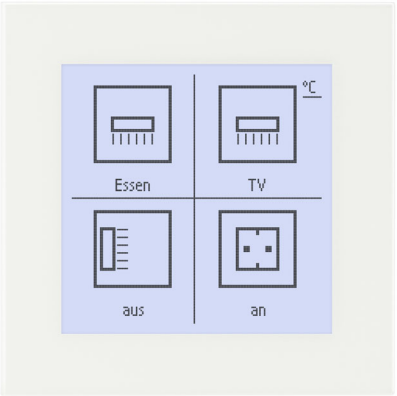
Nunio KNX M-T
Push Button

Item number 71280



elsner elektronik

Installation and Adjustment

Installation, inspection, commissioning and troubleshooting of the device must only be carried out by a competent electrician.

This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual

Safety advice.

Safety advice for working on electrical connections, components, etc.

DANGER! ... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING! ... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION! ... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.

ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS In the ETS tables, the parameter default settings are marked by underlining.

1. Safety and operating instructions

1.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

CAUTION!
Live voltage!
There are unprotected live components inside the device.

- National legal regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for the intended purpose described in this manual. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2. Description

The **Nunio KNX M-T push button** is a touch switch that be universally used for the KNX building system. It has a monochrome touch display, on which buttons can be displayed in various arrangements. The functions of the buttons are defined individually. As a result, the sensor is extremely flexible with regard to changing requirements (change of tenant in residential or commercial properties, hotel rooms, etc.).

A temperature sensor is integrated into **Nunio KNX M-T push button**. An external temperature reading can be received via the bus and processed with its own data to create a total temperature (mixed value).

Nunio KNX M-T has a PI controller for heating and cooling. A temperature control display can also be represented on the screen. The target temperature, mode and, if applicable, the fan speed can be set there.

Communication objects can be linked via AND and OR logic gates.

The switch-sized device has an integrated glass frame, which is backlit by the screen's lighting. It installed in a switch box.

Functions:

- **Display screen** with one, two, three or four touch buttons. Icon and text selectable for each button. Each button can be configured as a switch, changer, drive (shutter, blind, awning or window with short/long difference), window, dimmer, 8 or 16-bit encoder or to call/save scenes
- **Display lighting** with adjustable basic and operating brightness. At both brightness levels, the **outsides of the frame are also illuminated.** The display can be switched off completely (standby).
- **Area function**if touched with the hand or when wiping. Can be configured as switch, selector switch, as 8 or 16 bit encoder or for scenario recall
- **Menu for temperature control** with +/- buttons (warmer, cooler), target value display, mode selection button and fan speed setting
- Display lighting adjustable, including switched off in standby mode
- **Temperature** measurements. **Mixed value** from own measured value and external values (proportion can be set by percentage), output of minimum and maximum values
- **PI-controller for heating** (one or two-level) and **cooling** (one or two-level) according to temperature. Control according to separate setpoints or basic setpoint temperature. With fan-coil control
- **2 AND and 2 OR logic gates** each with 4 inputs. Switching events as well as 8 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output from each gate can be configured optionally as 1-bit or 2 x 8-bit

2.1. Scope of delivery

- Sensor with integrated frame
- Base frame

2.1.1. Accessories required

- Device socket according to DIN 49073

2.2. Technical data

General:	
Casing	Genuine glass, plastic
Colours	similar to RAL 9010 pure white
Assembly	on device socket according to DIN 49073
Size	85 mm × 85 mm (W × H), Installation via socket approx. 10.5 mm, Total depth approx. 31 mm, Support frame approx. 71 mm × 71 mm (W × H)

Total weight	approx. 140 g
Display resolution	160 × 160 px
Ambient temperature	0…+55°C
Ambient humidity	5...80% RH, non-condensing
Storage temperature	-30…+80°C
Overvoltage category	III
Degree of contamination	2
KNX bus:	
Medium	TP1-256
Configuration mode	S-Mode
Group addresses	max. 254
Assignments	max. 254
Communication objects	106
Nominal voltage	30 V ⎓ SELV
Power consumption	maximum 25 mA
Connection	KNX plug terminals
Conductor diameter plug-in terminals	0,6…0,8 mm² s
Duration after bus voltage restoration until data is received	approx. 5 seconds
Sensor:	
Temperature measurement range	0…+55°C
Temperature resolution	0.1°C

The product conforms to the conditions of the EU Directives.

2.2.1. Accuracy of the measurement

Measurement variations from permanent sources of interference (see chapter *Installation position*) can be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

When **measuring temperature**, the self-heating of the device is considered by the electronics. The heating is compensated for in the device.

2.2.2. Device structure

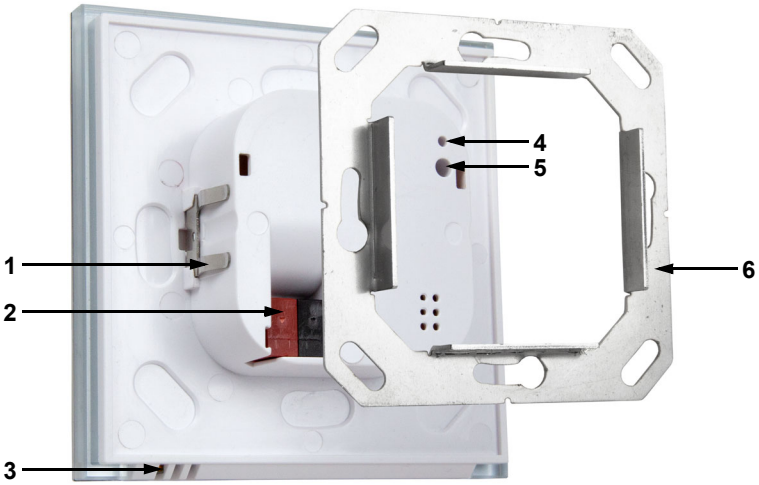


Fig. 1: Back

1 Fixing clamp
2 KNX terminal BUS +/-
3 Ventilation slot temperature measurement
4 Programming LED (recessed)
5 Programming LED (recessed) for teaching the device
6 Base frame

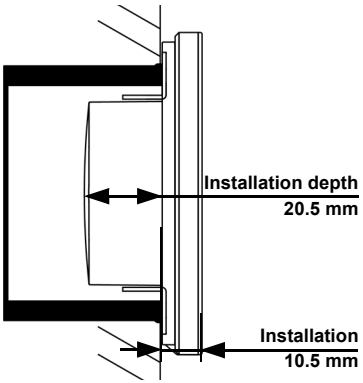


Fig. 2: Cross-section representation

3. Installation

3.1. Installation location and preparation

The **Nunio KNX M-T push button** is installed on a socket. For correct temperature recording, a wind-tight socket must be used. The casing of the device must not be opened.

May be installed and operated in dry interior rooms only.

When selecting an installation location, ensure that the measurement results are affected as little as possible by external influences. Possible sources of interference include:

- Direct sunlight
- Drafts from windows and doors
- Draft from ducts which lead from other rooms or from the outside to the junction box in which the sensor is mounted
- Warming or cooling of the building structure on which the sensor is mounted, e.g. due to sunlight, heating or cold water pipes
- Connection lines and ducts which lead from warmer or colder areas to the sensor

Measurement variations from permanent sources of interference can be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

3.2. Connection

DANGER!
Danger due to electrical voltage (mains voltage)!

- The socket, in which the device is installed, must not contain cabling with 230 V.
- Observe the regulations and standards applicable to SELV circuits during installation and wiring of the KNX connection and inputs.

First install the windproof socket with feed line. Seal the inlet tubes as well, in order to prevent draughts.

Then screw the base frame to the box.

Connect the **KNX databus** +/- to the KNX connection terminal (black-red).

Insert the device firmly onto the metal frame using the fixing clamps so that the device is fixed.

4. Commissioning

Configuration is made using the KNX software as of ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on **www.elsner-elektronik.de** in the "Service" menu. There you will also find the product manual.

After the bus voltage has been applied, the unit will enter an initialisation phase lasting approx. 5 seconds. During this period, no information can be received or transmitted via the bus.

4.1. Address the device on the bus

The physical address is assigned by the ETS. The device has a sensor and a control LED (fig. 1, No. 4+5).

The equipment is delivered with the bus address 15.15.255. Another address can be programmed using the ETS.

5. Views and device operation

5.1. Buttons

One, two, three or more buttons can be represented on the display. The definition is entered into ETS. The functions and symbols are allocated here, and two text variants, each with 12 letters/numbers are entered.

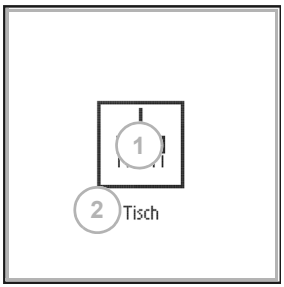


Fig. 3: 1 button
Touch area
1 Area for symbol
2 Individual text

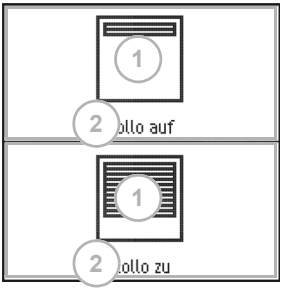


Fig. 4: 2 buttons horizontal
Touch areas
1 Areas for symbols
2 Individual text

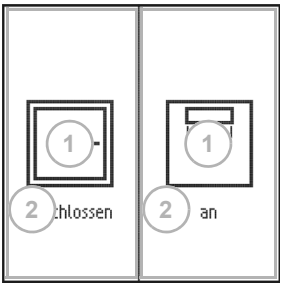


Fig. 5: 2 buttons vertical
Touch areas
1 Areas for symbols
2 Individual text

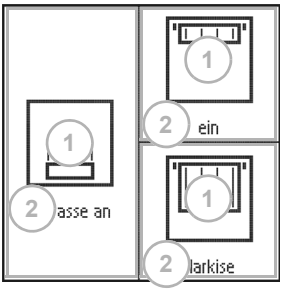


Fig. 6: 3 buttons
Touch areas
1 Areas for symbols
2 Individual text

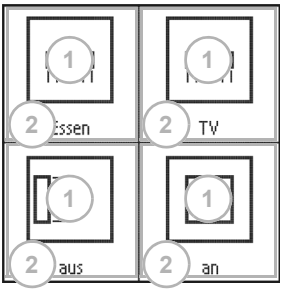


Fig. 7: 4 buttons
Touch areas
1 Areas for symbols
2 Individual text

5.2. Symbol overview

The following symbols can be selected in the device application (ETS):

None

0

1

Scene

Socket

Light

Suspended lights

Standard lamp

Table lamp

Wall lights

Ceiling lights

Floor lamp

Blind closed

Blind open

Shutters closed

Shutters open

Awning retracted

Awning extended

Windows closed

Windows open

5.3. Area function

If the area function in ETS has been activated, another function is available alongside the regular key functions. This is triggered by touching or wiping over an area, e.g. if you touch the sensor with the palm of your hand.

Using the area function

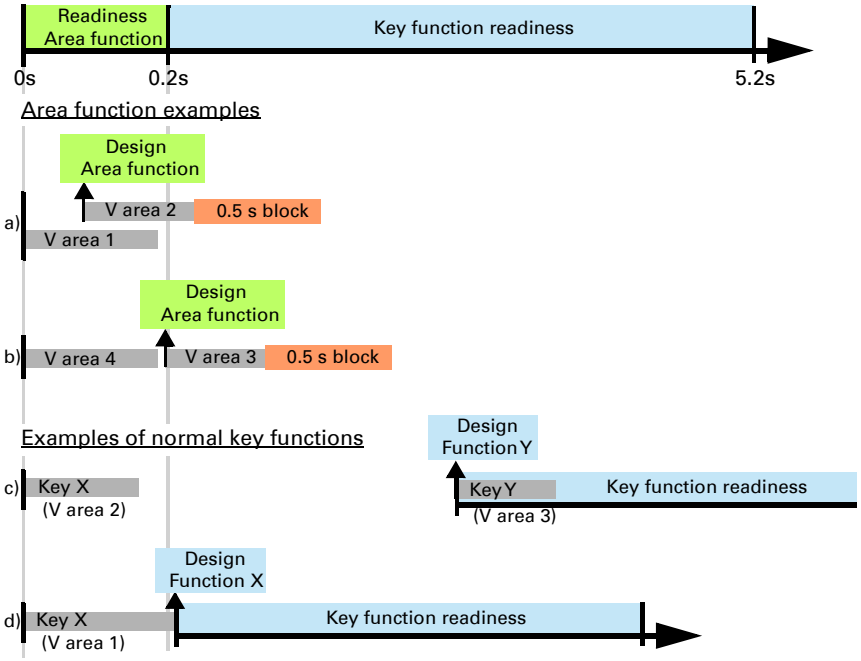
The display area of the sensor is divided into four virtual areas, which correspond to the buttons for the setting “4 buttons”. The virtual areas are independent of the buttons shown. They remain the same, irrespective of whether one, two, three or four buttons are displayed.

If one of the four areas is touched and another (different) virtual real is touched within 0.2 seconds a key is pressed and another (different) key is touched within one second, the action set in the ETS is performed for the area operation (See a) and b)). The touch function is then blocked for 0.5 seconds.

Using the normal key function

If one of the key areas displayed is pressed and no other virtual area is touched within 0.2 seconds, the normal key function is enabled for 5 seconds (See c) and d)). This that if the 0.2 seconds have passed, different buttons or even the same button can be pressed multiple times and the normal button function is executed. With each new touch of a button, the readiness for the normal button function is extended by 5 seconds.

Fig. 8
V area = virtual area



If the area function in the ETS is disabled, the keys can be used normally at any time.

5.4. Temperature controller menu

If the temperature controller of the **Nunio KNX M-T** is used, a temperature controller menu can be represented. The temperature controller menu must be activated in the ETS.

An area **°C** is then shown at the top right of the button display. Tap it to open the temperature controller menu.

Button display

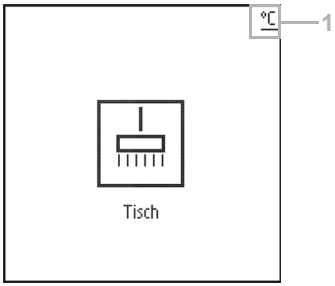


Fig. 9 a
1 To the temperature controller menu

Temperature controller menu

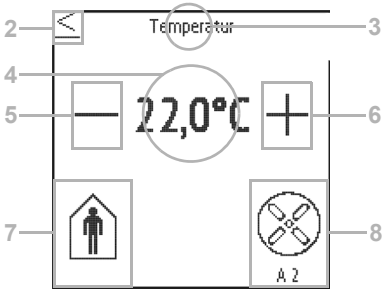


Fig. 9 b
2 Return to scanner
3 Temperature controller labelling field (free text)
4 Target value display (value of the active mode)
5 - Lower target value
6 + Increase target value
7 Mode display and selection
8 Fan controls (optional)

Change target temperature

The **target value** for the active heating or cooling mode is displayed (Fig. 9b, No. 4) and can be changed with +/- (Fig. 9b, No. 5+6).

In the device application (temperature controller, ETS), however, it can be specified that the target cannot be changed for each mode. If the manual modification of the nominal value is blocked in one mode, the symbol "Manual blocked" is briefly shown when an attempt is made to modify the value.

The increment and the possible setting range are also specified in the application's temperature controller. Whether the manually changed values are retained after a mode change (e.g. Eco mode over night), or if the stored values are reapplied, is also defined here.

Change mode

Tap the **Mode** symbol (Fig. 9b, No. 7) in order to display the possible operating modes one after another. This causes a frame around the symbol to flash. To confirm the se-

lection and activate the displayed mode, remain on the symbol for a little longer. The frame briefly flashes faster and then disappears. The mode is activated.

Comfort

Standby

Eco

Building protection

The manual selection possibility can be restricted in the device application (temperature controller, ETS).

A small additional symbol indicates whether heating or cooling is in progress (manipulated variable not equal to zero).

Heating mode

Cooling mode

Touch the symbol "**Comfort extension**" in order to change from Eco mode briefly into Comfort mode. This allows the user to maintain the nominal comfort value for a longer time, e.g. when having guests.

Comfort extension

The duration of this comfort extension period is set in the ETS. The remaining time is shown next to the symbol. After the comfort extension period is terminated, the system returns to Eco mode.

The comfort extension option may also be blocked in the ETS (symbol does not appear for selection).

Change fan speed

If **Control of a fan** (fan coil) is selected in the ETC, touching the fan symbol (Fig. 9b, No. 8) switches between
AX = Automatic with current level
M0 = Manually switched off
M1 = Manual level 1
M2 = Manual level 2
M3 = Manual level 3

When switching through the levels, a frame around the fan symbol flashes. To confirm the selection and activate the displayed mode, remain on the symbol for a little longer. The frame briefly flashes faster and then disappears. The mode is activated.

Blocking and jumping back

The **button function** of the temperature controller display can be **prevented** because of an active operating mode with priority 1 (e.g. building protection during window ventilation). This is displayed by the symbol "Manual change blocked".

In the application one can specify that the display automatically **jumps back** to "Sensor" if the display in the temperature controller menu has not been touched for the entered time.

6. Maintenance

Ventilation slits must not be dirty of covered. If required, wipe the device with a soft, dry cloth.

7. Disposal

After use, the device must be disposed of or recycled in accordance with the legal regulations. Do not dispose of it with the household waste!

8. Transfer protocol

Units:

Temperatures in degrees Celsius

8.1. List of all communications objects

Abbreviation flags:

C Communication
R Read
W Write
T Transmit
U Update

No	Text	Function	Flags	DPT type	Size
0	Software version	Output	R-CT	[217.1] DPT_Version	2 Bytes
31	Area operation on/off	Input	-WC-	[1.1] DPT_Switch	1 Bit
32	Area operation Output: Switch	Output	R-CT	depending on setting	2 Bytes
33	Display basic brightness	Input / Output	-WC-	[5.1] DPT_Scaling	1 Byte
34	Display operating brightness	Input / Output	-WC-	[5.1] DPT_Scaling	1 Byte
35	Display automatic switching-off	Input	-WC-	[1.3] DPT_Enable	1 Bit
47	Temperature sensor: malfunction	Output	R-CT	[1.1] DPT_Switch	1 Bit
48	Temperature sensor: measured value external	Input	-WCT	[9.1] DPT_Value_Temp	2 Bytes
49	Temperature sensor: measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
50	Temperature sensor: measured value total	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
51	Temperature sensor: measured value min./max. query	Input	-WC-	[1.17] DPT_Trigger	1 Bit
52	Temperature sensor: measured value minimum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
53	Temperature sensor: measured value maximum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
54	Temperature sensor: measured value min./max. reset	Input	-WC-	[1.17] DPT_Trigger	1 Bit
58	Menu change (1 = Temp.controller menu| 0 = Sensor menu)	Input	-WC-	[1.1] DPT_Switch	1 Bit
61	Temp.control: HVAC mode (priority 1)	Input / Output	RWCT	depending on setting	1 Byte

No	Text	Function	Flags	DPT type	Size
62	Temp.control: HVAC mode (priority 2)	Input / Output	RWCT	depending on setting	1 Byte
63	Temp.control: Mode frost/heat protection activt.	Input	RWCT	[1.1] DPT_Switch	1 Bit
64	Temp.control: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
65	Temp.control: Current setpoint	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
66	Temp.control: Switch. (0: Heating | 1: Cooling)	Input	-WC-	[1.1] DPT_Switch	1 Bit
67	Temp.control: Setpoint Comfort heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
68	Temp.control: Setpoint Comfort heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
69	Temp.control: Setpoint Comfort cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
70	Temp.control: Setpoint Comfort cool.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
71	Temp.control: Basic 16-bit setpoint shift	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
72	Temp.control: Setpoint Standby heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
73	Temp.control: Setpoint Standby heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
74	Temp.control: Setpoint Standby cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
75	Temp.control: Setpoint Standby cool. (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
76	Temp.control: Setpoint Eco heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
77	Temp.control: Setpoint Eco heating (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
78	Temp.control: Setpoint Eco cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
79	Temp.control: Setpoint Eco cooling (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
80	Temp.control: Control variable heating (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
81	Temp.control: Control variable heating (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
82	Temp.control: Control variable cooling (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
83	Temp.control: Control variable cooling (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte

No	Text	Function	Flags	DPT type	Size
84	Temperature control: Variable for 4/6-way valve	Output	R-CT	[5.1] DPT_Scaling	1 Byte
85	Temp.control: Status Heat. level 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
86	Temp.control: Status Heat. level 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
87	Temp.control: Status Cool. level 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
88	Temp.control: Status Cool. level 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
89	Temp.control: Comfort extension status	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
90	Temp.control: Comfort Extension time	Input	RWCT	[7.5] DPT_TimePeriodSec	2 Bytes
91	Temp. Controller: Fan coil levels 0 to 3	Output	R-CT	[5.1] DPT_Scaling	1 Byte
92	Temp. Controller: Fan coil level 1	Output	R-CT	[1.1] DPT_Switch	1 Bit
93	Temp. Controller: Fan coil level 2	Output	R-CT	[1.1] DPT_Switch	1 Bit
94	Temp. Controller: Fan coil level 3	Output	R-CT	[1.1] DPT_Switch	1 Bit
95	Temp. Controller: Fan coil auto=1 manual=0	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
101	Push button 1 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
102	Push button 1 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
103	Push button 1 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
104	Push button 1 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
105	Push button 1 encoder 8 bit	Output	R-CT	[5.5] DPT_Value_1_Ucount	1 Byte
106	Push button 1 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
107	Push button 1 Scene (recall)	Output	R-CT	depending on setting	1 Byte
108	Button 1 Change text	Input	-WC-	[1.1] DPT_Switch	1 Bit
109	Push button 2 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
110	Push button 2 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
111	Push button 2 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
112	Push button 2 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
113	Push button 2 encoder 8 bit	Output	R-CT	[5.5] DPT_Value_1_Ucount	1 Byte
114	Push button 2 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes

No	Text	Function	Flags	DPT type	Size
115	Push button 2 Scene (recall)	Output	R-CT	depending on setting	1 Byte
116	Button 2 Change text	Input	-WC-	[1.1] DPT_Switch	1 Bit
117	Push button 3 long-term	Output	R-CT	[1.8] DPT_Up-Down	1 Bit
118	Push button 3 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
119	Push-button 3 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
120	Push button 3 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
121	Push-button 3 encoder 8 bit	Output	R-CT	[5.5] DPT_Value_1_Ucount	1 Byte
122	Push-button 3 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
123	Push button 3 Scene (recall)	Output	R-CT	depending on setting	1 Byte
124	Button 3 Change text	Input	-WC-	[1.1] DPT_Switch	1 Bit
125	Push button 4 long-term	Output	R-CT	[1.8] DPT_Up-Down	1 Bit
126	Push button 4 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
127	Push-button 4 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
128	Push button 4 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
129	Push-button 4 encoder 8 bit	Output	R-CT	[5.5] DPT_Value_1_Ucount	1 Byte
130	Push-button 4 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
131	Push button 4 Scene (recall)	Output	R-CT	depending on setting	1 Byte
132	Button 4 Change text	Input	-WC-	[1.1] DPT_Switch	1 Bit
135	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
136	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
137	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
138	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
139	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
140	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
141	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
142	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
145	AND logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
146	AND logic 1: 8 bit output A	Output	R-CT	depending on setting	1 Byte
147	AND logic 1: 8 bit output B	Output	R-CT	depending on setting	1 Byte
148	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
149	AND logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit

No	Text	Function	Flags	DPT type	Size
150	AND logic 2: 8 bit output A	Output	R-CT	depending on setting	1 Byte
151	AND logic 2: 8 bit output B	Output	R-CT	depending on setting	1 Byte
152	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
153	OR logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
154	OR logic 1: 8 bit output A	Output	R-CT	depending on setting	1 Byte
155	OR logic 1: 8 bit output B	Output	R-CT	depending on setting	1 Byte
156	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
157	OR logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
158	OR logic 2: 8 bit output A	Output	R-CT	depending on setting	1 Byte
159	OR logic 2: 8 bit output B	Output	R-CT	depending on setting	1 Byte
160	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit

9. Setting the parameters

9.1. Behaviour on power failure/ restoration of power

Behaviour following a failure of the bus power supply:

The device sends nothing.

Behaviour on bus restoration of power and following programming or reset:

The device sends all outputs according to their send behaviour set in the parameters with the delays established in the "General settings" parameter block.

9.2. General settings

Set basic characteristics for the data transfer.

Transmission delay after reset/restoration of bus	5...300 s
Maximum telegram rate	1 • 2 • 5 • 10 • 20 • 50 Telegrams per second

9.3. Temperature Measurement

Select, whether a **malfunction object** is to be sent if the sensor is faulty.

Use malfunction object	No • Yes

Use **Offsets** to adjust the readings to be sent.

Offset in 0.1°C	-50…50; 0

The unit can calculate a **mixed value** from its own reading and an external value. Set the mixed value calculation if desired. If an external portion is used, all of the following settings (threshold values, etc.) are related to the overall reading.

Use external measured value	No • Yes
Ext. Reading proportion of the total reading	5% • 10% • ... • 50% • ... • 100%
Sending pattern for internal and total measured value	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • ... • 5.0°C
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

The **minimum and maximum readings** can be saved and sent to the bus. Use the "Reset temperature min/max. value" objects to reset the values to the current readings. The values are not retained after a reset.

Use minimum and maximum value	No • Yes

9.4. Temperature PI control – Independent controller

Activate the control.

Use control	No • Yes

Determine if this device should take over the temperature control (stand-alone controller), or if the Nunio display should act as an extension for operating another controller.

Intended as a	• **Stand-alone controller** • Controller extension (for operating a stand-alone controller only)

The settings for the 'Stand-alone controller' option are described below. For configuration as an extension, please see Chapter 9.5. *Temperature PI control – Controller extension unit*, page 33.

General control

Set, in which cases **setpoint values and extension time** received via object are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the 1st communication (setting via objects is ignored).

Maintain the	
Target values and extension time received via communication objects	• never • after power supply restoration • after power supply restoration and programming

For an adequate regulation of the ambient temperature, comfort, standby, eco and building protection modes may be used.
Comfort when present,
Standby during short absences,
Eco as a night-time mode and
Frost/heat protection (building protection) e. g. with the window open.

The settings for the temperature control include the setpoint temperatures for the individual modes. Objects are used to determine which mode is to be selected. A change of mode may be triggered manually or automatically (e.g. by a timer, window contact).

The **mode** may be switched with two 8 bit objects of different priority. Objects
„... HVAC mode (Prio 2)“ for switching in everyday operation and
„... HVAC mode (Prio 1)“ for central switching with higher priority.
The objects are coded as follows:
0 = Auto
1 = Comfort
2 = Standby
3 = Eco
4 = Building Protection

Alternatively, you can use three objects, with one object switching between eco and standby mode and the two others activating comfort mode and frost/heat protection mode respectively. The comfort object blocks the eco/standby object, and the frost/heat protection object has the highest priority. Objects
„... Mode (1: Eco, 0: Standby)“,
„... comfort activation mode" and
„... frost/heat protection activation mode"

Switch mode via	• two 8 Bit objects (HVAC Modes) • three 1 bit objects

Select the **mode to be activated after reset** (e.g. power failure, reset of the line via the bus) (Default).
Then configure a temperature control **block** via the blocking object.

Mode after reset	• Comfort • Standby • Eco • Building protection
Behaviour of the blocking object with value	• 1 = Block | 0 = release • 0 = block | 1 = release
Value of the blocking object after reset	0 • 1

Specify when the current **control variables** of the controller are to be **sent** to the bus. Periodic sending is safer, in case a message does not reach a recipient. You may also set up periodical monitoring by the actuator with this setting.

Send control variable	• on change • on change and periodically
from change (in % absolute)	1...10; 2
Cycle *(if sent periodically)*	5 s • ... • 5 min • ... • 2 h

The **status object** reports the current status of the control variables (0% = OFF, >0% = ON) and may for example be used for visualisation, or to switch off the heating pump as soon as the heating is switched off.

Send status objects	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(if sent periodically)*	5 s • ... • 5 min • ... • 2 h

Then define the **type of control**. Heating and/or cooling may be controlled in two levels.

Type of control	• Single level heating • Dual-level heating • Single-level cooling • Single-level heating + single-level cooling • Dual-level heating + single-level cooling • Dual-level heating + dual-level cooling

General setpoint values

Determine if the modified set point values should be kept after a mode change, or if they should reset to the standard specified here.

Keep modified set points after mode change	No • Yes

You may enter separate setpoint values for each mode or use the comfort setpoint as a basic value.
If you are using the control for both heating *and* cooling, you may also select the setting "separately with switching object". Systems used for cooling in summer and for heating in winter can thus be switched from one to the other.
If you are using the basic value, only the deviation from the comfort setpoint value is listed for the other modes (e.g, 2°C less for standby mode).

Setting the setpoint values	• with separate setpoint values with Switching object • with separate setpoint values without Switching object • with comfort setpoint as a basis with Switching object • with comfort setpoint as a basis without Switching object
Behaviour of the switching object at value *(with switching object)*	• 0 = Heating | 1 = Cooling • 1 = Heating | 0 = Cooling
Value of the switching object after reset *(with switching object)*	0 • 1

The **increment** for the setpoint changes is predefined. Whether the change only remains temporarily active (not saved) or is also retained after power supply restoration (and programming), is specified in the first section of "General control". This also applies to a comfort extension.

Increment for setpoint changes (in 0.1 °C)	1… 50; 10

The control may be reset to comfort mode from eco mode, which is used as night mode, via the comfort extension. This allows the user to maintain the comfort setpoint value for a longer time, e.g. when having guests. The duration of this comfort extension period is set. After the comfort extension period expires, the system returns to eco mode.

Comfort extension time in seconds (can only be activated from eco mode)	1…36000; 3600

Comfort Setpoint

Comfort mode is usually used for daytime mode when people are present. A starting value is defined for the comfort setpoint as well as a temperature range in which the setpoint value may be modified.

Starting heating/cooling setpoint (in 0.1 °C) valid until 1st communication *(not upon saving the setpoint value after programming)*	-300…800; 210

If setpoint values are entered separately:

Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Minimum base setpoint (in 0.1°C)	-300…800; 160
Maximum base setpoint (in 0.1°C)	-300…800; 280
Reduction by up to (in 0.1°C)	1…100; 50
Increase by up to (in 0.1°C)	1…100; 50

If the comfort setpoint is used as the basis without a switching object, a dead zone is specified for the control mode "heating *and* cooling" to avoid direct switching from heating to cooling.

Dead zone between heating and cooling *(only if both heating AND cooling are used)*	1…100; 50

Standby setpoint

Standby mode is usually used for daytime mode when people are absent.

If setpoint values are entered separately:

A starting setpoint value is defined as well as a temperature range in which the setpoint value may be changed.

Starting heating setpoint (in 0.1 °C) valid until 1st communication	-300…800; 180
Starting cooling setpoint (in 0.1 °C) valid until 1st communication	-300…800; 240
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Reduce heating setpoint (in 0.1°C) *(for heating)*	0…200; 30
Increase cooling setpoint (in 0.1°C) *(for cooling)*	0…200; 30

Eco setpoint

Eco mode is usually used for night mode.

If setpoint values are entered separately:

A starting setpoint value is defined as well as a temperature range in which the setpoint value may be changed.

Starting heating setpoint (in 0.1 °C) valid until 1st communication	-300…800; 160
Starting cooling setpoint (in 0.1 °C) valid until 1st communication	-300…800; 280
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Reduce heating setpoint (in 0.1°C) *(for heating)*	0…200; 50
Increase cooling setpoint (in 0.1°C) *(for cooling)*	0…200; 60

Setpoint values for frost/heat protection (building protection)

The building protection mode is for example used as long as windows are opened for ventilation. Setpoints for frost protection (heating) and heat protection (cooling) are determined which may not be modified from outside (no access via operating devices etc.). The building protection mode may be activated with delay, which allows you to leave the building before the controls switch to frost/heat protection mode.

Setpoint frost protection (in 0.1°C)	-300…800; 70
Activation delay	less than • 5 s • ... • 5 min • ... • 2 h
Setpoint heat protection (in 0.1°C)	-300…800; 350
Activation delay	less than • 5 s • ... • 5 min • ... • 2 h

General control variables

This setting appears for the control types "Heating *and* Cooling" only. Here, you can decide whether to use a common control variable for heating and cooling. If the 2nd level has a common control variable, you also determine the control mode of the 2nd level here.

For heating and cooling	• separate control variables are used • common control variables are used for Level 1 • common control variables are used for Level 2 • common control variable are used for Level 1+2
Use control variable for 4/6-way valve *(only for common control variables in level 1)*	No • Yes
Control type *(for level 2 only)*	• 2-point-control • PI control
Control variable of the 2nd Level is on *(only for level 2 with 2 point controlling)*	• 1 bit object • 8 bit object

When using the control variable for a 4/6 way valve, the following applies:
0%...100% heating = 66%...100% control variable
OFF = 50% control variable
0%...100% cooling = 33%...0% control variable

9.4.1. Heating control level 1/2

If a heating control mode is configured, one or two setting sections for the heating levels are displayed.

In the 1st level, heating is controlled by a PI control, which allows to either enter control parameters or select predetermined applications.

In the 2nd level (therefore only in case of 2-level heating), heating is controlled via a PI or a 2-point-control.

In level 2, the setpoint difference between the two levels must also be specified, i.e. below which setpoint deviation the second level is added.

Setpoint difference between 1st and 2nd level (in 0.1°C) *(for level 2)*	0...100; 40
Control type *(for level 2, no common control variables)*	• 2-point-control • PI control
Control variable is a *(for level 2 with 2-point controlling, no common control variables)*	• 1 bit object • 8 bit object

PI control with control parameters:

This setting allows individual input of the parameters for PI control.

Control type	**• PI control**
Setting of the controller by	**• Controller parameter** • specified applications

Specify the deviation from the setpoint value at which the maximum control variable value is reached, i.e. the point at which maximum heating power is activated.
The reset time shows how quickly the controller responds to deviations from the setpoint value. In case of a short reset time, the control responds with a fast increase of the control variable. In case of a long reset time, the control responds somewhat less urgently and needs longer until the necessary control variable for the setpoint value deviation is reached.
You should set the time appropriate to the heating system at this point (observe manufacturer's instructions).

Maximum control variable is reached at setpoint/actual difference of (in °C)	1...5
Reset time (in min.)	1...255; 30

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

PI control with predetermined application:

This setting provides fixed parameters for frequent applications.

Control type	**• PI control**
Setting of the controller by	• Controller parameter **• specified applications**

Application	• Warm water heating • Floor heating • Convection unit • Electric heating
Maximum control variable is reached at setpoint/actual difference of (in °C)	Warm water heating: 5 Floor heating: 5 Convection unit: 4 Electric heating: 4
Reset time (in min.)	Warm water heating: 150 Floor heating: 240 Convection unit: 90 Electric heating: 100

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

2-point-control (only level 2):

2-point-control is used for systems which are only set to ON or OFF.

Control type *(is determined at a higher level for common control variables)*	• **2-point-control**

Enter the hysteresis that prevents frequent on/off switching of temperatures in the threshold range.

Hysteresis (in 0.1°C)	0...100; 20

If separate control variables are used, select whether the control variable of the 2nd level is a 1 bit object (on/off) or an 8 bit object (on with percentage/off).

Control variable is a	• 1 bit object • 8 bit object
Value (in %) *(for 8 bit object)*	0...100

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating. On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

9.4.2. Cooling control level 1/2

If a cooling control mode is configured, one or two setting sections for the cooling levels are displayed.

In the 1st level, cooling is controlled by a PI control in which either control parameters can be entered or predetermined applications can be selected.

In the 2nd level (therefore only for 2-level cooling), cooling is controlled via a PI or a 2-point-control.
In level 2, the setpoint deviation between the two levels must also be specified, i.e. above which setpoint value deviation the second level is added.

Setpoint difference between 1st and 2nd level (in 0.1°C) *(for level 2)*	0...100; 40
Control type *(for level 2, no common control variables)*	• 2-point-control • PI control
Control variable is a *(for level 2 with 2-point controlling, no common control variables)*	• 1 bit object • 8 bit object

PI control with control parameters:

This setting allows individual input of the parameters for PI control.

Control type	• **PI control**
Setting of the controller by	• **Controller parameter** • specified applications

Specify the deviation from the setpoint value which reaches maximum variable value, i.e. the point at which maximum cooling power is activated.
The reset time shows how quickly the controller responds to deviations from the setpoint value. In case of a short reset time, the control responds with a fast increase of the control variable. In case of a long reset time, the control responds somewhat less urgently and needs longer until the necessary control variable for the setpoint value deviation is reached. You should set the time appropriate to the cooling system at this point (observe manufacturer's instructions).

Maximum control variable is reached at setpoint/actual difference of (in °C)	1...5
Reset time (in min.)	1...255; 30

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

PI control with predetermined application:

This setting provides fixed parameters for a cooling ceiling

Control type	• **PI control**
Setting of the controller by	• Controller parameter • **specified applications**
Application	• Cooling ceiling
Maximum control variable is reached at setpoint/actual difference of (in °C)	Cooling ceiling: 5
Reset time (in min.)	Cooling ceiling: 30

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

2-point-control (only level 2):

2-point-control is used for systems which are only set to ON or OFF.

Control type *is determined at a higher level for common variables*	• **2-point-control**

Enter the hysteresis that prevents frequent on/off switching of temperatures in the threshold range.

Hysteresis (in 0.1°C)	0...100; 20

If separate control variables are used, select whether the control variable of the 2nd level is a 1 bit object (on/off) or an 8 bit object (on with percentage/off).

Control variable is a	• 1 bit object • 8 bit object
Value (in %) *(for 8 bit object)*	0...100

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

9.4.3. Fan Coil Control

The fan coil control enables the regulation of the fan of convector heating/cooling systems.

Activate the fan coil control.

Use fan coil control	No • **Yes**

In fan coil control, the fan is automatically controlled by one or, in multi-level systems, several control variables for heating or cooling. Select which actuating variable(s) are to control the output. The selection depends on the type of heating/cooling control and the settings made for the actuating variables.

Output is controlled via actuating variable	• Heating 1 • Heating 2 • Cooling 1 • Heating 1 and cooling 1 • Heating 2 and cooling 1 • Heating 1 and cooling 2 • Heating 2 and cooling 2

Select whether the first fan level should also be on when the second and third level are running and whether the second fan level should also be on when the third level is running.

Switch Level 1 on also with Level 2 and 3	No • Yes
Switch Level 2 on also with Level 3	No • Yes

Set which mode is to be active after a reset.

Mode after reset	• Manual • Automatic (e.g. controller actuating variable)
Manual stage after reset *(only for manual)*	0 • 1 • 2 • 3

9.5. Temperature PI control – Controller extension unit

Activate the control

Use control	No • Yes

Determine if this device should take over the temperature control (stand-alone controller), or if the Cala display should act as an extension for operating another controller.

Intended as a	• Stand-alone controller • **Controller extension** (for operating a stand-alone controller only)

Here you can set if the regulator information is read and whether the setpoints should be changed and transmitted when the +/- buttons are pressed.

Controller information no later than after	5...60; Read 10 seconds
Change and transmit setpoints when operating the +/- buttons	No • Yes
Grading for set point changes *(If setpoint changes are transmitted)*	1...50; 5 in 0.1°C

The settings for the 'controller extension' option are described below. For configuration as a stand-alone controller, please see Chapter 9.5. *Temperature PI control – Controller extension unit*, page 33.

The 'temperature controller' menu must be activated (see chapter 9.7. *Display*, page 39) to enable the use of this controller type.

Set the type of mode switching and the controller. For more information about these functions, see setting the device as a stand-alone controller.

Switch mode via	• two 8-bit objects (HVAC modes) • three 1-bit objects
Type of control	• Single stage heating • Dual-stage heating • Single-stage cooling • Dual-stage cooling • Single-stage heating + single-stage cooling • Dual-stage heating + single-stage cooling • Dual-stage heating + dual-stage cooling

You may enter separate set point values for each mode or use the comfort set point as a basic value. If you are using the basic value, only the deviation from the comfort set point value is listed for the other modes (e. g., 2 °C less for standby mode).

Setting the nominal values	• separately • with comfort set point as a basis

If heating or cooling, specify how the status object should be analysed.

Analysis of the status object	• 0 = Heating 1 = Cooling • 1 = Heating | 0 = Cooling

Activate fan coil control if a fan is used for heating/cooling.

Use fan coil control	No • Yes

Select whether the first fan stage should be switched on when the second and the third stages are on, and if the second fan stage should be switched on if the third stage is on.

Switch stage 1 on also if stages 2 and 3 are running	No • Yes
Switch stage 2 on if stage 3 is running	No • Yes

9.6. Buttons

Set how many buttons should be displayed on the screen, whether you want to block operation and how many buttons you want to use.
If necessary, activate the buttons that you want to use. The menus for the other settings of the push buttons are shown on them.

Layout	• No buttons • 1 button • 2 buttons vertical • 2 buttons horizontal • 3 buttons • 4 buttons
Freeze controls	• Never • If background lighting in basic lightness • If background lighting off
Use button 1 / 2 / 3 / 4	No • Yes

For the **Nunio KNX M-T push button** there is screen control with additional function. It is activated by touching the display with the whole hand (see chapter 5.2). The value of the activation object and the function is set for the screen control.

Enable the push button The menus for the other settings of the push buttons are shown on them.

Use push button 1 (top left)	No • Yes
Use push button 2 (top right)	No • Yes
Use push button 3 (bottom left)	No • Yes
Use push button 4 (bottom right)	No • Yes

9.6.1. Push button 1 / 2 / 3 / 4

Here you can set what should be displayed on the screen of the **Nunio KNX M-T**.

Displayed text	*[Free text]*
Change text	No • Yes
Alternatively displayed text	*[Free text]*
Displayed icon	• None • see “Symbol overview”, page 10

Set the function of the push button.

Function	• Switch • Selector switch • Blind • Shutters • Awning • Windows • Dimmer • 8-bit encoder • 16-bit encoder • Scenario recall/ Scenario storage

Push button as switch

Specify which value is sent when pressing/holding the push button and when.

Function	**Switch**
Command when pressing the button	• 0 Send • 1 Send • Do not send message
Command when releasing the button	• 0 Send • 1 Send • Do not send message
Send value	• If there is a change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle (*if transmission is "cyclical"*)	5 s • ... • 1 min • ... • 2 h

Push button as selector switch

Specify whether a switch is performed when pressing or holding and whether there is an additional function after holding the push button for a long period.

Function	**Selector switch**
Use additional function for button held down	No • Yes

Use additional function for button held down	No
Command when pressing the button	• Switch • Do not send message
Command when releasing the button	• Switch • Do not send message

Use additional function for button held down	Yes
Time between tap and hold (0.1 sec)	0 ... 50; 10
Command when pressing the button	Do not send message
Command when releasing before time expires	• Switch • Do not send message
Command when pressing the button	• 0 Send • 1 Send • Switch • Do not send message
Command when releasing the button	• 0 Send • 1 Send • Switch • Do not send message
Send value	• If there is a change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Transmission cycle (if cyclically sent)	5 s • 10 s • ... • 2 h

Push button as blind, shutter, awning or window control

Specify the push button function and the control mode.

Function	**Blind / shutters / awning / window**	
Command (button function)	Up • Down Up • Down • Up/Down Retract • Extend • Retract/Extend Open • Close • Open/ Close	(Blind) (Shutters) (Awning) (Window)
Control mode*	• Standard • Standard inverted • Comfort mode • Dead man switch	

* For additional setting details, see 📖 “Control modes for drive control”, page 38

Push button as dimmer

If the push button should be used as a dimmer, select the function "Dimmer" and define the push button function, time interval (switching/dimming) and if required, the repeat interval for extended pressing of the push button.

Function	**Dimmer**
Command	• Brighter • Darker • Lighter/Darker
Time between switching and dimming (in 0.1 s)	0 ... 50; 5
Repeat the dim command	No • Yes
Repeat the dim command with a long hold of the button	every 0.1 s • ... • every 0.5 s • ... • every 2 s
Dim by	100% • ... • 6% • ... • 1.5%

Push button as 8 bit encoder

If the push button is to be used as an 8-bit encoder, select the function "8-bit encoder" and define which value is to be transmitted.

Range	• 0 ... 255 • 0% ... 100% • 0° ... 360°
Value	• 0... 255 • 0 ... 100 • 0°... 360°

Push button as 16 bit encoder

If the push button is to be used as a 16-bit encoder, select the function "16-bit encoder" and define which value is to be transmitted.

Value (in 0.1)	-6707600 ... 6707600; 0

Push button as scenario control

If a scenario is to be recalled and saved with a push button, select the "Recall scenario / Save scenario" function and specify whether the push button should also be used to save the scenario (press longer)

Scenario (0-63, corresponds to scenario no. 1-64)	0 ... 63
Scenario function	Call up • Call up and storage
Press button longer than (in 0.1s) --> Scenario memory (for call up and storage)	0 ... 50

9.6.2. Control modes for drive control

Behaviour on button actuation in standard control mode:

	short:	**hold**
Blind	Stop/Step	Up or down
Shutters	Stop	Up or down
Awning	Stop	In or out
Windows	Stop	Closed or open

Standard:

If briefly operated, the drive will move incrementally or stops. If operated longer, the drive will move up to the end position. The time difference between "short" and "long" is set individually.

Control mode	**Standard**
Behavior during button operation: short = stop/increment long = Up or Down	
Time between short and long in 0.1 seconds	1...50; 10

Standard inverted:

When pushed shortly, the drive moves up to the end position. When pushed for longer, the drive moves incrementally or stops. The time difference between "short" and "long" and the repeat interval is set individually.

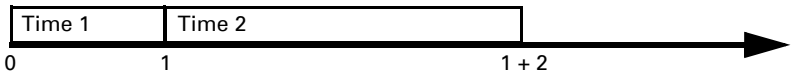
Control mode	**Standard inverted**
Behavior during button operation: short = Up or Down long = Stop/Step	
Time between short and long in 0.1 seconds	1...50; 10
Repeat the step command for a long button press	every 0.1 s • every 2 sec; every 0.5 sec

Comfort mode:

In the **comfort mode** actuating the button briefly, a bit longer and long will trigger different responses of the drive. The time intervals are set individually.

Short actuation (shorter than Time 1): The drive is positioned step-wise and stopped.
Holding it slightly longer (longer than Time 1, but shorter than Time 1+2): Drive running. Drive stops when the button is released.
Long holding (release after Time 1+2 runs out): Drive moves independently to the end position. The movement can be interrupted by a short tap.

Fig. 10
Time interval comfort mode diagram



Point in time 0:	*Actuate of button, start of time 1*
Release before time 1 expired:	*step (or stop if drive is moving)*
Point in time 1:	*End of time 1, start of time 2* *Moving command*
Release after time 1 expired *but before time 2 expires:*	*Stop*
Release after time 1 + 2 expired:	*Move into end position*

Control mode	**Comfort mode**
Behavior during button operation: Button is pushed and released before time 1 expired = stop/step held longer than time 1 = Up or Down released between time 1 and 1-2= stop released after time 1 +2 = no more stop	
Time 1	0.0s ... • 2 s; 0.4 s
Time 2	0 s • 2 s; 2 s

Dead man's switch:

The drive moves as soon as the button is actuated and stops as soon as the button is released.

Control mode	**Dead man's switch**
Behavior during button operation: Push button = Up or Down command Release button = Stop command	

9.7. Display

Set whether objects are used, how bright the display is and whether the display switches off automatically after an operation.
Use objects if you want to stipulate basic and operation brightness and the switching-off after operation through communication objects via the KNX-Bus.
Depending on the ETS setting, the display lights up as standard with the basic brightness or not at all. After the **Nunio KNX M-T push button** has been operated, it lights up with the operating brightness until the switching time has elapsed. After the switching time, the brightness of the push button changes back to the basic brightness. If "Switch off after use" is used, the display lighting switches off completely after the switch-off time. If the switch-off time is set shorter than the switching time, the basic brightness is skipped and the display switches off directly after the switch-off time has elapsed.

The start value indicates whether "Switch off after use" is activated or deactivated after a reset or ETS download.

Use objects	No • Yes
Receive object values (*if objects are used*)	• never • After reset • after reset and ETS download
Basic lightness	0 ... 100; 50
Operating brightness	0 ... 100
Switching time	0 ... 255; 15 seconds
Switch off after use	No • Yes
Switch off time (*if switch off after use is used*)	0 ... 255; 30 seconds
Start value (*if switch off after use is used*)	Off • On

Here you can set whether you want to use the temperature regulator menu and, if necessary, the settings for changing between temperature regulator and button menu.

Use temperature controller menu	No • **Yes**
Menu name	*[Free text]*
The temperature controller must be activated for this menu to be used. Change between temperature controller and button menu per object	
Object evaluation	• 1 = Temp.controller menu | 0 = Switch-Menu • 0 = Temperature controller menu | 1 = Switch menu Menu
Change object value after reset	0 • 1
Change to button menu after (0 = no automatic change)	0 ... 7200; 10 secs. after pressing
(This change only occurs if the button menu is selected per object and the temperature controller menu has been activated per button.)	

Decide whether the control mode is to be manually modified and if so, which modes may be selected.

Allow mode selection	No • **Yes**
The following modes may be activated from the menu	
Comfort	No • Yes
Comfort extension	No • Yes
Standby	No • Yes
Eco	No • Yes
Protection	No • Yes

Then determine the nominal values on the display that may be modified. The nominal values may only be modified for the mode that is currently active.

The following nominal values can be set in the current mode	
Comfort	No • Yes
Standby	No • Yes
Eco	No • Yes
Protection	No *(cannot be modified)*

Activate the fan coil controls if a heater/cooler with fan is to be controlled. The fan speed of convectors can then be set manually or via the corresponding setpoint.

Use fan coil control	No • Yes

Level 0: Control variable: 0%
Level 1: Control variable: 1...33%
Level 2: Control variable: 34...66%
Level 3: Control variable: 67...100%

9.8. Logic

The device has 8 logic inputs, 2 AND and 2 OR logic gates.

Activate the logic inputs and assign object values up to 1st communication.

Use logic inputs	Yes • No
Object value prior to 1st communication for	
- Logic input 1 ... 8	0 • 1

Activate the required logic outputs

AND logic

AND logic 1/2	not active • active

OR logic

OR logic 1/2	not active • active

9.8.1. AND logic 1+2 and OR logic outputs 1+2

The same setting options are available for AND and OR logic.

Each logic output may transmit one 1-bit or two 8-bit objects. Determine what the out put should send if logic = 1 and = 0.

1. / 2. / 3. / 4. Input	• Do not use - Logic inputs 1...8 - Logic inputs 1...8 inverted • Temperature sensor malfunction ON • Temperature sensor malfunction OFF
Output type	• a 1-bit-object • sends two 8-bit objects

If the **output type is a 1-bit object**, set the output values for the various conditions.

Output value if logic = 1	1 • 0
Output value if logic = 0	1 • 0
Output value If block active	1 • 0
Output value if monitoring time exceeded	1 • 0

If the **output type is two 8-bit objects**, set the type of object and the output values for the various conditions.

Object type	• value (0...255) • Percent (0…100%) • Angle (0…360°) • Scene call-up (0…63)
Output value object A if logic = 1	0 ... 255 / 100% / 360° / 63; 1
Output value object B if logic = 1	0 ... 255 / 100% / 360° / 63; 1
Output value object A if logic = 0	0 ... 255 / 100% / 360° / 63; 0
Output value object B if logic = 0	0 ... 255 / 100% / 360° / 63; 0
Output value object A If block active	0 ... 255 / 100% / 360° / 63; 0
Output value object B If block active	0 ... 255 / 100% / 360° / 63; 0
Output value object A if monitoring time exceeded	0 ... 255 / 100% / 360° / 63; 0
Output value object B if monitoring time exceeded	0 ... 255 / 100% / 360° / 63; 0

Set the output send pattern.

Transmission behaviour	• on change of logic • on change of logic to 1 • on change of logic to 0 • on change of logic and periodically • on change of logic to 1 and periodically • on change of logic to 0 and periodically • on change of logic + object receipt • on change of logic + object receipt and cyclically
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

Block

If necessary, activate the block for the logic output and set what a 1 or 0 at the block input means and what happens in the event of a block.

Use block	No • Yes
Assessment of the block object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first Communication	0 • 1
Output behaviour when blocking	• Do not send message • Send block value [see above, output value if block active]
when released (with 2 second release delay)	[send value for current logic status]

Monitoring

If necessary, activate the input monitoring. Set which inputs are to be monitored, at which intervals the inputs are to be monitored and what value the "monitoring status" should have, if the monitoring period is exceeded without a feedback being given.

Use input monitoring	No • Yes
Input monitoring	• 1 • 2 • 3 • 4 • 1 + 2 • 1 + 3 • 1 + 4 • 2 + 3 • 2 + 4 • 3 + 4 • 1 + 2 + 3 • 1 + 2 + 4 • 1 + 3 + 4 • 2 + 3 + 4 • 1 + 2 + 3 + 4
Monitoring period	5 s • ... • 2 h; 1 min
Output behaviour on exceeding the monitoring time	• Do not send message • Send value exceeding [= value of the parameter "Monitoring period"]

9.8.2. OR LOGIC connection inputs

The OR logic connection inputs are the same as those for the AND logic. Additionally, the following inputs are available for the OR logic:

Switching output AND logic 1
Switching output AND logic 1 inverted
Switching output AND logic 2
Switching output AND logic 2 inverted

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