 Bit	1.002
		Telegr.value[0...255]	1 Byte	5.010
		Telegr.value[-128...127]	1 Byte	6.010
		Telegr.value[0...100%]	1 Byte	5.001
		Telegr.value[0...65535]	2 Bytes	7.001
		Telegr.value[-32768...32767]	2 Bytes	8.001
		Telegr.value(2-byte float)	2 Bytes	9.xxx
		Telegr.value(4-byte float)	4 Bytes	14.xxx
		Telegr.value(4-byte unsigned)	4 Bytes	12.001
		Telegr.value(4-byte signed)	4 Bytes	13.001
7, 15, 23, 31	Button 2, 4, 6, 8	Top Position	1 Bit	1.002
		Status Comm.Obj.	1 Bit	1.002
8, 16, 24, 32	Button 2, 4, 6, 8	Bottom Position	1 Bit	1.002
43	LCD Fan Speed Status	0=Spd0; 1...3=Spd1...3	1 Byte	5.010
	LCD Fan Speed [%] Status	0%=Spd0; [0,4...100]% =Spd1...3	1 Byte	5.001
44	Change Setpoint [+/-]	0=-0.1K; 1=+0.1K	1 Bit	1.007
	Change Setpoint [+/-]	0=-0.5K; 1=+0.5K	1 Bit	1.007
	Change Setpoint [+/-]	0=-1K; 1=+1K	1 Bit	1.007

Object Number	Name	Function Text	Object Size	DPT
46	Thermostat Joint Link	Link with the same group address for all thermostats	4 Bytes	12.xxx
47	Night LEDs Mode	0=Day; 1=Night	1 Bit	1.003
	Night LEDs Mode	0=Night; 1=Day	1 Bit	1.xxx
48	LCD Brightness Set Level	0=Off; 1...9 => Increasing Brightness	1 Byte	5.010
	LCD Brightness Preset	0=Enable; 1=Disable	1 Bit	1.xxx
	LCD Brightness Preset	0=Disable; 1=Enable	1 Bit	1.003
	LCD Brightness Set Level [%]	0%=0(Off); [0,4...100]% = 1...9 => Increasing Brightness	1 Byte	5.001
	LCD Brightness Level Down	0=Reset; 1...9 => Decreasing Brightness	1 Byte	5.010
	LCD Brightness Level Step [%]	0%=-9; [0,4...100]% = -9...0(Reset) => Increasing Brightness	1 Byte	5.001
49	Window Status	0=Closed; 1=Open	1 Bit	1.019
	Window Status	0=Open; 1=Closed	1 Bit	1.xxx
50	Regulation	0=Off; 1=On	1 Bit	1.001
51	Additional Heat Control Value	[0,1]	1 Bit	1.xxx
	Additional Heat/Cool Control Value	[0,1]	1 Bit	1.xxx
	Additional Heat/Cool Control Value [%]	[0...255]	1 Byte	5.001
	Additional Heat Control Value [%]	[0...255]	1 Byte	5.001
52	Additional Cool Control Value	[0,1]	1 Bit	1.xxx
	Additional Cool Control Value [%]	[0...255]	1 Byte	5.001
53	Split Heat Error	0=No Error; 1=Error	1 Bit	1.005
	Split Heat/Cool Error	0=No Error; 1=Error	1 Bit	1.005
54	Split Cool Error	0=No Error; 1=Error	1 Bit	1.005
55	Current Temperature	°C	2 Bytes	9.001
	Current Temperature	°F	2 Bytes	9.027
56	Current Setpoint	°C	2 Bytes	9.001
	Current Setpoint	°F	2 Bytes	9.027
57	Comfort Mode	[0,1]	1 Bit	1.003
	Operating Mode	1=Comfort; 2=Away(Standby); 3=Night(Economy); 4=Protection	1 Byte	20.102
58	Night Mode	[0,1]	1 Bit	1.003
59	Away Mode	[0,1]	1 Bit	1.003
60	Protection Mode	[0,1]	1 Bit	1.003

Object Number	Name	Function Text	Object Size	DPT
61	Heat Control Value	[0,1]	1 Bit	1.xxx
	Heat Control Value [%]	[0...255]	1 Byte	5.001
	Heat/Cool Control Value	[0,1]	1 Bit	1.xxx
	Heat/Cool Control Value [%]	[0...255]	1 Byte	5.001
62	Cool Control Value	[0,1]	1 Bit	1.xxx
	Cool Control Value [%]	[0...255]	1 Byte	5.001
63	Switchover	0=Cooling; 1=Heating	1 Bit	1.100
	Switchover	1=Heat; 3=Cool	1 Byte	20.105
64	Control Mode Status	0=Cooling; 1=Heating	1 Bit	1.100
65	Fan Speed 0	[0,1]	1 Bit	1.002
66	Automatic Fan Speed	0=Disable; 1=Enable	1 Bit	1.003
	Automatic Fan Speed	0=Enable; 1=Disable	1 Bit	1.xxx
67	Fan Speed 1	[0,1]	1 Bit	1.002
68	Fan Speed 2	[0,1]	1 Bit	1.002
69	Fan Speed 3	[0,1]	1 Bit	1.002
70	Change Setpoint	°C	2 Bytes	9.001
	Change Setpoint	°F	2 Bytes	9.027
71	External Temperature Sensor	°C	2 Bytes	9.001
	External Temperature Sensor	°F	2 Bytes	9.027
72	Spot Temperature Sensor	°C	2 Bytes	9.001
	Spot Temperature Sensor	°F	2 Bytes	9.027
73	Reset On Site	[0,1]	1 Bit	1.xxx
74	Comfort (Status)	[0,1]	1 Bit	1.002
	Operating Mode (Status)	1=Comfort; 2=Away(Standby); 3=Night(Economy); 4=Protection	1 Byte	20.102
75	Night Mode (Status)	[0,1]	1 Bit	1.002
76	Away Mode (Status)	[0,1]	1 Bit	1.002
77	Protection Mode (Status)	[0,1]	1 Bit	1.002
78	Regulation (Status)	0=Off; 1=On	1 Bit	1.001
79	Setpoint Heating Comfort	°C	2 Bytes	9.001
	Setpoint Comfort	°C	2 Bytes	9.001
	Setpoint Heating Comfort	°F	2 Bytes	9.027
	Setpoint Comfort	°F	2 Bytes	9.027
80	Setpoint Heating Night	°C	2 Bytes	9.001
	Setpoint Night	°C	2 Bytes	9.001
	Setpoint Heating Night	°F	2 Bytes	9.027
	Setpoint Night	°F	2 Bytes	9.027

Object Number	Name	Function Text	Object Size	DPT
81	Setpoint Heating Away	°C	2 Bytes	9.001
	Setpoint Away	°C	2 Bytes	9.001
	Setpoint Heating Away	°F	2 Bytes	9.027
	Setpoint Away	°F	2 Bytes	9.027
82	Setpoint Cooling Comfort	°C	2 Bytes	9.001
	Setpoint Cooling Comfort	°F	2 Bytes	9.027
83	Setpoint Cooling Night	°C	2 Bytes	9.001
	Setpoint Cooling Night	°F	2 Bytes	9.027
84	Setpoint Cooling Away	°C	2 Bytes	9.001
	Setpoint Cooling Away	°F	2 Bytes	9.027
85	Setpoint Heating Comfort (Status)	°C	2 Bytes	9.001
	Setpoint Comfort (Status)	°C	2 Bytes	9.001
	Setpoint Heating Comfort (Status)	°F	2 Bytes	9.027
	Setpoint Comfort (Status)	°F	2 Bytes	9.027
86	Setpoint Heating Night (Status)	°C	2 Bytes	9.001
	Setpoint Night (Status)	°C	2 Bytes	9.001
	Setpoint Heating Night (Status)	°F	2 Bytes	9.027
	Setpoint Night (Status)	°F	2 Bytes	9.027
87	Setpoint Heating Away (Status)	°C	2 Bytes	9.001
	Setpoint Away (Status)	°C	2 Bytes	9.001
	Setpoint Heating Away (Status)	°F	2 Bytes	9.027
	Setpoint Away (Status)	°F	2 Bytes	9.027
88	Setpoint Cooling Comfort (Status)	°C	2 Bytes	9.001
	Setpoint Cooling Comfort (Status)	°F	2 Bytes	9.027
89	Setpoint Cooling Night (Status)	°C	2 Bytes	9.001
	Setpoint Cooling Night (Status)	°F	2 Bytes	9.027
90	Setpoint Cooling Away (Status)	°C	2 Bytes	9.001
	Setpoint Cooling Away (Status)	°F	2 Bytes	9.027
91	Fan Speed	0=Spd0 (T); 1...3=Spd1...3 (WT)	1 Byte	5.010
	Fan Speed	0=Auto; 1...3=Spd1...3	1 Byte	5.010
92	Fan Speed [%]	0%=Spd0 (T); [0,4...100]% = Spd1...3 (WT)	1 Byte	5.001
	Fan Speed [%]	0%=Auto; [0,4...100]% = Spd1...3	1 Byte	5.001

4. Parameters

This product manual is prepared for the ROSA Thermostat device v2.3 or greater. If you have device older than v2.3, please contact EAE Technical Support via eaetechnology.technicalsupport@eaegroup.com

4.1. General Parameters

4.1.1. Feature Support

<i>Firmware Version</i>	2.0 – 2.2 * ≥ 2.3
-------------------------	-----------------------------

This parameter is used to select the firmware version according to device. The firmware version number is displayed on the LCD after device power-up. If there is no version info shown on the LCD, the parameter must be selected as “2.0 – 2.2” to install the application.

NOTE: If the wrong firmware version tried to install the device;

- an ETS error message will be appeared on the LCD (for v2.3)
- LCD backlight will be turned off (for v.2.2 and prior)

4.1.2. General

<i>Enable In operation</i>	*Disable <i>Enable</i>
----------------------------	----------------------------------

This object is using to report device still alive and connected the KNX bus line. Telegram value is selectable as “0” or “1”. If telegram is not received, device may be defective or KNX cable may be interrupted.

If the parameter selected “**Enable**”;

<i>In Operation bit</i>	<i>Off</i> *On
-------------------------	--------------------------

This parameter is used to select “In Operation” telegram value.

<i>In Operation send interval (sec)</i>	1... *300 ...65535
-----------------------------------------	---------------------------

This parameter determines the “In operation” sending period. In operation information will be sent to KNX line at the end of the period time.

<i>Enable Telegram Limit</i>	<i>Enable</i> *Disable
------------------------------	----------------------------------

This parameter is used to limit the sending telegrams in a period time. If parameter selected “**Enable**”; “**Telegram limit count**” and “**Telegram limit period duration**” parameters will be shown.

<i>Telegram limit period</i>	*50ms 100ms 200ms 500ms 1s 2s 5s 10s 30s 1min
------------------------------	---------------------------------------------------------------------------------

The limit period can be adjusted via this parameter.

<i>Maximum telegram count in period</i>	1... *10 ...255
-----------------------------------------	------------------------

Max number of telegrams can be sent in period time.

NOTE: If the value of the object cannot send in the time of period, the object value will be buffered for the next period time. The buffered object value will be updated if the object value is updated.

<i>Telegram transmission delay</i>	*1 ...255
------------------------------------	------------------

This parameter is used to send the first telegram when device powered on

4.1.3. Switch

<i>Switch Configuration</i>	<i>1 Rocker (Up-Down) / 2 Button</i> <i>*2 Rocker / 4 Button</i> <i>3 Rocker / 6 Button</i> <i>4 Rocker / 8 Button</i>
-----------------------------	----------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the compatible button counts with the device to be able to use folds and buttons correctly.

<i>Status LED "Operation Indication" Duration</i>	<i>*0.75 s</i> <i>1.5 s</i> <i>2.25 s</i> <i>3 s</i>
---------------------------------------------------	----------------------------------------------------------------------

This parameter is used to select the LEDs ON duration when status LEDs used as operation indication with rocker or buttons.

<i>Touch Feedback Light Duration (after button release)</i>	<i>*0....3000 ms</i>
-------------------------------------------------------------	-----------------------------

This parameter determines the LED indication duration after releasing the button.

4.1.4. Thermostat

<i>Window Status</i>	<i>checked</i> <i>*unchecked</i>
----------------------	-------------------------------------

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.

<i>DPT Window Object</i>	<i>*0 = Closed; 1 = Open [DPT_Window_Door]</i> <i>0 = Open; 1 = Close</i>
--------------------------	------------------------------------------------------------------------------

This parameter will be shown If “**Window Status**” parameter is selected as “**checked**”. It is used to select window open-close activation values.

<i>Delay for Open Action</i>	<i>*0...65535 s</i>
------------------------------	---------------------

This parameter is used to determine the delay for window opening action.

- If 0 (zero) selected, protection mode will be activated **instantly** when window object received an “open” value.

<i>Joint Operation</i>	<i>checked</i> <i>*unchecked</i>
------------------------	-------------------------------------

This parameter is used to activate the multi thermostat controlling. All thermostats can be synchronized via one group object named as **Thermostat Joint Link**.

It is suitable when multi thermostat is requested for a room.

All information such as Regulation, Fan Auto Mode, Fan Speed, Setpoint, HVAC Control Mode, HVAC Operating Mode will be synchronized between thermostats. There are two options that the thermostat can work;

- 1- Single(master) thermostat can control multiple HVAC systems (via slave devices).
- 2- Single HVAC system can be controlled by multiple thermostats.

NOTE: Relevant group object must be linked to the thermostats which is using in multiple.

NOTE: If Switchover Control Mode is Auto, HVAC Control Mode information won't be sent to other thermostats and won't be processed If received from other thermostats.

NOTE: If the Operating Modes are not common for multiple thermostat devices, non-common operating modes won't be synchronized.

4.1.5. LCD

<i>Setpoint Segment</i>	*Enable
	<i>Disable</i>

It allows to show current setpoint on LCD display. When disabled, the current setpoint digits will be hidden. If any setpoint change is occurred, the setpoint information will be shown and blinked for a few seconds on "current temperature" digits instead of current temperature information.

<i>Temperature Segment in Protection Mode</i>	*Enable
	<i>Disable</i>

It allows to show current temperature on LCD display when Protection Mode is active.

<i>Temperature Segment during Regulation Off</i>	*Enable
	<i>Disable</i>

It allows to show current temperature on LCD display when Regulation is off.

4.2. LED Brightness

- There are 3 dim methods: [Auto Dim | Button Dim | Object Dim]
- The levels that you set through "LCD Brightness" are called base levels, and it will not be possible to go above these levels using the dim methods, only to a lower brightness level.
- If dimming is requested from multiple sources concurrently, the lowest brightness level will take effect.
- When using Auto Dim, inactive brightness level(s) can't be higher than active brightness level.
- Scale with LCD Backlight Level: This option implies adjusting those brightness levels by the difference in level between the base and current backlight level of the current state.
- Button Temporary Dim Type: At the time of dim button press, if the dim level can't be set to a lower brightness level (user feedback), button dim will not be activated.
- Level Down Dim Action: More prominent when Auto Dim enabled, it will lower down all levels by the same amount preserving the contrast between different state levels, also level down actions are cumulative (they can be applied on top of another).

Level Down Dim Action Application Order

Auto Dim (if available) -> Object Dim -> Button Dim (last)

4.2.1. LCD Backlight

<i>LCD Brightness</i>	<p>*Max Brightness Set Brightness Auto Dim</p>
-----------------------	---------------------------------------------------------------

LCD Brightness level can be set via this parameter.

- If “Max Brightness” selected: Thermostat LCD Screen brightness level will be maximum level.
- If “Set Brightness” selected: “Brightness Level” parameter will be appeared. Thermostat LCD Brightness level will be set according to the selection.
- If “Auto Dim” selected: Thermostat LCD Screen brightness level will be changed automatically according to active/inactive state.

<i>Brightness Level</i>	<p>*9 (100%) = Max 8 (56.2 %) 7 (31.6 %) = <i>Medium</i> 6 (17.8 %) 5 (10 %) = <i>Low</i> 4 (5.6 %) 3 (3.2 %) 2 (1.8 %) = <i>Very Low</i> 1 (1 %) 0 (0 %) = <i>Off</i></p>
-------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter will be shown if “**LCD Brightness**” is selected as “**Set Brightness**”. It is used to select brightness level of Thermostat LCD Screen after power on.

Auto Dim parameters will be explained in this and following page. “**LCD Brightness**” parameter must be selected as “**Auto Dim**”.

Active State

<i>Active Brightness Level</i>	*9 (100%) = Max
	8 (56.2 %)
	7 (31.6 %) = Medium
	6 (17.8 %)
	5 (10 %) = Low
	4 (5.6 %)
	3 (3.2 %)
	2 (1.8 %) = Very Low
	1 (1 %)
	0 (0 %) = Off

This parameter is used to select the Thermostat LCD Screen brightness level when it is in use.

<i>Fade Time (Inactive to Active)</i>	0 s = No Fade
	0.1 s
	0.2 s
	*0.3 s
	0.4 s
	0.5 s

This parameter determines the fading duration of dim from inactive to active brightness level.

Inactive State

<i>Inactivity Timeout</i>	2... *10 ...120 s
---------------------------	--------------------------

This parameter determines the delay time for inactive brightness level. If the thermostat buttons are not pressed in determined time, the dimming will be applied according to **Inactive Brightness Level**.

<i>Inactive Brightness Level</i>	*Single <i>Operating Mode Based</i>
----------------------------------	-----------------------------------------------

This parameter allows to select the inactive brightness level of operating modes in one or separately.

<i>All Operating Modes</i>	9 (100%) = Max 8 (56.2 %) *7 (31.6 %) = Medium 6 (17.8 %) 5 (10 %) = Low 4 (5.6 %) 3 (3.2 %) 2 (1.8 %) = Very Low 1 (1 %) 0 (0 %) = Off
----------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is shown If “**Inactive Brightness Level**” is selected as “**Single**”. It is used to select the Thermostat LCD Screen brightness level when it is not in use. If the thermostat buttons pressed, the dimming will be applied according to **Active Brightness Level**.

<i>Comfort Mode</i>	9 (100%) = Max
<i>Night Mode</i>	8 (56.2 %)
<i>Away Mode</i>	*7 (31.6 %) = Medium
<i>Protection Mode</i>	6 (17.8 %)
<i>Regulation Off</i>	5 (10 %) = Low
	4 (5.6 %)
	3 (3.2 %)
	2 (1.8 %) = Very Low
	1 (1 %)
	0 (0 %) = Off

This parameter is shown If “**Inactive Brightness Level**” is selected as “**Operating Mode Based**”. It is used to select the Thermostat LCD Screen brightness level according to operating mode when device is not in use. The inactive brightness levels can be set for each operating modes.

If the thermostat buttons pressed, the dimming will be applied according to **Active Brightness Level**.

<i>Fade Time (Active to Inactive)</i>	0 s = No Fade
	0.7 – 1 – 1.4 – 2 – *2.8 – 4 – 5.7 – 8 – 11.3 – 16 s

This parameter determines the fading duration of dim from active to inactive brightness level.

4.2.2. Dim Methods

Thermostat LCD Screen brightness levels can be changed by various options.

Dim with Object

<i>Dim with Object</i>	*unchecked <i>checked</i>
------------------------	-------------------------------------

This parameter is used to dim the thermostat LCD screen brightness level via group object.

<i>LCD Brightness Object Type</i>	*Preset (1 bit) – Trigger 1 <i>Preset (1 bit) – Trigger 0</i> <i>Enumerated (1 byte) [0-9]</i> <i>Scaling % (1 byte) [0-255]</i>
-----------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the dimming object type.

<i>Dim Action</i>	*Set Level <i>Level Down</i>
-------------------	----------------------------------------

This parameter is used to select the dim action.

<i>Set Level for</i>	*Inactive (Default) <i>Active & Inactive</i>
----------------------	------------------------------------------------------------

This parameter is shown If “LCD Brightness” is selected as “Auto Dim” and If “Dim Action” is selected as “Set Level”. It is used to select the dimming for inactive or both states.

<i>Set Level</i>	9 (100%) = Max 8 (56.2 %) 7 (31.6 %) = Medium 6 (17.8 %) *5 (10 %) = Low 4 (5.6 %) 3 (3.2 %) 2 (1.8 %) = Very Low 1 (1 %) 0 (0 %) = Off
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This Parameter is shown If “LCD Brightness Object Type” is selected as “Preset (1-bit) – Trigger 1 or 0” and If “Dim Action” is selected as “Set Level”. It is used to select the dim level when it is triggered by 1-bit preset object.

<i>Level Down</i>	1... *4 ...9
-------------------	---------------------

This Parameter is shown If “LCD Brightness Object Type” is selected as “Preset (1-bit) – Trigger 1 or 0” and If “Dim Action” is selected as “Level Down”. It determines the screen dim level down level when triggered via relevant group object.

<i>Min Backlight Level</i>	9 (100%) = Max 8 (56.2 %) 7 (31.6 %) = Medium 6 (17.8 %) 5 (10 %) = Low 4 (5.6 %) 3 (3.2 %) *2 (1.8 %) = Very Low 1 (1 %) 0 (0 %) = Off
----------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This Parameter is shown If “**Dim Action**” is selected as “**Level Down**”. It is used to determine the minimum backlight level when LCD Brightness group object triggered. Screen dim level can not be lowered than Min. Backlight Level regardless to Level Down value.

<i>Fade Time</i>	*0 s = No Fade 0.7 – 1 – 1.4 – 2 – 2.8 – 4 – 5.7 – 8 – 11.3 – 16 s
------------------	------------------------------------------------------------------------------

This parameter determines the fading duration of dim when LCD Brightness group object is triggered.

<i>Dim State after KNX Bus Recovery</i>	*Reset Keep
-----------------------------------------	-----------------------

This parameter is used to determine the dim state after KNX bus recovery.

*Dim with Button******

<i>Dim with Button</i>	*unchecked <i>checked</i>
------------------------	-------------------------------------

This parameter is used to dim the thermostat LCD screen brightness level by touching long to Fan Speed button.

<i>Dim Type</i>	*Temporary Dim <i>Locking Dim On/Off</i>
-----------------	----------------------------------------------------

This parameter is used to select the dim type via Button.

- If “Temporary Dim” is selected: Screen will be dimmed after touching long to Fan Speed button. If any thermostat buttons(Fan Speed, Operating Mode, Setpoint) touched shortly, the dimming will be cancelled.
- If “Locking Dim On/Off” is selected: Screen will be dimmed after touching long to Fan Speed button. The dimming can not be cancelled until touching long to Fan Speed button.

<i>Dim Action</i>	*Set Level <i>Level Down</i>
-------------------	----------------------------------------

This parameter is used to select the dim action.

<i>Set Level</i>	9 (100%) = Max 8 (56.2 %) 7 (31.6 %) = Medium 6 (17.8 %) *5 (10 %) = Low 4 (5.6 %) 3 (3.2 %) 2 (1.8 %) = Very Low 1 (1 %) 0 (0 %) = Off
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is shown If “**Dim Action**” is selected as “**Set Level**”. It is used to determine the thermostat LCD brightness level via button.

<i>Level Down</i>	1... *4 ...9
-------------------	---------------------

This Parameter is shown If “**Dim Action**” is selected as “**Level Down**”. It determines the thermostat LCD screen dim level down via button.

<i>Min Backlight Level</i>	<i>9 (100%) = Max</i>
	<i>8 (56.2 %)</i>
	<i>7 (31.6 %) = Medium</i>
	<i>6 (17.8 %)</i>
	<i>5 (10 %) = Low</i>
	<i>4 (5.6 %)</i>
	<i>3 (3.2 %)</i>
	<i>*2 (1.8 %) = Very Low</i>
	<i>1 (1 %)</i>
	<i>0 (0 %) = Off</i>

This Parameter is shown If “**Dim Action**” is selected as “**Level Down**”. It is used to determine the minimum backlight level when LCD Brightness dimmed via button. The thermostat LCD screen dim level can not be lowered than Min. Backlight Level regardless to the Level Down value.

<i>Dim State after KNX Bus Recovery</i>	<i>*Reset</i>
	<i>Keep</i>

This parameter is used to determine the dim state after KNX bus recovery.

4.2.3. Night LEDs Mode (Day/Night Brightness Levels)

<i>Night LEDs Mode Object</i>	*unchecked
	<i>checked</i>

This parameter allows the dimming for day and night individually. Day/Night information is taken via 1-bit object. If this parameter is enabled, the chosen LED(s) won't be able to dim via **Scaling with Backlight Levels** function.

The following parameters will be shown below If “**Night LEDs Mode Object**” parameter is “**checked**”.

<i>Status LEDs</i>	*unchecked
	<i>checked</i>

This parameter is used to set the dimming for Status LEDs according to Day/Night mode.

<i>Navigation LED</i>	*unchecked
	<i>checked</i>

This parameter is used to set the dimming for Navigation LED according to Day/Night mode.

<i>DPT Night LEDs Mode Object</i>	*0 = Day; 1 = Night [DPT_Enable]
	<i>0 = Night; 1 = Day</i>

This parameter is used to set the Day/Night selection object type.

<i>Fade Time</i>	*0 s = No Fade
	<i>0.7 – 1 – 1.4 – 2 – 2.8 – 4 – 5.7 – 8 – 11.3 – 16 s</i>

This parameter determines the fading duration of dim when Day/Night mode changed by relevant object.

<i>Night State after KNX Bus Recovery</i>	*Reset
	<i>Keep</i>

This parameter is used to determine the night state after KNX bus recovery.



4.2.4. Status LEDs

Status LEDs parameters can be varying according to **Night LEDs Mode** parameters.

The following parameters will be shown below If “**Night LEDs Mode Object**” parameter and “**Status LEDs**” are “**checked**”.

Day

<i>ON Level</i>	<i>0, 1, 2, 3, 4, 5, 6, 7, 8, *9</i>
-----------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is ON in Day Mode.

<i>OFF Level</i>	<i>*0, 1, 2, 3, 4, 5, 6, 7, 8, 9</i>
------------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is OFF in Day Mode.

Night

<i>ON Level</i>	<i>0, 1, 2, 3, 4, 5, 6, 7, 8, *9</i>
-----------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is ON in Night Mode.

<i>OFF Level</i>	<i>*0, 1, 2, 3, 4, 5, 6, 7, 8, 9</i>
------------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is OFF in Night Mode.

<i>Scale with LCD Backlight</i>	<i>N/A (Day/Night Active)</i>
---------------------------------	-------------------------------

This parameter is used to set dimming for Status LEDs of buttons according to LCD Backlight dimming. It is not allowed to set the scaling dim level for this case.

The following parameters will be shown below if “**Night LEDs Mode Object**” parameter is “**unchecked**”.

<i>ON Level</i>	<i>0, 1, 2, 3, 4, 5, 6, 7, 8, *9</i>
-----------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is ON.

<i>OFF Level</i>	<i>*0, 1, 2, 3, 4, 5, 6, 7, 8, 9</i>
------------------	--------------------------------------

This parameter is used set dimming for Status LEDs of buttons when it is OFF.

<i>Scale with LCD Backlight Level</i>	<i>*unchecked</i> <i>checked</i>
---------------------------------------	-------------------------------------

This parameter is used to set dimming for Status LEDs of buttons according to LCD Backlight dimming.

The following parameter will be shown below if “**LCD Brightness**” parameter is selected as “**Auto Dim**” and if “**Scale with LCD Backlight Level**” parameter is “**checked**”.

<i>Scale when Auto Dimmed</i> <i>(Inactive State Level)</i>	<i>unchecked</i> <i>*checked</i>
----------------------------------------------------------------	-------------------------------------

This parameter is used to set dimming for Status LEDs of buttons according to LCD Backlight dimming when the thermostat is in inactive mode.

<i>Min ON Level</i>	<i>0, *1, 2, 3, 4, 5, 6, 7, 8, 9</i>
---------------------	--------------------------------------

This parameter is used set minimum dimming limit for Status LEDs of buttons when it is ON.

<i>Min OFF Level</i>	<i>*0, 1, 2, 3, 4, 5, 6, 7, 8, 9</i>
----------------------	--------------------------------------

This parameter is used set minimum dimming limit for Status LEDs of buttons when it is OFF.

4.2.5. Navigation LED

The following parameters will be shown below if “**Night LEDs Mode Object**” and “**Navigation LED**” parameters are “**checked**”.

Day

<i>Navigation LED Level</i>	*0, 1, 2, 3, 4, 5, 6
-----------------------------	-----------------------------

This parameter is used to set dimming level for Navigation LED in Day Mode.

Night

<i>Navigation LED Level</i>	*0, 1, 2, 3, 4, 5, 6
-----------------------------	-----------------------------

This parameter is used to set dimming level for Navigation LED in Night Mode.

<i>Scale with LCD Backlight</i>	N/A (Day/Night Active)
---------------------------------	-------------------------------

This parameter is used to set dimming level for Navigation LED according to LCD Backlight dimming. It is not allowed to set the scaling dim level for this case.

The following parameters will be shown below when “**LCD Brightness**” parameter is selected as other than “Auto Dim” and If “**Night LEDs Mode Object**” parameter is “**unchecked**”.

<i>Navigation LED Level</i>	*0, 1, 2, 3, 4, 5, 6
-----------------------------	-----------------------------

This parameter is used set dimming level for Navigation LED.

<i>Scale with LCD Backlight Level</i>	*unchecked <i>checked</i>
---------------------------------------	-------------------------------------

This parameter is used to set dimming level for Navigation LED according to LCD Backlight dimming.

<i>Scale Direction</i>	*Same <i>Reverse</i>
------------------------	--------------------------------

This parameter will be shown If “**Scale with LCD Backlight Level**” parameter is “**checked**”. It is used to determine de dimming direction.

If “**Same**” selected, the Navigation LED scaled dimming direction will be the same as LCD Backlight dimming. Following parameter will be appeared.

<i>Min Level</i>	*0, 1, 2, 3, 4, 5, 6
------------------	-----------------------------

This parameter determines the minimum dim level of it. The Navigation LED dimming cannot be lowered than Min Level.

If “**Reverse**” selected, the Navigation LED scaled dimming direction will be processed to opposite direction of LCD Backlight dimming. Following parameter will be appeared.

<i>Max Level</i>	0, 1, 2, 3, 4, 5, *6
------------------	-----------------------------

This parameter determines the maximum dim level of it. The Navigation LED dimming cannot be increased more than Max Level.

The following parameter will be shown If “LCD Brightness” parameter is selected as “Auto Dim” and If “Scale with LCD Backlight Level” parameter is “checked”. Additionally, “Night LEDs Mode Object” parameter must be selected as “unchecked”.

<i>Scale with LCD Backlight Level</i>	*unchecked
	<i>checked</i>

This parameter is used to set dimming level for Navigation LED according to LCD Backlight dimming.

<i>Scale when Auto Dimmed (Inactive State Level)</i>	<i>unchecked</i>
	*checked

This parameter is used to set dimming for Navigation LED according to LCD Backlight dimming when the thermostat is in inactive mode.

<i>Scale Direction</i>	*Same
	<i>Reverse</i>

This parameter will be shown If “Scale with LCD Backlight Level” parameter is “checked”. It is used to determine the dimming direction.

If “Same” selected, the Navigation LED scaled dimming direction will be the same as LCD Backlight dimming. Following parameter will be appeared.

<i>Min Level</i>	*0, 1, 2, 3, 4, 5, 6
------------------	-----------------------------

This parameter determines the minimum dim level of it. The Navigation LED dimming cannot be lowered than Min Level.

If “Reverse” selected, the Navigation LED scaled dimming direction will be processed to opposite direction of LCD Backlight dimming. Following parameter will be appeared.

<i>Max Level</i>	<i>0, 1, 2, 3, 4, 5, *6</i>
------------------	-----------------------------

This parameter determines the maximum dim level of it. The Navigation LED dimming cannot be increased more than Max Level.

4.3. Rockers and Buttons

These parameters are used to configure the physical buttons. They can be combined with the HVAC system or can be used independently.

Rocker Operation

**Rocker*

2 Button

This parameter is used to configure the buttons as Rocker (fold) or individually for each.

If “**Rocker**” selected, see 4.3.1 for parameters.

If “**2 Button**” selected, see 4.3.2 for parameters.

4.3.1. Rockers

<i>Rocker Function</i>	<p>*No Function</p> <p>Switch</p> <p>Switch and Dim</p> <p>Shutter</p> <p>Value Operation</p>
------------------------	------------------------------------------------------------------------------------------------------

This parameter allows to select value type of rocker.

4.3.1.1. Switch

<i>Mode of Buttons</i>	<p>*L Button = On; R Button = Off</p> <p>L Button = Off; R Button = On</p>
------------------------	-----------------------------------------------------------------------------------

This parameter is used to determine the ON and OFF sending for rocker buttons.

<i>Function of LED</i>	<p>*LED Permanently Off</p> <p>LED Permanently On</p> <p>Status Indication</p> <p>Inverted Status Indication</p> <p>Operation Indication</p>
------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LED will be OFF permanently.
- If “**LED Permanently On**” selected; Status LED will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched rocker button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.
- If “**Status Indication**” selected; Status LED of last touched rocker button will be ON or OFF according to rocker button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.
- If “**Inverted Status Indication**” selected; Status LED of last touched rocker button will be ON or OFF according to opposite rocker button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.

4.3.1.2. Switch and Dim

<i>Mode of Buttons</i>	*L Button = Brighter/On; R Button = Darker/Off L Button = Darker/Off; R Button = Brighter/On
------------------------	---------------------------------------------------------------------------------------------------------------

This parameter is used to determine the ON/OFF and dim BRIGHTER/DARKER sending for rocker buttons.

Switch functions will be processed via short touch to rocker.

Dimming functions will be processed via long touch to rocker.

<i>Long Press Duration</i>	0.3 ... *1 ... 10 s
----------------------------	----------------------------

This parameter determines the long touch duration for relevant rocker.

<i>Dimming Type</i>	*Start Stop Step Wise
---------------------	----------------------------------------

This parameter is used to select the 4-bit dimming object type.

If “**Start Stop**” selected, the dimming will be applied via long touch to the button and it will not be stopped until release the button.

If “**Step Wise**” selected, the dimming will be decreased/increased step by step according to “**Step Value**” parameter in the end of time of “**Step Send Interval**”. These parameters will be explained below.

<i>Step Value</i>	100, 50, 25, *12.5, 6.25, 3.13, 1.56 %
-------------------	-----------------------------------------------

This parameter determines the dimming value for each step.

<i>Step Send Interval</i>	0.3 ... *1.5 ... 10 s
---------------------------	------------------------------

This parameter determines the step sending duration between step dimming commands. Each step commands will be sent at the end of the interval duration.

Function of LED

***LED Permanently Off**
LED Permanently On
Status Indication
Inverted Status Indication
Operation Indication

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LEDs will be OFF permanently.
- If “**LED Permanently On**” selected; Status LEDs will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched rocker button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.
- If “**Status Indication**” selected; Status LED of last touched rocker button will be ON or OFF according to rocker button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.
- If “**Inverted Status Indication**” selected; Status LED of last touched rocker button will be ON or OFF according to opposite rocker button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.

4.3.1.3. Shutter

<i>Mode of Buttons</i>	*L Button = Up; R Button = Down <i>L Button = Down; R Button = Up</i>
------------------------	---------------------------------------------------------------------------------

This parameter is used to determine the blind Up / Down sending for rocker buttons.

Up / Down functions will be processed via long touch to rocker.

Stop / Lamella Adj. functions will be processed via short touch to rocker.

NOTE: Lamella Adj. function will be available If “**Control Type**” is selected as “**Shutter/Venetian Blind**”

<i>Control Type</i>	*Shutter/Venetian Blind <i>Blind/Roller/Awning</i>
---------------------	--------------------------------------------------------------

This parameter is used to select the blind control type.

If “**Shutter/Venetian Blind**” selected, the device will be able to control the blinds with lamella adjusting beside of Blind Stop function.

If “**Blind/Roller/Awning**” selected, the device will be able to control the blinds only with Blind Stop function.

<i>Function of LED</i>	*LED Permanently Off <i>LED Permanently On</i> <i>Status Indication</i> <i>Operation Indication</i>
------------------------	---------------------------------------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LED will be OFF permanently.
- If “**LED Permanently On**” selected; Status LED will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched rocker button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.
- If “**Status Indication**” selected; Status LED of rocker button will be ON or OFF according to 1-bit “**Top Position**” and “**Bottom Position**” objects. ROSA Thermostat determines the blind position via these group objects. Any blind controller Top and Bottom position status objects must be linked to them.

<i>Long Press Duration</i>	<i>0.3 ... *0.8 ... 10 s</i>
----------------------------	------------------------------

This parameter will be shown If “**Control Type**” is selected as “**Shutter/Venetian Blind**”. It is used to determine the long touch duration for relevant rocker.



4.3.1.4. Value Operation

<i>Function of LED</i>	*LED Permanently Off <i>LED Permanently On</i> <i>Operation Indication</i>
------------------------	-----------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LED will be OFF permanently.
- If “**LED Permanently On**” selected; Status LED will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched rocker button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.

<i>Data Type</i>	<i>No Reaction</i> *1-bit <i>1-byte unsigned</i> <i>1-byte signed</i> <i>1-byte percentage</i> <i>2-byte unsigned</i> <i>2-byte signed</i> <i>2-byte float</i> <i>4-byte unsigned</i> <i>4-byte signed</i> <i>4-byte float</i>
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to determine the value sending type. Each data type will be shown below.

NOTE: Selected data type will be applied for Left and Right buttons of each rocker.

Left Button of Rocker

1-bit	*0, 1
1-byte unsigned	*0...255
1-byte signed	-128...*0...127
1-byte percentage	*0...100 %
2-byte unsigned	*0...65535
2-byte signed	-32768...*0...32767
2-byte float	-671088...*0...670760
4-byte unsigned	*0...4294967295
4-byte signed	-2,147,483,648...*0...2147483647
4-byte float	-1E+38...*0...1E+38

Right Button of Rocker

Same fields will be shown as like as Left Button of Rocker.

4.3.2 Buttons

<i>Button Function</i>	<p>*No Function <i>Switch</i> <i>Switch and Dim</i> <i>Shutter</i> <i>Value Operation</i></p>
------------------------	--------------------------------------------------------------------------------------------------------------------------

This parameter allows to select value type of buttons. Each button function can be selected independently.

4.3.2.1. Switch

<i>Command On Press</i>	<p>*On <i>Off</i> <i>Toggle</i> <i>No Command</i></p>
-------------------------	-----------------------------------------------------------------------------

This parameter is used to determine the value when button is touched.

<i>Command On Release</i>	<p>*On <i>Off</i> <i>Toggle</i> <i>No Command</i></p>
---------------------------	-----------------------------------------------------------------------------

This parameter is used to determine the value when button is released.

<i>Function of LED</i>	<p>*LED Permanently Off <i>LED Permanently On</i> <i>Status Indication</i> <i>Inverted Status Indication</i> <i>Operation Indication</i></p>
------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If **"LED Permanently Off"** selected; Status LED will be OFF permanently.
- If **"LED Permanently On"** selected; Status LED will be ON permanently.
- If **"Operation Indication"** selected; Status LED of touched button will be ON for the time period selected at **"Status LED "Operation Indication" Duration"** parameter at **"General"** tab.
- If **"Status Indication"** selected; Status LED of the touched button will be ON or OFF according to button value in normally. If **"Separate Comm Object"** parameter selected as **"Enable"**, an additional 1-bit **"Status Comm. Obj."** object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.
- If **"Inverted Status Indication"** selected; Status LED of the touched button will be ON or OFF according to opposite button value in normally. If **"Separate Comm Object"** parameter selected as **"Enable"**, an additional 1-bit **"Status Comm. Obj."** object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.

4.3.2.2. Switch and Dim

<i>Dim Operation</i>	*Darker (Short Press Off) <i>Brighter (Short Press On)</i> <i>Darker/Brighter (Short Press Toggle)</i>
----------------------	---------------------------------------------------------------------------------------------------------------------

This parameter is used to determine the ON/OFF and dim BRIGHTER/DARKER sending for each buttons.

Switch functions will be processed via short touch to button.

Dimming functions will be processed via long touch to button.

<i>Long Press Time</i>	<i>0.3 ... *0.5 ... 10 s</i>
------------------------	------------------------------

This parameter determines the long touch duration for relevant button.

<i>Dimming Type</i>	*Start Stop <i>Step Wise</i>
---------------------	----------------------------------------

This parameter is used to select the 4-bit dimming object type.

If “**Start Stop**” selected, the dimming will be applied via long touch to the button and it will not be stopped until release the button.

If “**Step Wise**” selected, the dimming will be decreased/increased step by step according to “**Step Value**” parameter in the end of time of “**Step Send Interval**”. These parameters will be explained below.

<i>Step Value</i>	<i>100, 50, 25, *12.5, 6.25, 3.13, 1.56 %</i>
-------------------	-----------------------------------------------

This parameter determines the dimming value for each step.

<i>Step Send Interval</i>	<i>0.3 ... *1 ... 10 s</i>
---------------------------	----------------------------

This parameter determines the step sending duration between step dimming commands. Each step commands will be sent at the end of the interval duration.

Function of LED

***LED Permanently Off**
LED Permanently On
Status Indication
Inverted Status Indication
Operation Indication

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LEDs will be OFF permanently.
- If “**LED Permanently On**” selected; Status LEDs will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.
- If “**Status Indication**” selected; Status LED of the touched button will be ON or OFF according to button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.
- If “**Inverted Status Indication**” selected; Status LED of the touched button will be ON or OFF according to opposite button value in normally. If “**Separate Comm Object**” parameter selected as “**Enable**”, an additional 1-bit “**Status Comm. Obj.**” object will be appeared and Status LEDs will wait for confirmation telegram from relevant group object before changing its state.

4.3.2.3. Shutter

<i>Shutter Function</i>	*Up Down Toggle
-------------------------	------------------------------

This parameter is used to determine the blind Up or Down or Toggle sending for buttons.

Up / Down functions will be processed via long touch to button.

Stop / Lamella Adj. functions will be processed via short touch to button.

NOTE: Lamella Adj. function will be available If “**Control Type**” is selected as “**Shutter/Venetian Blind**”

Toggle function works with the information from Top and Bottom Position Status Object.

<i>Control Type</i>	*Shutter/Venetian Blind Blind/Roller/Awning
---------------------	-------------------------------------------------------

This parameter is used to select the blind control type.

If “**Shutter/Venetian Blind**” selected, the device will be able to control the blinds with lamella adjusting beside of Blind Stop function.

If “**Blind/Roller/Awning**” selected, the device will be able to control the blinds only with Blind Stop function.

<i>Function of LED</i>	*LED Permanently Off LED Permanently On Status Indication Operation Indication
------------------------	------------------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LED will be OFF permanently.
- If “**LED Permanently On**” selected; Status LED will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.
- If “**Status Indication**” selected; Status LED of the touched button will be ON or OFF according to 1-bit “**Top Position**” and “**Bottom Position**” objects. ROSA Thermostat determines the blind position via these group objects. Any blind controller Top and Bottom position status objects must be linked to them.

<i>Long Press Duration</i>	*0.3 ... 10 s
----------------------------	----------------------

This parameter will be shown If “**Control Type**” is selected as “**Shutter/Venetian Blind**”. It is used to determine the long touch duration for relevant button.

4.3.2.4. Value Operation

<i>Function of LED</i>	*LED Permanently Off <i>LED Permanently On</i> <i>Operation Indication</i>
------------------------	-----------------------------------------------------------------------------------------

This parameter is used to select the Status LED reaction.

- If “**LED Permanently Off**” selected; Status LED will be OFF permanently.
- If “**LED Permanently On**” selected; Status LED will be ON permanently.
- If “**Operation Indication**” selected; Status LED of the touched rocker button will be ON for the time period selected at “**Status LED “Operation Indication” Duration**” parameter at “**General**” tab.

<i>Data Type</i>	<i>No Reaction</i> *1-bit <i>1-byte unsigned</i> <i>1-byte signed</i> <i>1-byte percentage</i> <i>2-byte unsigned</i> <i>2-byte signed</i> <i>2-byte float</i> <i>4-byte unsigned</i> <i>4-byte signed</i> <i>4-byte float</i>
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This parameter is used to determine the value sending type. Each data type will be shown below.

1-bit	*0, 1
1-byte unsigned	*0...255
1-byte signed	-128...*0...127
1-byte percentage	*0...100 %
2-byte unsigned	*0...65535
2-byte signed	-32768...*0...32767
2-byte float	-671088...*0...670760
4-byte unsigned	*0...4294967295
4-byte signed	-2,147,483,648...*0...2147483647
4-byte float	-1E+38...*0...1E+38

<i>Long Press Request</i>	<i>Yes, *No</i>
---------------------------	-----------------

This parameter allows to send an additional value via long touch with the same button.

<i>Long Press Duration</i>	*1 ... 5 s
----------------------------	-------------------

This parameter will be shown if “**Control Type**” is selected as “**Shutter/Venetian Blind**”. It is used to determine the long touch duration for relevant button.

NOTE: Short and Long touch button values can be selected independently.

4.4. Temperature Sensor

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

<i>Temperature Unit</i>	*Celsius (°C) <i>Fahrenheit (°F)</i>
-------------------------	----------------------------------------------------

This parameter is used to select temperature transmit unit.

<i>Internal Sensor Offset</i>	-128... *0 ... 127 x0.1K
-------------------------------	---------------------------------

This parameter is used to determine the sensor offset. The entered value will be added or subtracted to the measured temperature value.

<i>Send Temperature</i>	<i>Cyclic</i> *Cyclic and Change
-------------------------	--------------------------------------------

This parameter is used to select the measured temperature sending type.

If “**Cyclic**” selected, the measured temperature value will be sent in every cyclical duration ending regardless to the measured temperature change.

If “**Cyclic and Change**” selected, the measure temperature value will be sent in every cyclical duration ending or determined measured temperature change.

<i>Cyclical Sending Interval</i>	1... *30 ... 65535 s
----------------------------------	-----------------------------

This parameter is used to determine the period time for measured temperature value sending.

<i>Minimum Change</i>	*1 ... 255 x0.1K
-----------------------	-------------------------

This parameter is used to determine de minimum change to transmit the measured temperature value.

4.4.1. Temperature Reference

<i>Temperature Measurement</i>	*Internal Sensor <i>External Sensor</i> <i>Weighted Average</i>
--------------------------------	------------------------------------------------------------------------------

This parameter is used to select the temperature measurement method.

If “**Internal Sensor**” selected, temperature measurement will be processed by internal sensor of device.

If “**External Sensor**” selected, temperature information will be taken via group object.

If “**Weighted Average**” selected, measured temperature and taken temperature info will be weighted according to user selection.

<i>External Sensor Temperature Unit</i>	*Same <i>Celsius</i> <i>Fahrenheit</i>
-----------------------------------------	-----------------------------------------------------

This parameter is used to determine the External Sensor Temperature Unit.

NOTE: Main, External and Spot Temp sensor units can be different. The device will revert the value according to main sensor unit.

<i>External Sensor Weight</i>	1... *50 ... 99 %
-------------------------------	--------------------------

This parameter is used to determine the weight for external sensor.

<i>External Sensor Monitoring Timeout</i>	15... *30 ... 65535 s
-------------------------------------------	------------------------------

This parameter is used to determine the external sensor temp value waiting period for relevant group object.

NOTE: 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.

<i>Temperature Shown on LCD</i>	*Internal Sensor <i>External Sensor</i>
---------------------------------	---------------------------------------------------

This parameter is used to show the temperature information from internal or external temp sensor on the device LCD screen.

<i>Temperature Shown on KNX</i>	*Internal Sensor <i>External Sensor</i>
---------------------------------	---------------------------------------------------

This parameter is used to show the temperature information from internal or external temp sensor on KNX bus.

4.4.2. Spot Temperature Protection

<i>Spot Temperature Sensor</i>	*unchecked <i>checked</i>
--------------------------------	-------------------------------------

This parameter is used to activate the spot temperature sensor function. It is able to use in the places where the precious control needed.

<i>Spot Sensor Temperature Unit</i>	*Same <i>Celsius (°C)</i> <i>Fahrenheit (°F)</i>
-------------------------------------	-------------------------------------------------------------------

This parameter is used to select the spot sensor temperature unit.

NOTE: Main, External and Spot Temp sensor units can be different. The device will revert the value according to main sensor unit.

<i>Heat Limit Temperature</i>	<i>0... *28... 255 °C</i> <i>0... *82... 255 °F</i>
-------------------------------	--------------------------------------------------------

This parameter is used to determine the heat limit temperature. When the heat limit temperature is reached or exceeded, heating control will be stopped for main or additional or main+additional heating according the user selection.

<i>Cool Limit Temperature</i>	<i>0... *18... 255 °C</i> <i>0... *64... 255 °F</i>
-------------------------------	--------------------------------------------------------

This parameter is used to determine the heat limit temperature. When the cool limit temperature is reached or exceeded, cooling control will be stopped for main or additional or main+additional heating according the user selection.

<i>Limit Protection Deactivation Hysteresis</i>	<i>1... *20... 255 x0.1K</i>
-------------------------------------------------	------------------------------

This parameter is used to determine the limit protection deactivation hysteresis.

Cool Control(main or additional or main+additional) will be activated If the spot temperature value is increased for the determined hysteresis value.

Heat Control(main or additional or main+additional) will be activated If the spot temperature value is decreased for the determined hysteresis value.

<i>Limit Protection Activation Delay</i>	*0... 65535 s
------------------------------------------	----------------------

This parameter is used to determine the limit protection activation delay. This function prevents deactivation of main or additional or main+additional control in case of spot temp sensor peaks for a short time.

<i>Monitoring Timeout</i>	<i>15... *60 ... 65535 s</i>
---------------------------	------------------------------

This parameter is used to determine the monitoring period for spot temp sensor. If there is no spot temp information received in a determined period time, spot temp protection will be deactivated automatically.

NOTE: Corresponding “Spot Heat/Cool Protection” setting must be selected under the “Heating/Cooling Control” tab to enable spot protection control.

NOTE: When spot protection becomes active due to spot temperature becoming over/under limit, the control output of the selected controller unit will be set to 0 (zero) until the spot temperature drops/raises by hysteresis amount.

4.5. Thermostat Parameters

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

***Separate**

Joint

This parameter will be shown if "**Control Mode**" is selected as "**Heat/Cool**" regardless to the additional stage selection. This parameter allows to choose the main stage control objects are merged or not.

Control Objects of Additional Stage

***Separate**

Joint

This parameter will be shown if "**Control Mode**" is selected as "**Heat/Cool**" or "**Heat/Cool with Heat/Cool Additional Stage**". This parameter allows to choose the additional stage control objects are merged or not.

4.5.1. Control Mode (Heat/Cool)

These parameters will be shown below If Control Mode is selected as “Heat/Cool” and/or “Heat/Cool with any Additional Stage”.

Switchover Method

***Automatic**

Manual (via Object)

Manual (Local and via Object)

This parameter is used to select the switchover method for control mode. Control mode can be controlled by thermostat(Automatic) or controlled manually using relevant communication object or via communication object and local button.

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]

This parameter is used to select the control mode switchover communication object type.

Switchover Cyclic Sending Interval

1 ... *5 ... 255 min

This parameter is used to select the cyclic time period to transmit the control mode switchover information via relevant object.

4.5.2. Operating Mode (Comfort , Night, Away, Protection)

<i>Operating Modes</i>	<i>Comfort</i> <i>Comfort, Protection</i> <i>Comfort, Night, Protection</i> <i>*Comfort, Night, Away, Protection</i>
------------------------	--------------------------------------------------------------------------------------------------------------------------------------

<i>DPT Operating Mode Object</i>	<i>*1 Byte [DPT_HVAC_Mode]</i> <i>Bit Objects</i>
----------------------------------	-------------------------------------------------------------

This parameter is used to select the data type for operating mode switchover communication objects type.

<i>DPT Operating Mode Status Object</i>	<i>*1 Byte [DPT_HVAC_Mode]</i> <i>Bit Objects</i>
-----------------------------------------	-------------------------------------------------------------

This parameter is used to select the data type for operating mode status of switchover communication objects type.

4.5.3. 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

4.5.3.1. Main Stages

Main Stage control type parameters will be explained in this section.

4.5.3.1.1. 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.

Main Stages – Heat and Cool

<i>Control Value</i>	*Normal <i>Inverse</i>
This parameter is used to invert the control value of the device. For example, if normal control output value is %80, then inverted control output value is %20.	
<i>Sending of Control Value</i>	<i>Cyclic</i> *Cyclic and Change
This parameter is used to select the control value sending cyclically only or cyclical and "Minimum Change" of control value is reached.	
<i>Cyclical Sending Interval</i>	1 ... *5 ... 255 min
This parameter is used to determine the time period to send heating or cooling control value over "Heating Control Value" or "Cooling Control Value" communication object.	
<i>Minimum Change</i>	1 ... *4 ... 25 %
This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines the minimum control output change for transmitting the heating or cooling control value.	
<i>Maximum Control Signal</i>	0 ... *100 %
This parameter is used to determine the maximum control output value sending.	
<i>Minimum Control Signal</i>	0 ... *5 ... 100 %
This parameter is used to determine the minimum control output value sending.	
<i>Spot Heat Protection</i>	<i>checked</i> *unchecked

This parameter enables the Heat Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "**Temperature Sensor**" page to show this parameter.

<i>Spot Cool Protection</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------	-------------------------------------

This parameter enables the Cool Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "**Temperature Sensor**" page to show this parameter.

<i>Controller Algorithm</i>	<i>*PI-D</i> <i>I-P</i>
-----------------------------	----------------------------

This parameter is used to select the controller algorithm for Heating or Cooling control.

<i>Proportional Band</i>	<i>1 ... *30 ... 255 x0.1°C</i>
--------------------------	---------------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**PI-D**".

<i>Ti</i>	<i>0 ... *60 ... 255 min</i>
-----------	------------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**PI-D**".

<i>Td</i>	<i>*0 ... 255 min</i>
-----------	-----------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**PI-D**".

<i>Proportional Gain Kp</i>	<i>1 ... *66 ... 255 %/K</i>
-----------------------------	------------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**I-P**".

<i>Internal Gain Ki</i>	<i>1 ... *32 ... 255 %0.001/K</i>
-------------------------	-----------------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**I-P**".

<i>SP Action Gain</i>	<i>0, 0.1 ... *1 Kp</i>
-----------------------	-------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**I-P**".

<i>Positive PV Action Band</i>	<i>5 ... *15 ... 255 x - 0.1K</i>
--------------------------------	-----------------------------------

This parameter will be shown when the "**Controller Algorithm**" is selected as "**I-P**".

4.5.3.1.2. 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 $10 \cdot 20 / 100 = 2$ min. Note that PI values and PWM cycle should be selected appropriate to room. As a rule more inactive the system larger the PWM cycle should be.

Main Stages – Heat and Cool

<i>Control Value</i>	*Normal <i>Inverse</i>
----------------------	----------------------------------

This parameter is used to invert the control value of the device. For example, if normal control output value is 1, then inverted control output value is 0.

<i>PWM Period</i>	1 ... *10 ... 255 min
-------------------	------------------------------

This parameter is used to determine the PWM period

<i>Signal Minimum Switching Time</i>	*0 ... 255 s
--------------------------------------	---------------------

This parameter determines additional time for each control of the output. For e.g. The valve opening delay time can be covered with this parameter.

<i>Maximum Control Signal</i>	0 ... *100 %
-------------------------------	---------------------

This parameter is used to determine the maximum control output value sending.

<i>Minimum Control Signal</i>	0 ... *5 ... 100 %
-------------------------------	---------------------------

This parameter is used to determine the minimum control output value sending.

<i>Spot Heat Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Heat Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "**Temperature Sensor**" page to show this parameter.

<i>Spot Cool Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Cool Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "**Temperature Sensor**" page to show this parameter.

<i>Controller Algorithm</i>	*PI-D I-P
This parameter is used to select the controller algorithm for Heating or Cooling control.	
<i>Proportional Band</i>	1 ... *30 ... 255 x0.1°C
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Ti</i>	0 ... *60 ... 255 min
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Td</i>	*0 ... 255 min
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Proportional Gain Kp</i>	1 ... *66 ... 255 %/K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>Internal Gain Ki</i>	1 ... *32 ... 255 %0.001/K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>SP Action Gain</i>	0, 0.1 ... *1 Kp
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>Positive PV Action Band</i>	5 ... *15 ... 255 x - 0.1K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	

4.5.3.1.3. 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.

Main Stages – Heat and Cool

<i>Control Value</i>	*Normal <i>Inverse</i>
----------------------	----------------------------------

This parameter is used to invert the control value of the device. For example, if normal control output value is 1, then inverted control output value is 0.

<i>Cyclical Sending Interval</i>	1 ... *5 ... 255 min
----------------------------------	-----------------------------

This parameter is used to determine the time period to send heating or cooling control value over “**Heating Control Value**” or “**Cooling Control Value**” communication object.

<i>Hysteresis (+/-)</i>	1 ... *10 ... 255 x 0.1K
-------------------------	---------------------------------

This parameter is used to determine the hysteresis value for control output.

<i>Spot Heat Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Heat Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in “**Temperature Sensor**” page to show this parameter.

<i>Spot Cool Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Cool Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in “**Temperature Sensor**” page to show this parameter.

4.5.3.1.4. 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.

Main Stages – Heat and Cool

<i>Control Value</i>	*Normal <i>Inverse</i>
----------------------	----------------------------------

This parameter is used to invert the control value of the device. For example, if normal control output value is %80, then inverted control output value is %20.

<i>Sending of Control Value</i>	<i>Cyclic</i> *Cyclic and Change
---------------------------------	--------------------------------------------

This parameter is used to select the control value sending cyclically only or cyclical and "Minimum Change" of control value is reached.

<i>Cyclical Sending Interval</i>	1 ... *5 ... 255 min
----------------------------------	-----------------------------

This parameter is used to determine the time period to send heating or cooling control value over "Heating Control Value" or "Cooling Control Value" communication object.

<i>Minimum Change</i>	1 ... *4 ... 25 %
-----------------------	--------------------------

This parameter appears when the "Sending of Control Value" is selected as "Cyclic and Change". It determines the minimum control output change for transmitting the heating or cooling control value.

<i>Maximum Control Signal</i>	0 ... *100 %
-------------------------------	---------------------

This parameter is used to determine the maximum control output value sending.

<i>Minimum Control Signal</i>	0 ... *5 ... 100 %
-------------------------------	---------------------------

This parameter is used to determine the minimum control output value sending.

<i>Spot Heat Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Heat Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

<i>Spot Cool Protection</i>	<i>checked</i> *unchecked
-----------------------------	-------------------------------------

This parameter enables the Cool Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

<i>Controller Algorithm</i>	*PI-D I-P
This parameter is used to select the controller algorithm for Heating or Cooling control.	
<i>Proportional Band</i>	1 ... *30 ... 255 x0.1°C
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Ti</i>	0 ... *60 ... 255 min
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Td</i>	*0 ... 255 min
This parameter will be shown when the " Controller Algorithm " is selected as " PI-D ".	
<i>Proportional Gain Kp</i>	1 ... *66 ... 255 %/K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>Internal Gain Ki</i>	1 ... *32 ... 255 %0.001/K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>SP Action Gain</i>	0, 0.1 ... *1 Kp
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	
<i>Positive PV Action Band</i>	5 ... *15 ... 255 x - 0.1K
This parameter will be shown when the " Controller Algorithm " is selected as " I-P ".	

4.5.3.1.5. 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).

Main Stages – Heat and Cool

<i>Cyclical Sending Interval</i>	<i>1 ... *5 ... 255 min</i>
----------------------------------	-----------------------------

This parameter is used to determine the time period to send heating or cooling control value over "Heating Control Value" or "Cooling Control Value" communication object.

<i>Communication Error Object</i>	<i>Enable</i> <i>*Disable</i>
-----------------------------------	----------------------------------

This parameter allows the additional error communication object for split control. The device will enter to the Protection Mode in case of error.

<i>Spot Heat Protection</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------	-------------------------------------

This parameter enables the Heat Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

<i>Spot Cool Protection</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------	-------------------------------------

This parameter enables the Cool Protection via Spot Temperature Sensor. Spot Temperature sensor must be enabled in "Temperature Sensor" page to show this parameter.

4.5.3.2. Additional Stages

Additional stages can be combined with 5 different ways which are;

- 1- Heating with Additional Heating
- 2- Cooling with Additional Cooling
- 3- Heat/Cool with Additional Heating
- 4- Heating/Cooling with Additional Cooling
- 5- Heating/Cooling with Additional Heating/Cooling

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

4.5.3.2.1. PI Continuous

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

Additional Stages – Heat and Cool

<i>Additional Stage Activation</i>	<i>Always</i> <i>*On Difference to Setpoint</i>
------------------------------------	-----------------------------------------------------------

This parameter is used to select the additional stage activation method. It can be activated always or according to setpoint difference.

<i>Activation Difference</i> <i>(Away from Setpoint)</i>	<i>10 ... *40 ... 255 x 0.1K</i>
-------------------------------------------------------------	----------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be activated if the difference is reached. Given value will be multiplied with 0.1

<i>Deactivation Difference</i> <i>(Close to Setpoint)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
--------------------------------------------------------------	---------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be deactivated if the difference is reached. Given value will be multiplied with 0.1

<i>Controller Algorithm "On/Off" Override</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------------------------	--------------------------------------------

The controller algorithm will be disabled when this parameter is "**checked**". When this parameter is selected, the maximum control signal of additional stage will be applied.

4.5.3.2.2. PI PWM

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

Additional Stages – Heat and Cool

<i>Additional Stage Activation</i>	<i>Always</i> <i>*On Difference to Setpoint</i>
------------------------------------	-----------------------------------------------------------

This parameter is used to select the additional stage activation method. It can be activated always or according to setpoint difference.

<i>Activation Difference</i> <i>(Away from Setpoint)</i>	<i>10 ... *40 ... 255 x 0.1K</i>
-------------------------------------------------------------	----------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be activated if the difference is reached. Given value will be multiplied with 0.1

<i>Deactivation Difference</i> <i>(Close to Setpoint)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
--------------------------------------------------------------	---------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be deactivated if the difference is reached. Given value will be multiplied with 0.1

<i>Controller Algorithm "On/Off" Override</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------------------------	--------------------------------------------

The controller algorithm will be disabled when this parameter is "**checked**". When this parameter is selected, the maximum control signal of additional stage will be applied.

4.5.3.2.3. On/Off

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

Additional Stages – Heat and Cool

<i>Hysteresis (+/-)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
-------------------------	---------------------------------

This parameter will be shown if the “**Additional Stage Activation**” is selected as “**Always**”. It is used to determine the hysteresis value for control output.

<i>Additional Stage Activation</i>	<i>Always</i> <i>*On Difference to Setpoint</i>
------------------------------------	----------------------------------------------------

This parameter is used to select the additional stage activation method. It can be activated always or according to setpoint difference.

<i>Activation Difference</i> <i>(Away from Setpoint)</i>	<i>10 ... *40 ... 255 x 0.1K</i>
-------------------------------------------------------------	----------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be activated if the difference is reached. Given value will be multiplied with 0.1

<i>Deactivation Difference</i> <i>(Close to Setpoint)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
--------------------------------------------------------------	---------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be deactivated if the difference is reached. Given value will be multiplied with 0.1

<i>Controller Algorithm “On/Off” Override</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------------------------	-------------------------------------

The controller algorithm will be disabled when this parameter is “**checked**”. When this parameter is selected, the maximum control signal of additional stage will be applied.

4.5.3.2.4. Fan Coil

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

Additional Stages – Heat and Cool

<i>Fan Speed</i>	<i>Fan Speed 1</i> <i>Fan Speed 2</i> <i>*Fan Speed 3</i> <i>Auto</i> <i>Controlled by Main Stage**</i>
------------------	-----------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the Fan Level when additional control is activated. It is not allowed to change Fan Speed levels in Additional Stage.

****NOTE:** If the main stage has Fan Control, this parameter will be disabled. Fan actions can be done via Main Stage control. Therefore, additional stage fan coil fan may not be turned off due to main stage fan control. Here are the solutions below;

- Do not use a controller with fan in main stage
- Use fan coil in main stage only.
- Configure your actuator so that it turns off the fan when control value is 0 (zero).

<i>Additional Stage Activation</i>	<i>Always</i> <i>*On Difference to Setpoint</i>
------------------------------------	-----------------------------------------------------------

This parameter is used to select the additional stage activation method. It can be activated always or according to setpoint difference.

<i>Activation Difference</i> <i>(Away from Setpoint)</i>	<i>10 ... *40 ... 255 x 0.1K</i>
-------------------------------------------------------------	----------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be activated if the difference is reached. Given value will be multiplied with 0.1

<i>Deactivation Difference</i> <i>(Close to Setpoint)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
--------------------------------------------------------------	---------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be deactivated if the difference is reached. Given value will be multiplied with 0.1

<i>Controller Algorithm "On/Off" Override</i>	<i>checked</i> <i>*unchecked</i>
-----------------------------------------------	--------------------------------------------

The controller algorithm will be disabled when this parameter is "**checked**". When this parameter is selected, the maximum control signal of additional stage will be applied.

4.5.3.2.5. Split Unit

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

Additional Stages – Heat and Cool

<i>Fan Speed</i>	<i>Fan Speed 1</i> <i>Fan Speed 2</i> <i>*Fan Speed 3</i> <i>Auto</i> <i>Controlled by Main Stage**</i>
------------------	-----------------------------------------------------------------------------------------------------------------------------------

This parameter is used to select the Fan Level when additional control is activated. It is not allowed to change Fan Speed levels in Additional Stage.

****NOTE:** If the main stage has Fan Control, this parameter will be disabled. Fan actions can be done via Main Stage control. Therefore, additional stage fan coil fan may not be turned off due to main stage fan control. Here are the solutions below;

- Do not use a controller with fan in main stage
- Use fan coil in main stage only.
- Configure your actuator so that it turns off the fan when control value is 0 (zero).

<i>Additional Stage Activation</i>	<i>Always</i> <i>*On Difference to Setpoint</i>
------------------------------------	-----------------------------------------------------------

This parameter is used to select the additional stage activation method. It can be activated always or according to setpoint difference.

<i>Activation Difference</i> <i>(Away from Setpoint)</i>	<i>10 ... *40 ... 255 x 0.1K</i>
-------------------------------------------------------------	----------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be activated if the difference is reached. Given value will be multiplied with 0.1

<i>Deactivation Difference</i> <i>(Close to Setpoint)</i>	<i>1 ... *10 ... 255 x 0.1K</i>
--------------------------------------------------------------	---------------------------------

This parameter is used to determine the difference between setpoint and current temperature. Additional stage will be deactivated if the difference is reached. Given value will be multiplied with 0.1

4.5.4. Fan Control

This parameter tab will be shown if the any “**Controller Type**” is selected “**Fan Coil**” or “**Split Unit**” at least.

<i>Send Fan Speed Cyclically</i>	<i>checked</i> <i>*unchecked</i>
----------------------------------	--------------------------------------------

This parameter is used to enable/disable cyclical sending of fan speed status.

Following 2 parameters will be shown if “**Send Fan Speed Cyclically**” is “**checked**”.

<i>Cyclical Sending Interval</i>	<i>1 ... *5 ... 255 min</i>
----------------------------------	------------------------------------

It is used to determine the time period to send the fan speed status over relevant communication object(s).

<i>Also Send Auto-Fan Value</i>	<i>*checked</i> <i>unchecked</i>
---------------------------------	--------------------------------------------

This parameter is used to select Auto-Fan status sending together with fan speed statuses.

<i>Fan Turn Off Action when Control Value is 0 (Main Stage control type must be Fan Coil)</i>	<i>*Send Speed=0</i> <i>Send Auto=Enable</i> <i>Send Auto=Disable -> Speed=0</i> <i>None*</i>
----------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------

This parameter is used to select the fan turn off action when the control value is zero. Fan speed changes on KNX bus will not be permitted.

*NOTE: You should configure your actuator to turn off fan according to the “Control Value”.

<i>Enable Automatic Fan when Control Unit is Inactive</i>	<i>*checked</i> <i>unchecked</i>
-----------------------------------------------------------	--------------------------------------------

This parameter will be shown If “**Fan Turn Off Action when Control Value is 0**” is selected as “**None**”. Inactive state means Regulation OFF, Protection Mode (when it is not in use), Deactivated Additional Stage (If main stage has **no** fan and additional stage has fan)

Automatic Fan Enable command will be sent to KNX bus when device in inactive mode.

<i>Writing to Manual Fan Speed Objects when Automatic Fan Enabled</i>	<i>*Disables Automatic Fan</i> <i>Keeps Automatic Fan Enabled*</i>
---------------------------------------------------------------------------	------------------------------------------------------------------------------

This parameter is used to allow to the manual fan speed changes via object.

*NOTE: If “**Keeps Automatic Fan Enabled**” is selected, manual fan speed changes via object will not be allowed until Automatic Fan mode disabled manually.

NOTE: Split unit control style fan objects are unaffected.

4.5.4.1. Fan Objects

<i>DPT Automatic Fan Speed</i>	*0 = Disable; 1 = Enable [DPT_Enable] 0 = Enable; 1 = Disable
Telegram value to enable automatic fan speed might differ between different actuators. Therefore, this parameter is used to change the telegram value for enabling automatic fan speed.	
<i>Enumerated Object</i>	*Checked
This parameter allows to control the fan speeds via 1-byte enumerated object. It is always checked.	
<i>Control Style</i>	*Fan Coil (0 = Speed 0) Split Unit (0 = Auto)
This parameter is used to select the fan speed control styles.	
<i>Scaling [%] Object</i>	*unchecked checked
This parameter allows to control the fan speeds via 1-byte percentage object.	
<i>Control Style</i>	*Fan Coil (0% = Speed 0) Split Unit (0% = Auto)
This parameter is used to select the fan speed control styles.	
<i>Bit Objects</i>	*unchecked checked
This parameter allows to control the fan speeds via 1-bit objects.	
<i>Reset Values of Unselected Fan Objects</i>	*No Yes
This parameter will be shown if " Bit Objects " is " Checked " It is used to send unselected fan speed status with the selected fan speed status.	
<i>Optional Method for Turning Off Fan (Fan Coil only)</i>	*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 will be shown If " Fan Turn Off Action when Control Value is 0 " is selected as " Send Speed = 0 " or " Send Auto=Disable -> Speed=0 ". It is used to select the additional method for turning of fan.	

<i>LCD Fan Speed Status from Object (In Automatic Fan) (Fan Coil only)</i>	<i>*unchecked checked</i>
--------------------------------------------------------------------------------	--------------------------------------

This parameter is used to show the fan level on thermostat LCD screen when the Fan is in Auto mode.

If this parameter is “**checked**”, “**Choose DPT**” parameter will be shown below.

<i>Choose DPT</i>	<i>*Enumerated Scaling [%]</i>
-------------------	-------------------------------------------

This parameter is used to select the datapoint type of relevant object.

4.6. Setpoints

Send Setpoint

Cyclic
****Cyclic and Change***

This parameter is used to select the setpoint temperature sending type.

If “**Cyclic**” selected, the setpoint temperature value will be sent in every cyclical duration ending regardless to the setpoint temperature change.

If “**Cyclic and Change**” selected, the setpoint temperature value will be sent in every cyclical duration ending or determined setpoint temperature change.

Cyclical Sending Interval

*10... *60 ... 65535 s*

This parameter is used to determine the period time for setpoint temperature value sending.

Setpoint Button Step Value

*0.1, *0.5, 1 K*

This parameter determines the step value for every setpoint change via setpoint buttons.

Setpoint Object Step Value

*0.1, *0.5, 1 K*

This parameter determines the step value for every setpoint change via step setpoint object.

Operating Mode Setpoint Objects

Enable
****Disable***

This parameter is used to activate/deactivate the change setpoint objects for each operating mode.

4.6.1 Setpoint Limits

Maximum Setpoint

0... ***40** ... 99 °C / °F

This parameter determines the maximum setpoint for device. Setpoint can not be set higher than this value.

Minimum Setpoint

***0** ... 99 °C / °F

This parameter determines the minimum setpoint for device. Setpoint can not be set lower than this value.

NOTE: If the Minimum Setpoint value is equal or higher than Maximum Setpoint value, the default settings (min 0, max 40) will be applied.

4.6.2. Heating & Cooling Setpoints

Multi Setpoint

Enable

****Disable***

*Disabled (Manual Switchover Only)**

This parameter allows to set the setpoints for heating & cooling independently.

NOTE*: If “**Switchover Method**” parameter is selected as “**Automatic**” on Thermostat Parameters page, Multi Setpoint will not be available.

4.6.3. Return to ETS Programmed Values

After KNX Bus Recovery

Yes

****No***

This parameter is used to set the setpoints to the default value after KNX bus recovery, if selected “Yes”. Otherwise, user defined setpoint values will be kept after KNX bus recovery.

After Operating Mode Change

Yes

****No***

This parameter is used to set the setpoints to the default value after operating mode change, if selected “Yes”. Otherwise, user defined setpoint values will be kept after operating mode change.

After Control Mode Change

Yes

****No***

This parameter is used to set the setpoints to the default value after control mode change, if selected “Yes”. Otherwise, user defined setpoint values will be kept after control mode change.

Reset on Site Object

Yes

****No***

This parameter is used to set the setpoints to the default value via communication object.

Reset on Site Value

*0, *1, Any Value*

This parameter is used to define the activation value for reset on site communication object.

4.6.4. Comfort Mode

<i>Setpoint</i>	0 ... * 25 ... 99	°C
	0 ... * 77 ... 99	°F

This parameter is used to define the default setpoint temperatures for Comfort Mode Heating/Cooling.

<i>Setpoint Heating</i>	0 ... * 25 ... 99	°C
	0 ... * 77 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Comfort Mode Heating only.

<i>Setpoint Cooling</i>	0 ... * 25 ... 99	°C
	0 ... * 77 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Comfort Mode Cooling only.

<i>Range Limit</i>	0 ... * 5 ... 18 K
	<i>None</i>

This parameter is used to determine the range limit for setpoint change for Comfort Mode.

<i>Fan Speed (Fan Coil and Split Unit)</i>	<i>Fan Speed 1, 2, 3, *Auto</i>
--------------------------------------------	---------------------------------

This parameter is used to determine the default fan speed for Comfort Mode.

<i>Use Above Fan Speed for All Operating Modes (Fan Coil and Split Unit)</i>	*unchecked
	<i>checked</i>

This parameter is used to select the default fan speed for all operating modes.

4.6.5. Night Mode

<i>Setpoint</i>	0 ... * 23 ... 99	°C
	0 ... * 73 ... 99	°F

This parameter is used to define the default setpoint temperatures for Night Mode Heating/Cooling.

<i>Setpoint Heating</i>	0 ... * 23 ... 99	°C
	0 ... * 73 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Night Mode Heating only.

<i>Setpoint Cooling</i>	0 ... * 23 ... 99	°C
	0 ... * 73 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Night Mode Cooling only.

<i>Range Limit</i>	0 ... * 5 ... 18	K
	None	

This parameter is used to determine the range limit for setpoint change for Night Mode.

<i>Fan Speed (Fan Coil and Split Unit)</i>	Fan Speed 1, 2, 3, * Auto
--------------------------------------------	----------------------------------

This parameter is used to determine the default fan speed for Night Mode.

4.6.6. Away Mode

<i>Setpoint</i>	0 ... * 21 ... 99	°C
	0 ... * 70 ... 99	°F

This parameter is used to define the default setpoint temperatures for Away Mode Heating/Cooling.

<i>Setpoint Heating</i>	0 ... * 21 ... 99	°C
	0 ... * 70 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Away Mode Heating only.

<i>Setpoint Cooling</i>	0 ... * 21 ... 99	°C
	0 ... * 70 ... 99	°F

This parameter will be shown If “**Multi Setpoint**” parameter is “**checked**”. It is used to define the default setpoint temperatures for Away Mode Cooling only.

<i>Range Limit</i>	0 ... * 5 ... 18 K
	None

This parameter is used to determine the range limit for setpoint change for Away Mode.

<i>Fan Speed (Fan Coil and Split Unit)</i>	Fan Speed 1, 2, 3, * Auto
--------------------------------------------	----------------------------------

This parameter is used to determine the default fan speed for Away Mode.

4.6.7. Protection Mode

<i>Heat Protection Limit</i>	0... *40 ... 99 °C
	0... *95 ... 99 °F

This parameter defines the heat protection limit. When the room temperature is equal or greater than this limit in Protection Mode, thermostat will work on Cooling mode (if available). If there is no Cooling Mode, device will shut down the Heating control.

<i>Frost Protection Limit</i>	0... *5 ... 99 °C
	0... *41 ... 99 °F

This parameter defines the heat protection limit. When the room temperature is equal or greater than this limit in Protection Mode, thermostat will work on Heating mode (if available). If there is no Heating Mode, device will shut down the Cooling control.

<i>Protection Deactivation Hysteresis</i>	10... *20 ... 255 x0.1 K
-------------------------------------------	---------------------------------

This parameter defines the deactivation hysteresis.

<i>Fan Speed (Fan Coil and Split Unit)</i>	Fan Speed 1, 2, *3 , Auto
--------------------------------------------	----------------------------------

This parameter is used to determine the default fan speed for Protection Mode. Fan speed level can not be changed on Protection Mode.

4.7. Local Control

Setpoint Button

*Fan Speed 1, 2, *3, Auto*

This parameter is used to lock/unlock the setpoint button. Change Setpoint objects will not be affected.

Fan Speed Button

*Fan Speed 1, 2, *3, Auto*

This parameter is used to lock/unlock the fan speed button. Fan speed control objects will not be affected.

Operating Mode Button

*Fan Speed 1, 2, *3, Auto*

This parameter is used to lock/unlock the operating mode button. Operating mode objects will not be affected.

Long Press (2.5 s) Actions:

- Operating Mode Button: Regulation Off (Short Press for On)
- Fan Speed Button: Backlight Dimming On/Off
- Setpoint +/- Button: Heat/Cool Switchover (If Enabled)

5. Object Descriptions

5.1. General Object Description

Object name	Function	DPT	Length	Flags
In operation	General	1.002	1 bit	CT
<p>This object is used to report the device still alive and communicated by the KNX bus. Telegram value is selectable ON/OFF. If this telegram is not received at the end of the cycle duration, device may be defective or KNX cable may be interrupted.</p>				
Thermostat Joint Link	General	12.*	4 bytes	CWT
<p>This object is used to link the all devices with a group address. ROSA thermostat devices will be synchronized over this communication object in this manner.</p>				
Window contact	General	1.019	1 bit	CW
		1.*	1 bit	CW
<p>This object is used to transmit Window status from related input.</p> <p>DPT 1.019 ; 0 = Window closed 1 = Window opened</p> <p>DPT 1.* 0 = Window opened 1 = Window closed</p>				

5.2. LED Brightness

Object name	Function	DPT	Length	Flags
LCD Brightness Preset - Trigger 1	LED Brightness	1.003	1 bit	CW
LCD Brightness Preset - Trigger 0	LED Brightness	1.*	1 bit	CW
LCD Brightness Preset - 0=Reset, 1...9	LED Brightness	5.010	1 byte	CW
LCD Brightness Level Step – [%]	LED Brightness	5.001	1 byte	CW
This communication objects are used to LCD, Status Button and Navigation button LED brightness control.				

5.3. Rocker/Button Objects Description

Object name	Function	DPT	Length	Flags
Rockers				
Rocker 1...4 – Telegr.switch	Switch Switch and Dim	1.001	1 bit	CWT
<p>On/Off telegrams will be sent to group address that is linked to this communication object.</p> <p>0 = Switch OFF 1 = Switch ON</p>				
Rocker 1...4 – Status Comm.Obj.	Switch Switch and Dim	1.002	1 bit	CWT
<p>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. If status confirmation not to be used the communication object should be disabled by “Separate Comm Object” parameter.</p>				
Rocker 1...4 – Telegr.dimming	Switch and Dim	3.007	4 bit	CRWT
<p>Dimming values will be sent via group address that is linked to this communication object.</p>				
Rocker 1...4 – Telegr.shutter UP/DOWN	Shutter	1.008	1 bit	CWT
<p>This communication object will be used to start blind movement.</p> <p>0 = Blind UP 1 = Blind DOWN</p>				
Rocker 1...4 – Telegr.STOP / Lamella adj.	Shutter	1.002	1 bit	CWT
<p>If the “Control Type” parameter is “Shutter/Venetian Blind” the Blind STOP and Lamella movement can be used. If the “Control Type” parameter is “Blind/Roller/Awning”, the Blind STOP action can be used only.</p>				
Rocker 1...4 – Top Position	Shutter	1.002	1 bit	CWT
<p>This communication object should be linked with an appropriate group address that will be used to detect whether blind is at “Top Position” (True) or not (False).</p>				
Rocker 1...4 – Bottom Position	Shutter	1.002	1 bit	CWT
<p>This communication object should be linked with an appropriate group address that will be used to detect whether blind is at “Bottom Position” (True) or not (False).</p>				

Object name	Function	DPT	Length	Flags
Rocker 1...4 – Telegr.value[0,1]	Value Operation	1.002	1 bit	CWT
Enabled when “Data Type” selected as “1-bit”				
Rocker 1...4 – Telegr.value[0...255]	Value Operation	5.010	1 byte	CWT
Enabled when “Data Type” selected as “1-byte unsigned”.				
Rocker 1...4 – Telegr.value[-128...127]	Value Operation	6.010	1 byte	CWT
Enabled when “Data Type” selected as “1-byte signed”.				
Rocker 1...4 – Telegr.value[0...100%]	Value Operation	5.001	1 byte	CWT
Enabled when “Data Type” selected as “1-byte percentage”.				
Rocker 1...4 – Telegr.value[0...65535]	Value Operation	7.001	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte unsigned”.				
Rocker 1...4 – Telegr.value[-32768...32767]	Value Operation	8.001	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte signed”.				
Rocker 1...4 – Telegr.value(2-byte float)	Value Operation	9.*	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte float”.				
Rocker 1...4 – Telegr.value(4-byte unsigned)	Value Operation	12.001	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte unsigned”.				
Rocker 1...4 – Telegr.value(4-byte signed)	Value Operation	13.001	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte signed”.				
Rocker 1...4 – Telegr.value(4-byte float)	Value Operation	14.*	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte float”.				

Object name	Function	DPT	Length	Flags
Buttons				
Button 1...8 – Telegr.switch	Switch Switch and Dim	1.001	1 bit	CWT
<p>On/Off telegrams will be sent to group address that is linked to this communication object.</p> <p>0 = Switch OFF 1 = Switch ON</p>				
Button 1...8 – Status Comm.Obj.	Switch Switch and Dim	1.002	1 bit	CWT
<p>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. If status confirmation not to be used the communication object should be disabled by “Separate Comm Object” parameter.</p>				
Button 1...8 – Telegr.dimming	Switch and Dim	3.007	4 bit	CRWT
<p>Dimming values will be sent via group address that is linked to this communication object.</p>				
Button 1...8 – Telegr.shutter UP/DOWN	Shutter	1.008	1 bit	CWT
<p>This communication object will be used to start blind movement.</p> <p>0 = Blind UP 1 = Blind DOWN</p>				
Button 1...8 – Telegr.STOP / Lamella adj.	Shutter	1.002	1 bit	CWT
<p>If the “Control Type” parameter is “Shutter/Venetian Blind” the Blind STOP and Lamella movement can be used. If the “Control Type” parameter is “Blind/Roller/Awning”, the Blind STOP action can be used only.</p>				
Button 1...8 – Top Position	Shutter	1.002	1 bit	CWT
<p>This communication object should be linked with an appropriate group address that will be used to detect whether blind is at “Top Position” (True) or not (False).</p>				
Button 1...8 – Bottom Position	Shutter	1.002	1 bit	CWT
<p>This communication object should be linked with an appropriate group address that will be used to detect whether blind is at “Bottom Position” (True) or not (False).</p>				

Object name	Function	DPT	Length	Flags
Button 1...8 – Telegr.value[0,1]	Value Operation	1.002	1 bit	CWT
Enabled when “Data Type” selected as “1-bit”				
Button 1...8 – Telegr.value[0...255]	Value Operation	5.010	1 byte	CWT
Enabled when “Data Type” selected as “1-byte unsigned”.				
Button 1...8 – Telegr.value[-128...127]	Value Operation	6.010	1 byte	CWT
Enabled when “Data Type” selected as “1-byte signed”.				
Button 1...8 – Telegr.value[0...100%]	Value Operation	5.001	1 byte	CWT
Enabled when “Data Type” selected as “1-byte percentage”.				
Button 1...8 – Telegr.value[0...65535]	Value Operation	7.001	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte unsigned”.				
Button 1...8 – Telegr.value[-32768...32767]	Value Operation	8.001	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte signed”.				
Button 1...8 – Telegr.value(2-byte float)	Value Operation	9.*	2 bytes	CWT
Enabled when “Data Type” selected as “2-byte float”.				
Button 1...8 – Telegr.value(4-byte unsigned)	Value Operation	12.001	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte unsigned”.				
Button 1...8 – Telegr.value(4-byte signed)	Value Operation	13.001	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte signed”.				
Button 1...8 – Telegr.value(4-byte float)	Value Operation	14.*	4 bytes	CWT
Enabled when “Data Type” selected as “4-byte float”.				

Object name	Function	DPT	Length	Flags
Button 1...8 -long – Telegr.value[0,1]	Value Operation	1.002	1 bit	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “1-bit”				
Button 1...8 -long – Telegr.value[0...255]	Value Operation	5.010	1 byte	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “1-byte unsigned”.				
Button 1...8 -long – Telegr.value[-128...127]	Value Operation	6.010	1 byte	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “1-byte signed”.				
Button 1...8 -long – Telegr.value[0...100%]	Value Operation	5.001	1 byte	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “1-byte percentage”.				
Button 1...8 -long – Telegr.value[0...65535]	Value Operation	7.001	2 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “2-byte unsigned”.				
Button 1...8 -long – Telegr.value[-32768...32767]	Value Operation	8.001	2 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “2-byte signed”.				
Button 1...8 -long – Telegr.value(2-byte float)	Value Operation	9.*	2 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “2-byte float”.				
Button 1...8 -long – Telegr.value(4-byte unsigned)	Value Operation	12.001	4 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “4-byte unsigned”.				
Button 1...8 -long – Telegr.value(4-byte signed)	Value Operation	13.001	4 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “4-byte signed”.				
Button 1...8 -long – Telegr.value(4-byte float)	Value Operation	14.*	4 bytes	CWT
Enabled when “Long Press Request” is selected “yes” and “Long Press Data Type” selected as “4-byte float”.				

5.4. Temperature Sensor Objects Description

Object name	Function	DPT	Length	Flags
Current Temperature °C	Temperature Sensor	1.001	2 bytes	CRT
Current Temperature °F		9.027		
This object is used to transmit the first (main) Temperature sensor measurement.				
External Temperature Sensor °C	Temperature Sensor	9.001	2 bytes	CW
External Temperature Sensor °F		9.027		
This object is used to write the measured temperature sensor to thermostat device.				
Spot Temperature Sensor °C	Temperature Sensor	9.001	2 bytes	CW
Spot Temperature Sensor °F		9.027		
This object is used to write the measured spot temperature sensor to thermostat device.				

5.5. Thermostat Objects Description

Object name	Function	DPT	Length	Flags
Operating Mode	Operating Mode	5.011	1 byte	CW
Comfort Mode	Operating Mode	1.003	1 bit	CW
Night Mode	Operating Mode	1.003	1 bit	CW
Away Mode	Operating Mode	1.003	1 bit	CW
Protection Mode	Operating Mode	1.003	1 bit	CW
<p>These objects are used to switch between operating modes.</p> <p>If "Switchover Comm Object Type" is "1 byte"; 0: Comfort Mode, 1: Night Mode, 2: Away Mode, 3: Protection Mode.</p> <p>If "Switchover Comm Object Type" is "1 bit"; Comfort Mode = 1 Night Mode = 1 Away Mode = 1 Protection Mode = 1 values should be sent to the device to switch operating modes.</p>				
Switchover	Control Mode	1.100	1 bit	CRWT
<p>This object is used to select switchover mode manually via 1 bit object.</p> <p>Heating = 1 Cooling = 0</p>				
Control Mode Status	Control Mode	1.100	1 bit	CRT
<p>This object is used to transmit control mode status via 1 byte object.</p> <p>Heating = 1 Cooling = 0</p>				
Switchover	Control Mode	20.105	1 byte	CRWT
<p>This object is used to select switchover mode manually via 1 byte object.</p> <p>Heating = 1 Cooling = 3</p>				
Control Mode Status	Control Mode	20.105	1 byte	CRT
<p>This object is used to transmit control mode status select via 1 byte object.</p> <p>Heating = 1 Cooling = 3</p>				

Object name	Function	DPT	Length	Flags
Status Operating Mode	Operating Mode	5.011	1 byte	CW
Status Comfort Mode	Operating Mode	1.003	1 bit	CW
Status Night Mode	Operating Mode	1.003	1 bit	CW
Status Away Mode	Operating Mode	1.003	1 bit	CW
Status Protection Mode	Operating Mode	1.003	1 bit	CW

These objects are used to transmit the operating mode statuses.

If "Switchover Comm Object Type" is "1 byte";

0: Comfort Mode, 1: Night Mode, 2: Away Mode, 3: Protection Mode.

If "Switchover Comm Object Type" is "1 bit";

Comfort Mode = 1

Night Mode = 1

Away Mode = 1

Protection Mode = 1 values will be operating mode statuses.

5.6. Control Output Objects Description

Object name	Function	DPT Type	Length	Flags
Heat Control Value	Output	5.001	1 byte	CT
This object is used to transmit the Heating Control output value for Main Stage.				
Cool Control Value	Output	5.001	1 byte	CT
This object is used to transmit the Cooling Control output value for Main Stage.				
Heat/Cool Control Value	Output	5.001	1 byte	CT
These objects will be shown if "Control Object of Main Stage" is selected as "Joint". It is used to control switching outputs. NOTE: Heating or Cooling control should be selected via Switchover.				
Heat Control Value	Output	1.002	1 bit	CT
This object is used to transmit the Heating Control output value for Main Stage.				
Cool Control Value	Output	1.002	1 bit	CT
This object is used to transmit the Cooling Control output value for Main Stage.				
Heat/Cool Control Value	Output	1.002	1 bit	CT
These objects will be shown if "Control Object of Main Stage" is selected as "Joint". It is used to control switching outputs. NOTE: Heating or Cooling control should be selected via Switchover.				
Split Heat Error	Output	1.002	1 bit	CW
This object is used to write a value in case of Heating Split Unit failure.				
Split Cool Error	Output	1.002	1 bit	CW
This object is used to write a value in case of Cooling Split Unit failure.				
Split Heat/Cool Error	Output	1.002	1 bit	CW
These objects will be shown if "Control Object of Main Stage and/or Additional Stage" is selected as "Joint". This object is used to write a value in case of Heating/Cooling Split Unit failure. NOTE: Heating or Cooling control should be selected via Switchover.				

Object name	Function	DPT Type	Length	Flags
Additional Heat Control Value	Output	5.001	1 byte	CT
This object is used to transmit the Heating Control output value for Main Stage.				
Additional Cool Control Value	Output	5.001	1 byte	CT
This object is used to transmit the Cooling Control output value for Main Stage.				
Additional Heat/Cool Control Value	Output	5.001	1 byte	CT
These objects will be shown if “Control Object of Additional Stage” is selected as “Joint”. It is used to control switching outputs. NOTE: Heating or Cooling control should be selected via Switchover.				
Additional Heat Control Value	Output	1.002	1 bit	CT
This object is used to transmit the Heating Control output value for Main Stage.				
Additional Cool Control Value	Output	1.002	1 bit	CT
This object is used to transmit the Cooling Control output value for Main Stage.				
Additional Heat/Cool Control Value	Output	1.002	1 bit	CT
These objects will be shown if “Control Object of Additional Stage” is selected as “Joint”. It is used to control switching outputs. NOTE: Heating or Cooling control should be selected via Switchover.				

5.7. Fan Speed Objects Description

Object name	Function	DPT	Length	Flags
Fan Speed 0	Fan Control	1.002	1 bit	CT
This object is used to transmit "1" when the Fan is OFF.				
Automatic Fan Speed	Fan Control	1.002	1 bit	CWT
		1.*	1 bit	CWT
Automatic fan speed will be enabled/disabled through this communication object. Telegram value to enable automatic fan speed should be selected in "Comm Object Value to Enable Automatic Fan Speed" parameter. If " 0 = Disable; 1 = Enable " selected; 0 = Disable -> Fan Control is in manual mode 1 = Enable -> Fan Control is in auto mode If " 1 = Disable; 0 = Enable " selected; 0 = Enable -> Fan Control is in auto mode 1 = Disable -> Fan Control is in manual mode				
Fan Speed	Fan Control	5.010	1 byte	CWT
This object is used to transmit/write the fan speed value via 1-byte object. 0 = Fan OFF 1 = Fan Speed 1 2 = Fan Speed 2 3 = Fan Speed 3				
Fan Speed 1	Fan Control	1.002	1 bit	CWT
Fan Speed 2	Fan Control	1.002	1 bit	CWT
Fan Speed 3	Fan Control	1.002	1 bit	CWT
This object is used to transmit/write the fan speed value via 1-bit objects. If any 1 bit Fan Speed receives the "True" value, then the Fan Speed level will be applied according to 1-bit fan speed object.				

5.8. Setpoint Objects Description

Object name	Function	DPT	Length	Flags
Regulation	ON/OFF	1.002	1 bit	CWT
<p>This object is used to control the regulation ON or OFF.</p> <p>0 = Turn OFF the Regulation 1 = Turn ON the Regulation</p>				
Regulation (Status)	ON/OFF	1.002	1 bit	CRT
<p>This object is used to transmit the regulation status.</p> <p>0 = Regulation is OFF 1 = Regulation is ON</p>				
Change Setpoint	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
<p>This object is used to change the current setpoint regardless to the operating and control mode.</p>				
Change Setpoint [+/-]	Setpoint	1.007	1 bit	CW
<p>This object is used to change the current setpoint step by step regardless to the operating and control mode.</p>				
Current Setpoint	Setpoint	9.001 (°C)	2 bytes	CRT
		9.027 (°F)	2 bytes	CRT
<p>This object is used to change the current setpoint regardless to the operating and control mode</p>				
Setpoint Comfort	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
<p>This object is used to change the setpoint for the comfort mode.</p>				
Setpoint Heating Comfort	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Comfort		9.027 (°F)		
<p>These objects are used to change the setpoint for the comfort mode according to control mode.</p>				

Object name	Function	DPT	Length	Flags
Setpoint Comfort (Status)	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
This object is used to transmit the setpoint for the comfort mode.				
Setpoint Heating Comfort (Status)	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Comfort (Status)		9.027 (°F)		
These objects are used to transmit the setpoint for the comfort mode according to control mode.				
Setpoint Night	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
This object is used to change the setpoint for the night mode.				
Setpoint Heating Night	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Night		9.027 (°F)		
These objects are used to change the setpoint for the night mode according to control mode.				
Setpoint Night (Status)	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
This object is used to transmit the setpoint for the night mode.				
Setpoint Heating Night (Status)	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Night (Status)		9.027 (°F)		
These objects are used to transmit the setpoint for the night mode according to control mode.				

Object name	Function	DPT	Length	Flags
Setpoint Away	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
This object is used to change the setpoint for the away mode.				
Setpoint Heating Away	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Away		9.027 (°F)		
These objects are used to change the setpoint for the away mode according to control mode.				
Setpoint Away (Status)	Setpoint	9.001 (°C)	2 bytes	CW
		9.027 (°F)	2 bytes	CW
This object is used to transmit the setpoint for the away mode.				
Setpoint Heating Away (Status)	Setpoint	9.001 (°C)	2 bytes	CW
Setpoint Cooling Away (Status)		9.027 (°F)		
These objects are used to transmit the setpoint for the away mode according to control mode.				