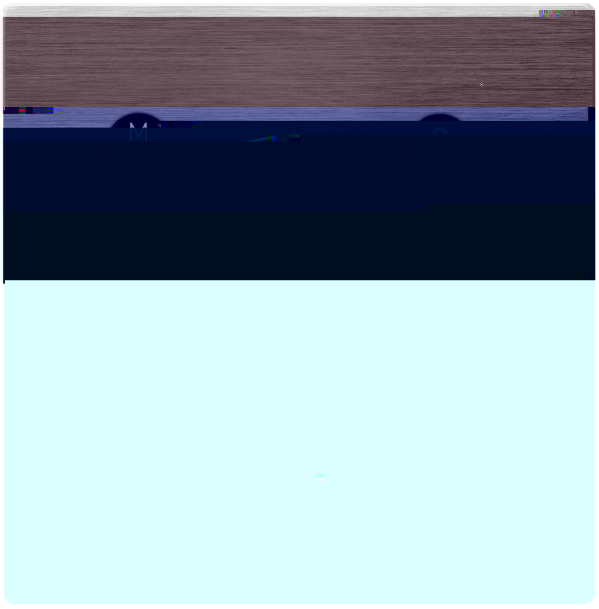
K-BUS

Multifunctional Thermostat with Rotary, 4 button_V1.1

CHMTR-04/00.1.2x

x=2 **x=9**



KNX/EIB

注意事项

1、请远离强磁场、高温、潮湿等环境；

摔落在地上或使之受到强力冲击；

2、不要将设备摔

..... 1

..... 2

..... 3

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..... 5

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!

k

! ! !

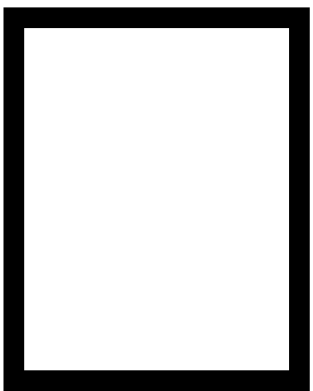
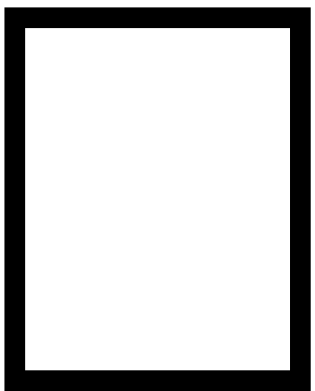
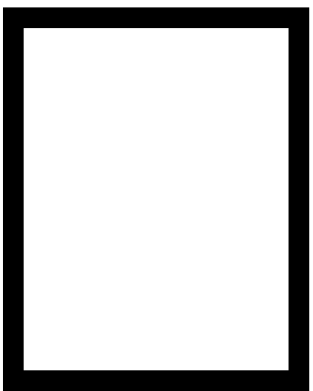
k

k

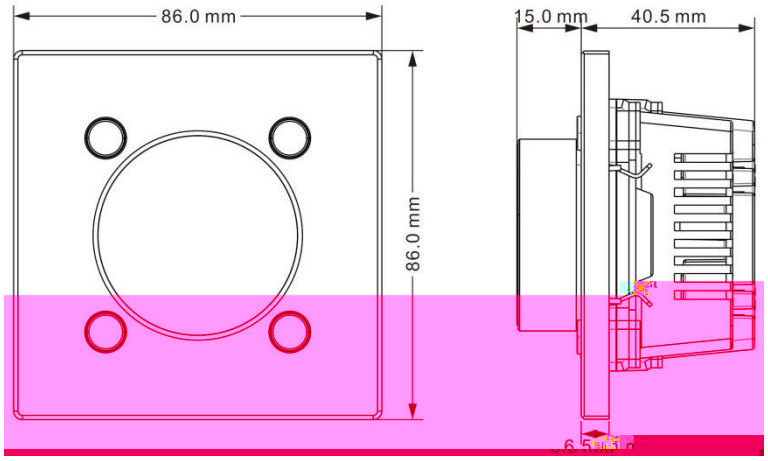
k

k

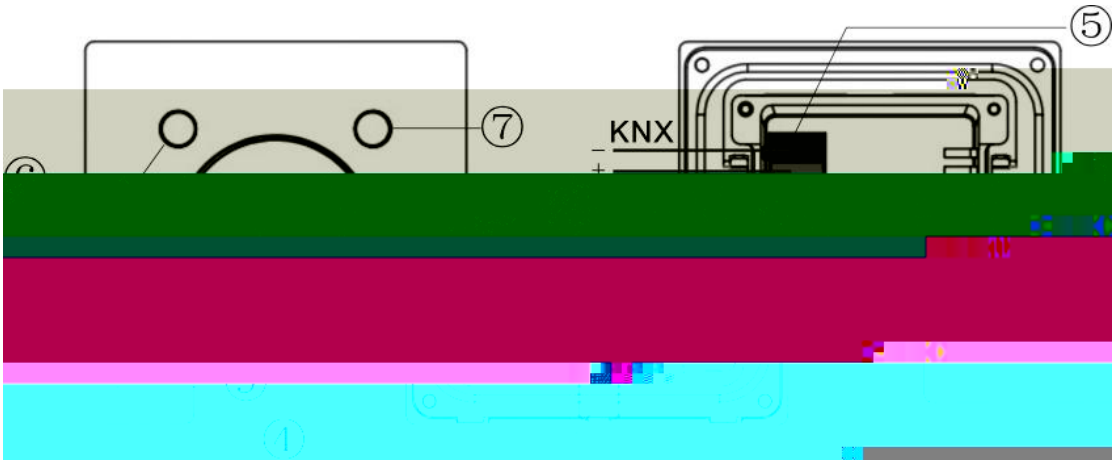
-
- ! !
- !
- !
-
- ! !

3.1



3.2



ㅋㅗㅗㅂㅂ ! ! !

ㅋ

1s

ㅗ **1s**

3s

1s

ㅗ

ㅂ

3s

Multifunctional Thermostat with Rotary, 4 button/1.0	**217**	**400**	**400**

! ! ! !

k

! ! k

k

k

HVAC

! ! ! ! !

! !

!

! ! !

k

k

k

k

5 k

k

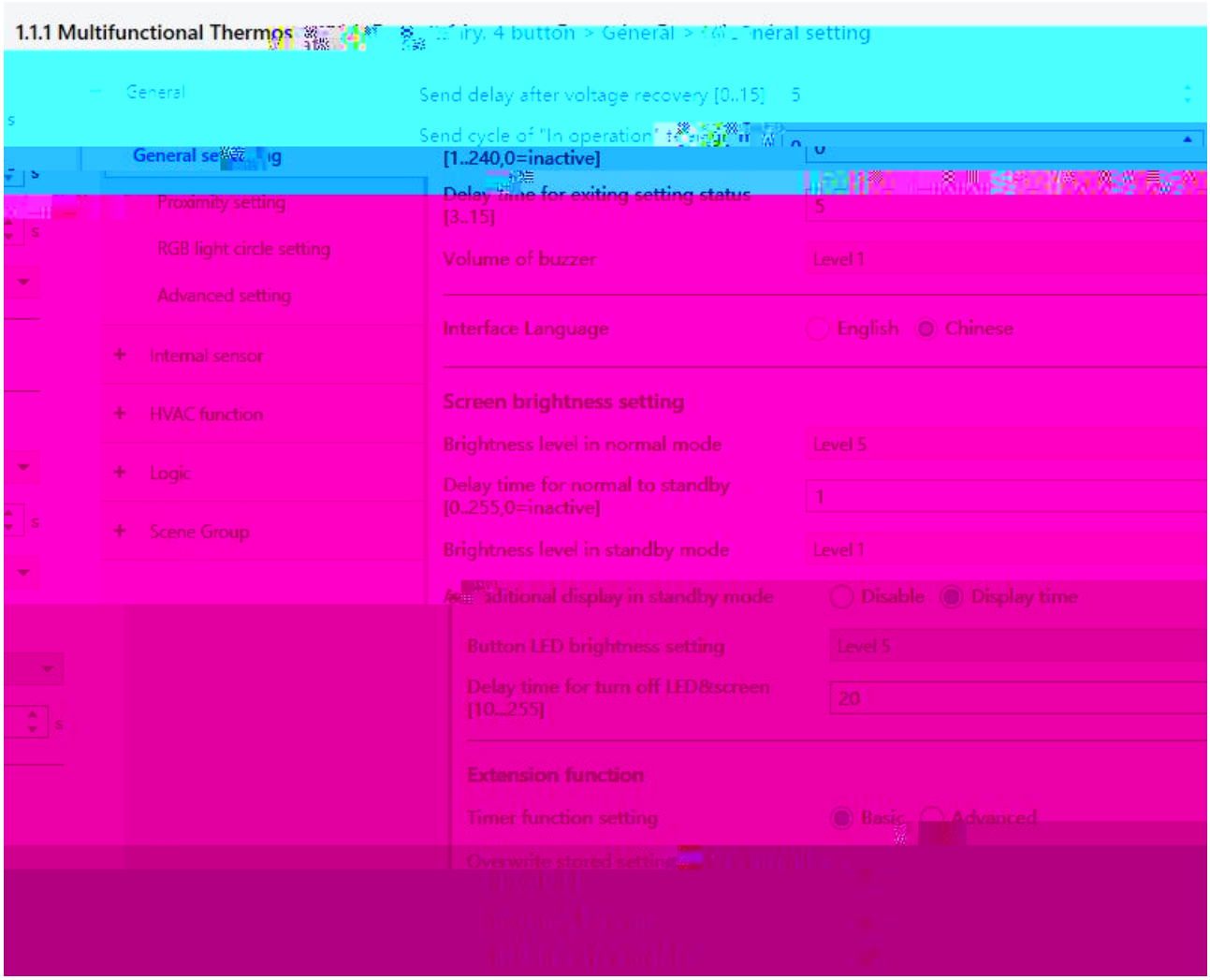
! ! ! ! ! k

k

ETS

5.1. “General”

5.1.1. “General setting”



“Send delay after voltage recovery [0..15]s”

k **0..15**

k

GVS K JS

"Send cycle of Kh operation" teleg 1 0=inac

'Æ9t_S4?g k

k

k 0...240 0=

k

mn t

Screen brightness setting

“Brightness level in normal mode”

k

Level 1

Level 2

...

Level 5

“Delay time for normal to standby [0..255, 0=inactive]s”

k **0..255**

“Brightness level in standby mode”

k

OFF

Level 1

Level 2

...

Level 5

“Additional display in standby mode”

k

Disable

Display time

“Button LED brightness setting”

k

OFF

Level 1

Level 2

...

Level 5

"Delay time for turn off LED&screen [10...255]s"

k 10..255

Extension function

"Timer function setting"

k

Basic

Advanced

k

k

k k

"Overwrite stored setting for timer after download"

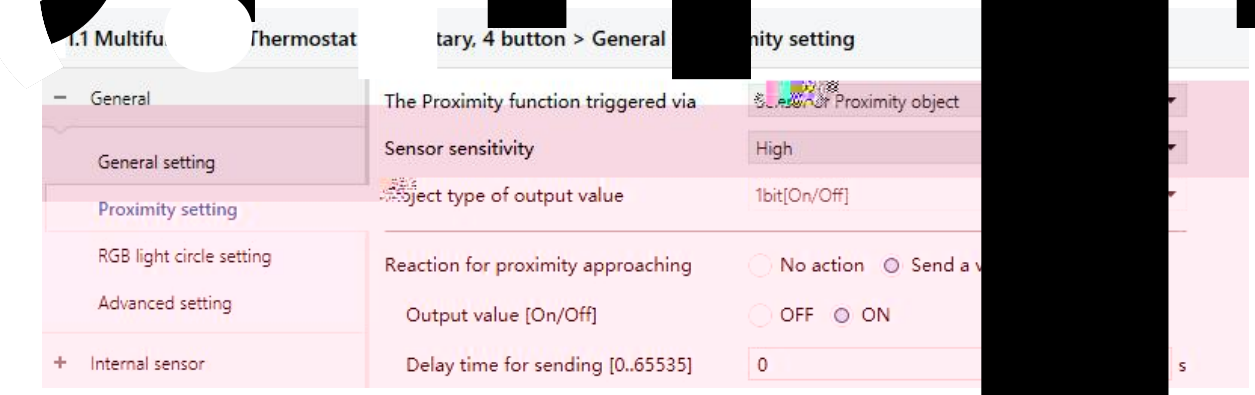
k

"Proximity function"

k

"RGB light circle function"

k


Thermostat
tary, 4 button > General
nity setting
General
General setting
Proximity setting
RGB light circle setting
Advanced setting
Internal sensor
The Proximity function triggered via
Sensor or Proximity object
Sensor sensitivity
High
ject type of output value
1bit[On/Off]
Reaction for proximity approaching
No action
Output value [On/Off]
OFF
ON
Delay time for sending [0..65535]
0
s

1byte[scene control]

1byte[0..255]

1byte[0..100%]

"Reaction for proximity approaching"

k

No reaction

Send a value

"Output value"

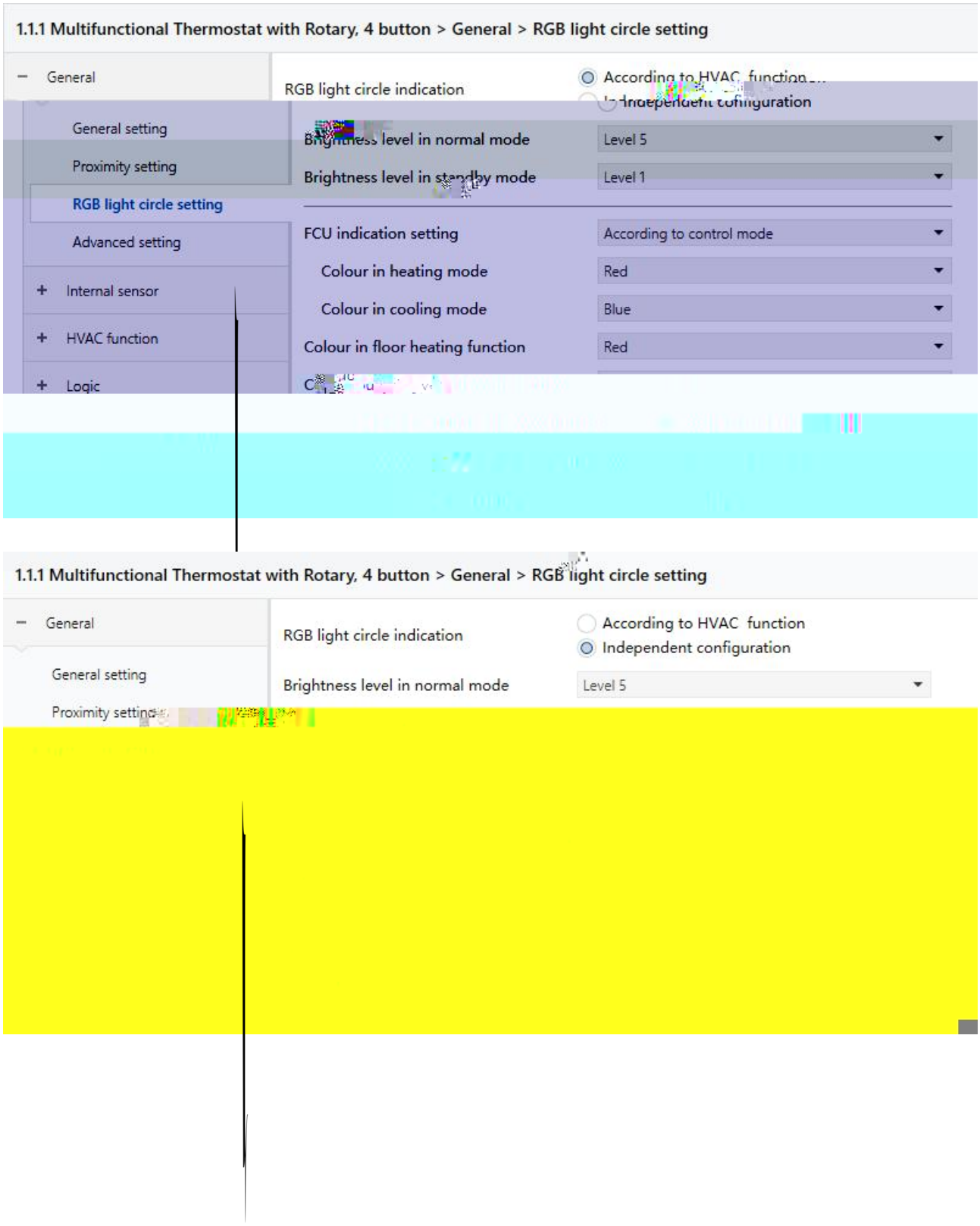
k

k

"Delay time for sending [0..65535]s"

k

5.1.3. “RGB light circle setting”



"RGB light circle indication"

k

According to HVAC function **HVAC**

Independent configuration

"Brightness level in normal mode"

k

Level 1

Level 2

...

Level 5

"Brightness level in standby mode"

k k

OFF

Level 1

Level 2

...

Level 5

"According to HVAC function"

"FCU/VRF indication setting"

"Colour in floor heating function"

"Colour in ventilation function"

k

Red	**Cyan**
Green	**Purple**
Blue	**Orange**
White	**Cyan blue**
Yellow	**According to control mode**

! k

“Colour in auto/heating/cooling/fan/dehumidification/sleeping/refreshing mode”

k

k

Red	**Cyan**
Green	**Purple**
Blue	**Orange**
White	**Cyan blue**
Yellow	

k

"Status after turn off HVAC function"

k

Keep current status

OFF

k

"Work mode after turn off screen"

k

Slowly breathing

Colour range cycle

Keep current status

OFF

k

"Interval time of colour shift [3..255]s"

k k **3..255**

"Colour setting"

k k

Red **Cyan**

Green **Purple**

Blue **Orange**

White **Cyan blue**

Yellow

“Independent configuration”

“Indication work mode when active”

k

Permanent on

Slowly breathing

Color range cycle

k

“Interval time of colour shift [3..255]s”

k

k **3..255**

“Indication object trigger polarity”

k

0=no trigger/1=trigger

1=no trigger/0=trigger

"Initial after device startup"

k

No trigger

Trigger

" " "Colour setting"

k

k

Red	**Cyan**
Green	**Purple**
Blue	**Orange**
White	**Cyan blue**
Yellow	**Receive a 3byte value**

"Flashing function"

k

" " **"Colour in flashing"**

k

Disable

0.5K

1.0K

...

10.0K

"Cyclically send temperature [0...255,0=inactive]min"

k k **0..255**

k

"Send alarm telegram for low/high temperature"

k

No respond

Respond after read only

Respond after change

k

k

"Threshold value for low temperature alarm [0..15]-C"

k k

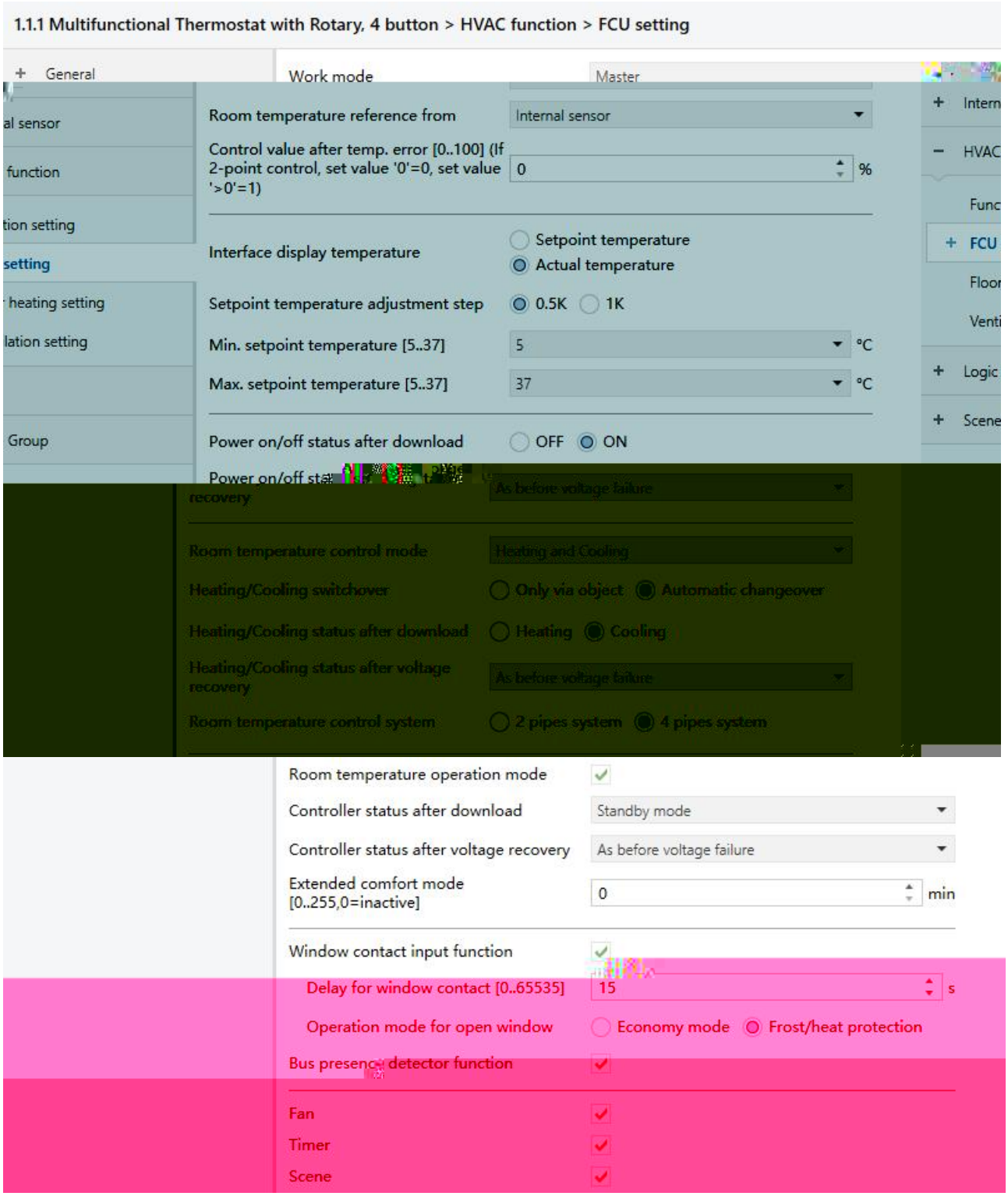
0°C

1°C

...

15°C

5.3.2. “FCU setting”



"Work mode"

k

Single

Master

Slave

k

k

"Room temperature reference from"

k

Internal sensor

External sensor

Internal sensor combine with External sensor

k

"Period for request external sensor [0...255]min"

k k

0..255

“Internal sensor combine with External sensor” k

- **“Combination ratio”**

k

10% Internal to 90% External

20% Internal to 80% External

...

90% Internal to 10% External

% % % %

% % □□

k

k

- **“Send temperature when the result change by [0...10]K”**

k k

Disable

0.5K

1.0K

...

10.0

"Control value after temp. error[0..100]% (if 2-point control, set value '0'=0, set value '>0'=1)"

k k **0..100**

k

"Interface display temperature"

k

Setpoint temperature

Actual temperature

k

"Setpoint temperature adjustment step"

k

0.5K

1K

Min./Max. setpoint temperature [5..37]-C

k k

5°C

6°C

...

37°C

k

ETS k

"Power on/off status after download "

k k

OFF

ON

"Power on/off status after voltage recovery"

k k

OFF

ON

As before voltage failure

k

"Room temperature control mode"

k

Heating

Cooling

Heating and Cooling

Only via object

Via both button and object

Automatic changeover

2 pipes system

4 pipes system

k

k

"Operation mode"

k

! !

k

k

"Controller status after download"

k k

Standby mode

Comfort mode

Economy mode

"Controller status after voltage recovery"

k k

Standby mode

Comfort mode

Economy mode

Frost/heat protection

As before voltage failure

- **“Extended comfort mode [0..255,0=inactive]min”**

k k

k **0..255**

k k

k

k

- **“Initial setpoint temperature (-C)”**

k k

10.0

10.5

...

35.0

The setpoint is less than minimum,so minimum will regard as setpoint in fact

The setpoint is greater than maximum,so maximum will regard as setpoint in fact

Automatic H/C mode changeover dead zone /

- **“ Upper/Lower dead zone”**

k

k k

0.5K

1.0K

...

10.0K

k

"Window contact input function"

k k

k

“Delay for window contact [0..65535]s”

k **0..65535**

“Controller mode for open window”

k

! k

k

Economy mode

Frost/heat protection

"Bus presence detector function"

k k

k

k

k

k

"Fan"

k

"Timer"

k k

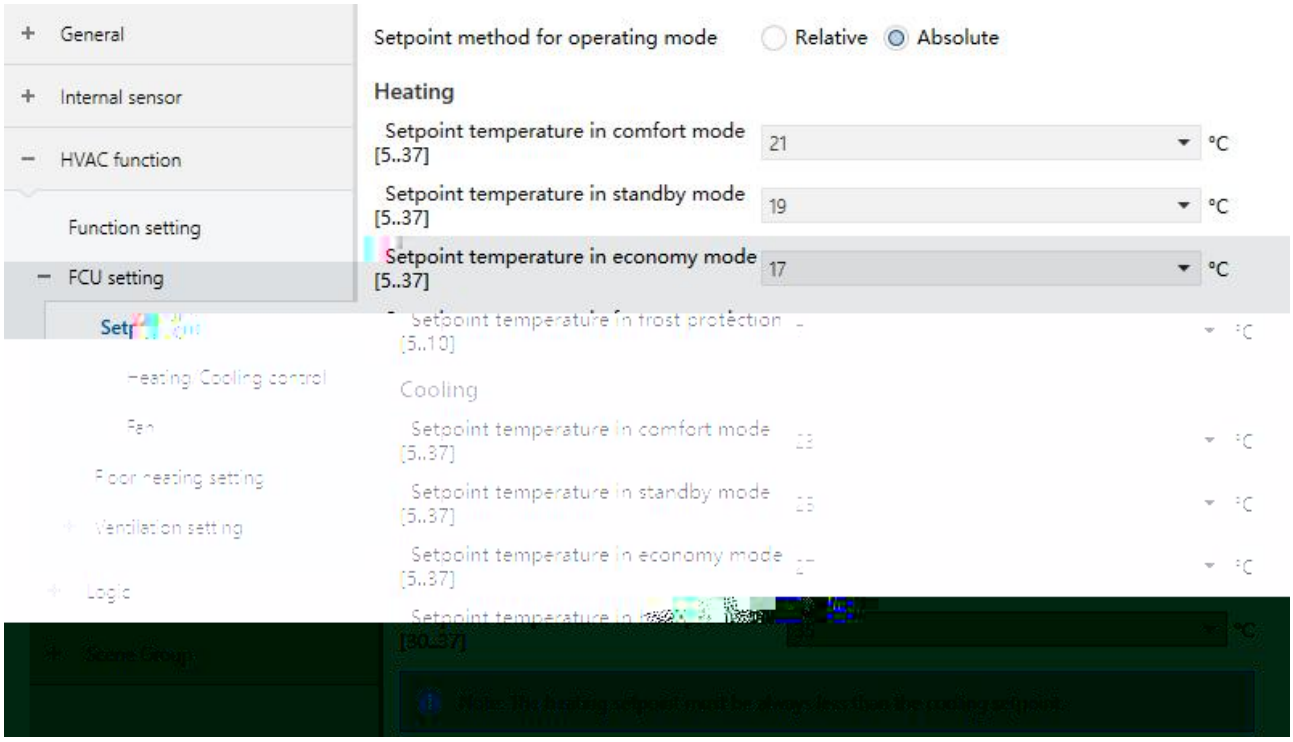
k

"Scene"

k k !

k

5.3.2.1. “Setpoint”



k k

"Setpoint method for operating mode"

k

Relative

Absolute

k

k

k

"Base setpoint temperature (-C)"

k

10.0

10.5

...

35.0

...

10K

k

"Setpoint temperature in frost protection mode [5...10]-C"

k

5°C

6°C

...

10°C

k

"Setpoint temperature in heat protection mode [30...37]-C"

k

30°C

31°C

...

37°C

k

k

"Setpoint temperature in comfort mode [5...37]-C"

"Setpoint temperature in standby mode [5...37]-C"

"Setpoint temperature in economy mode [5...37]-C"

k

The setpoint is less than minimum,so minimum will regard as setpoint in fact

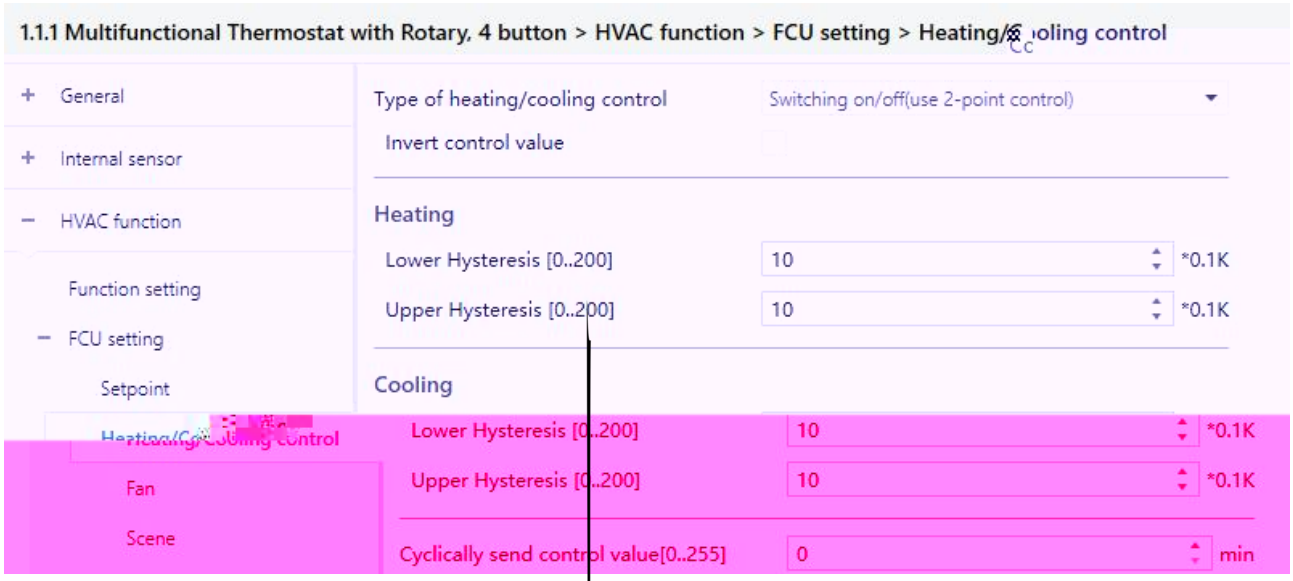
The setpoint is greater than maximum,so maximum will regard as setpoint in fact

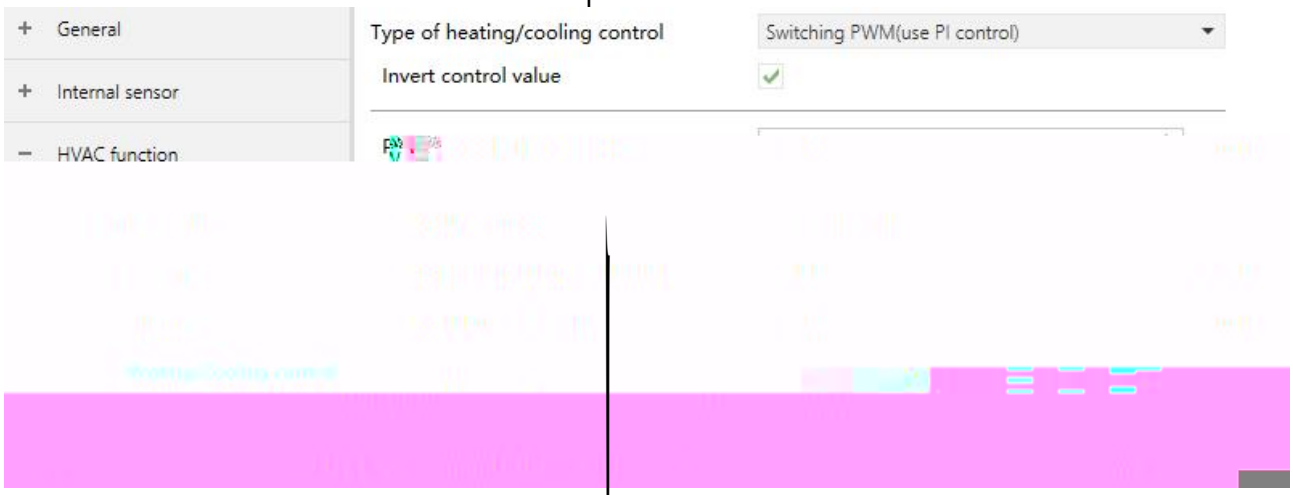
/ **ETS** k

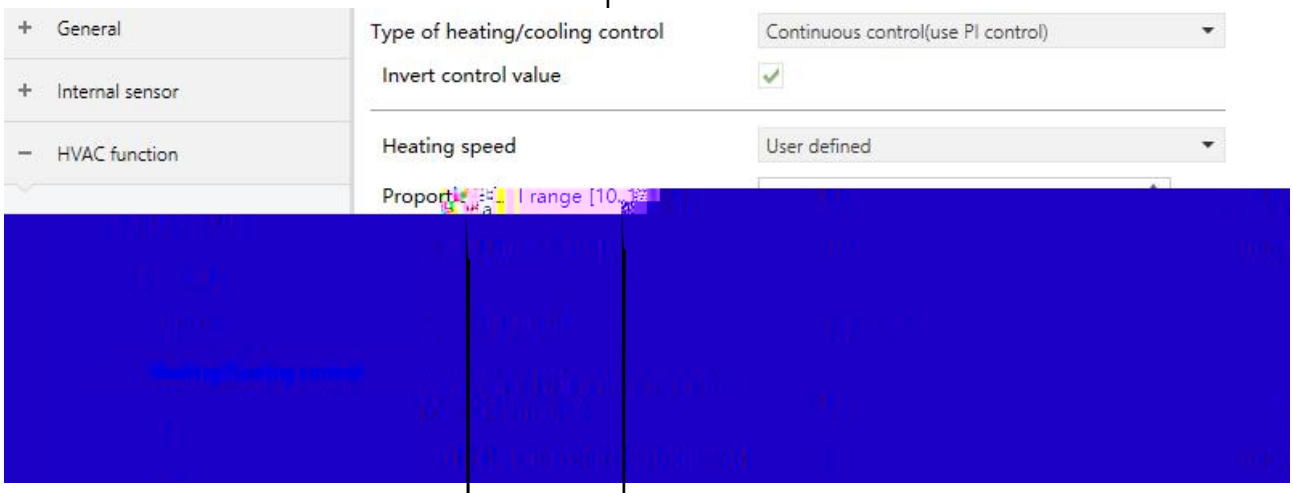
ETS

k

5.3.2.2. “Heating/Cooling control”







k k

"Type of heating/cooling control"

k

Switching on/off(use 2-point control)

Switching PWM(use PI control)

Continuous control(use PI control)

"Invert control value"

k

k

(2 point control)

"Lower Hysteresis [0...200]*0.1K "

"Upper Hysteresis [0...200]*0.1K "

k **0..200**

T > +

T < - k

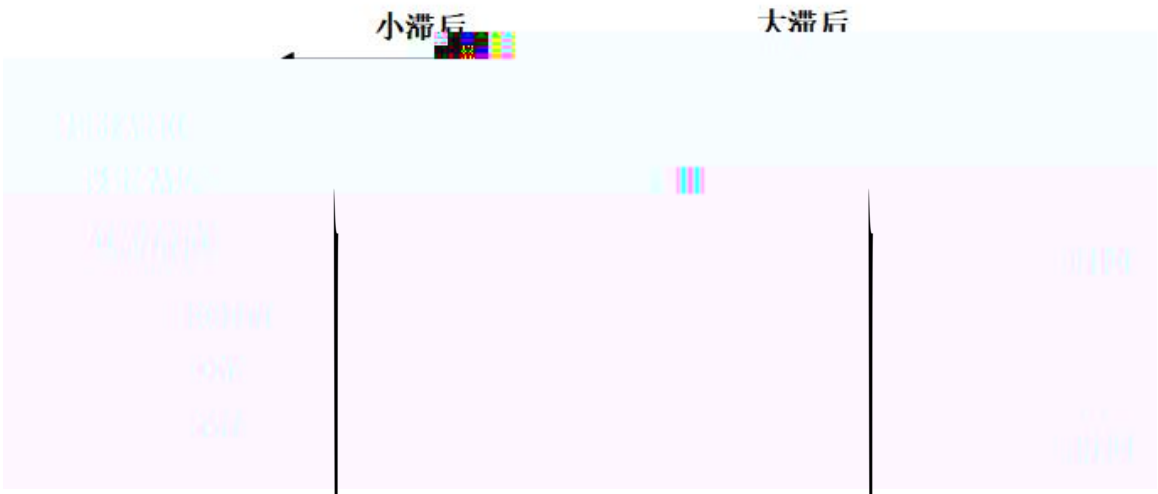
k

T < -

T > + k

k

k



PI **(PI control)**

- - **"PWM cycle time [1...255]min"**

%

k

1..255

k

- "Heating speed"

- "Cooling speed"

k k

Hot water heating (5K/150min)

Underfloor heating (5K/240 min)

Electrical heating (4K/100min)

Split unit (4K/90min)

Fan coil unit (4K/90min)

User defined

Cooling ceiling (5K/240min)

Split unit (4K/90min)

Fan coil unit(4K/90min)

User defined

- **"Proportional range [10..100]*0.1K"(P value)**

- **"Reset time [0..255]min"(I value)**

k k

10..100 (P value)

0..255 (I value)

" " "Send control value on change by [0...100,0=inactive]%"

k **0..100 0**

PI PI :

1

	P	I	PI	PWM
Hot water Heating				
Underfloor heating				
Electrical heating				
Split unit				
Fan coil unit				

2

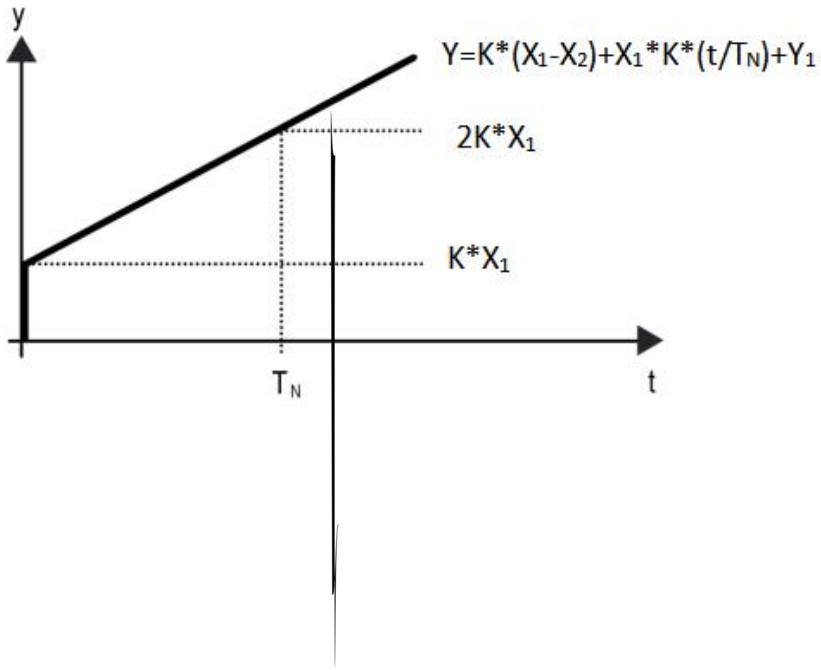
	P	I	PI	PWM
Cooling ceiling				
Split unit				
Fan coil unit				

3

k

k

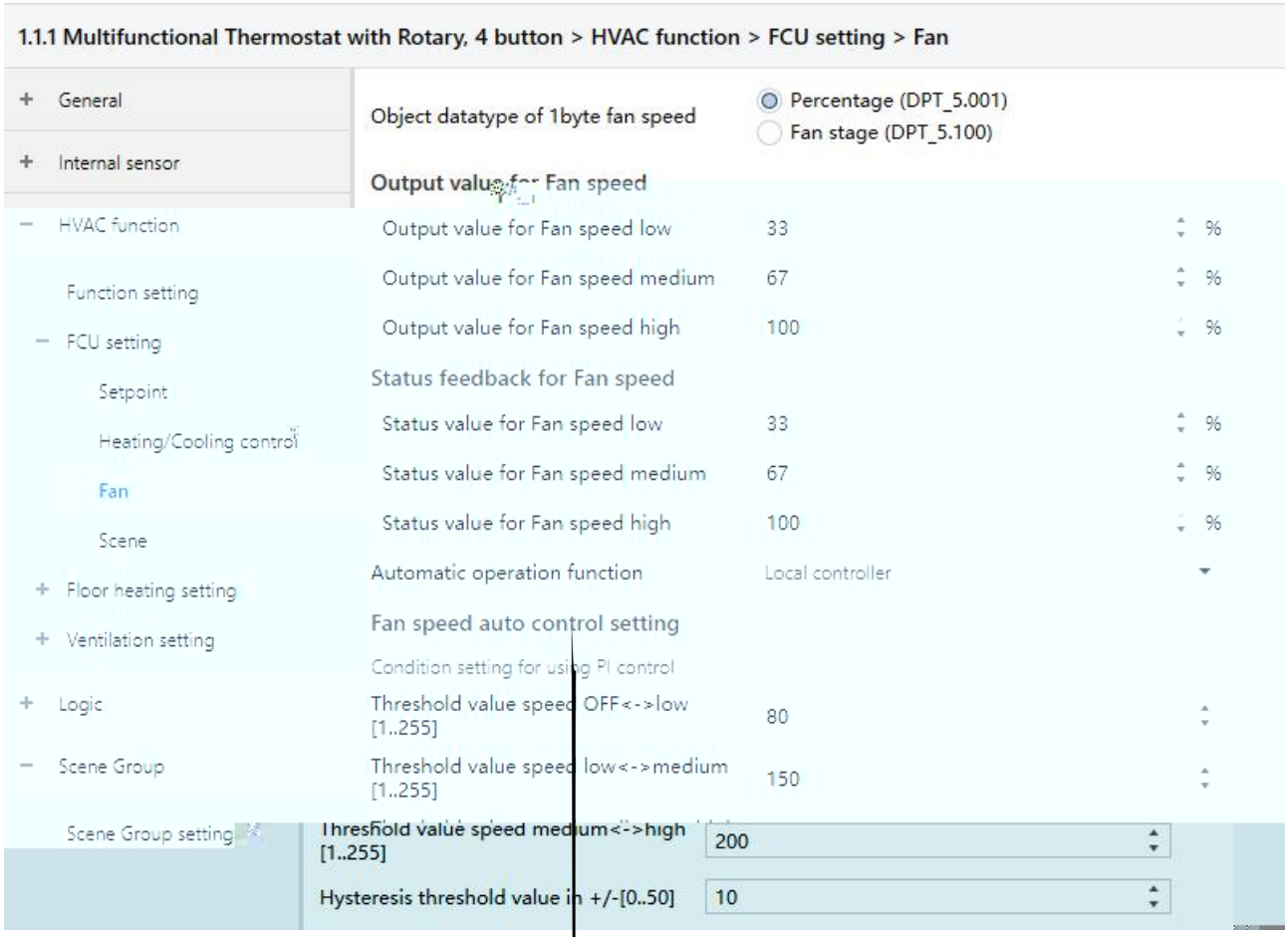
k k

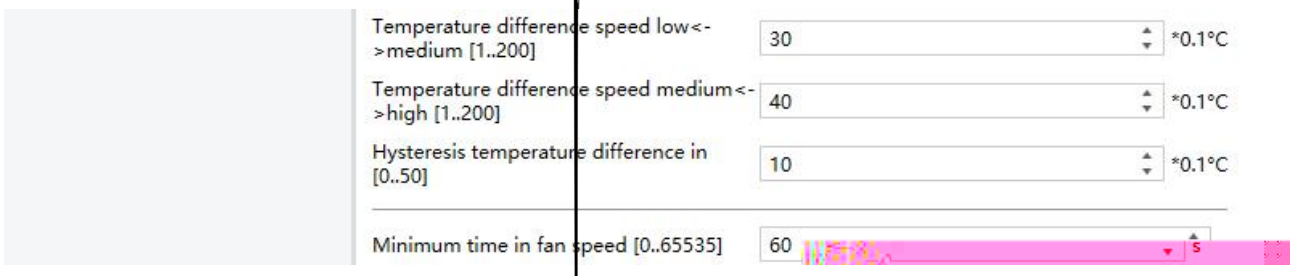


"Cyclically send control value [0...255]min"

k **0..255**

5.3.2.3. “Fan”


1.1.1 Multifunctional Thermostat with Rotary, 4 button > HVAC function > FCU setting > Fan
General
Internal sensor
HVAC function
Function setting
FCU setting
Setpoint
Heating/Cooling control
Fan
Scene
Floor heating setting
Ventilation setting
Logic
Scene Group
Scene Group setting
Object datatype of 1byte fan speed
Percentage (DPT_5.001)
Fan stage (DPT_5.100)
Output value for Fan speed
Output value for Fan speed low 33 %
Output value for Fan speed medium 67 %
Output value for Fan speed high 100 %
Status feedback for Fan speed
Status value for Fan speed low 33 %
Status value for Fan speed medium 67 %
Status value for Fan speed high 100 %
Automatic operation function Local controller
Fan speed auto control setting
Condition setting for using PI control
Threshold value speed OFF<->low [1..255] 80
Threshold value speed low<->medium [1..255] 150
Threshold value speed medium<->high [1..255] 200
Hysteresis threshold value in +/-[0..50] 10


Temperature difference speed low<->medium [1..200] 30 *0.1°C
Temperature difference speed medium<->high [1..200] 40 *0.1°C
Hysteresis temperature difference in [0..50] 10 *0.1°C
Minimum time in fan speed [0..65535] 60 s

k

"Object datatype of 1byte fan speed"

k

Percentage (DPT_5.001)

Fan stage (DPT_5.100)

Output value for fan speed

- **"Output value for fan speed low/medium/high"**

k k

1..255 /1..100

Status feedback for fan speed

- **"Status value for fan speed low/medium/high"**

k k

1..255 /1..100

k

Fan speed [illegible] control setting

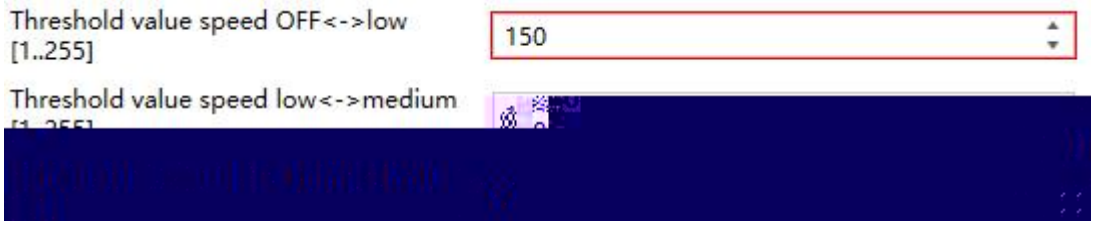
Condition setting for using PI control PI

k

"Threshold value speed OFF<-->low [1..255]"

J^ j = $? m'ó 1..255

k



OFF <-> **<->** **<->** **<->**

k

"Hysteresis threshold value in +/-[0..50]"

k **0..50**

k

k

Condition setting for using 2-point control

k

k

"Temperature difference speed OFF<->low [1..200] *0.1K"

k **1..200**

k

"Temperature difference speed low<-->medium [1..200]*0.1K"

k

k **1..200**

"Temperature difference speed medium<-->high [1..200]*0.1K"

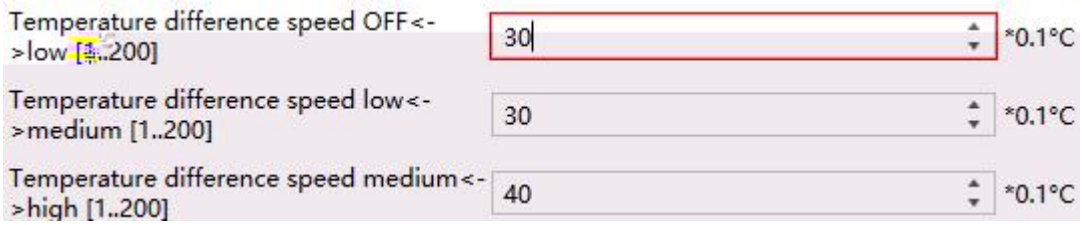
k

k **1..200**

k

° **OFF <->** ° **<->** ° **<->** k

ETS



"Hysteresis temperature difference in [0..50] *0.1K"

k **0..50**

k k

"Minimum time in fan speed [0..65535]s"

k

k

k **0..65535**

k

k

5.3.2.4. "Scene "

k k

"x ->Assign scene NO.[1..64,0=inactive]"(x=1~5)

k k **0..64 0=**

k

k

" " "ON/OFF"

OFF

ON

Unchange

" " "Temperature"

k

5°C

6°C

..

37°C

Unchange

The setpoint is less than minimum,so minimum will regard as setpoint in fact

The setpoint is greater than maximum,so maximum will regard as setpoint in fact

“Operation mode”

k

Standby mode

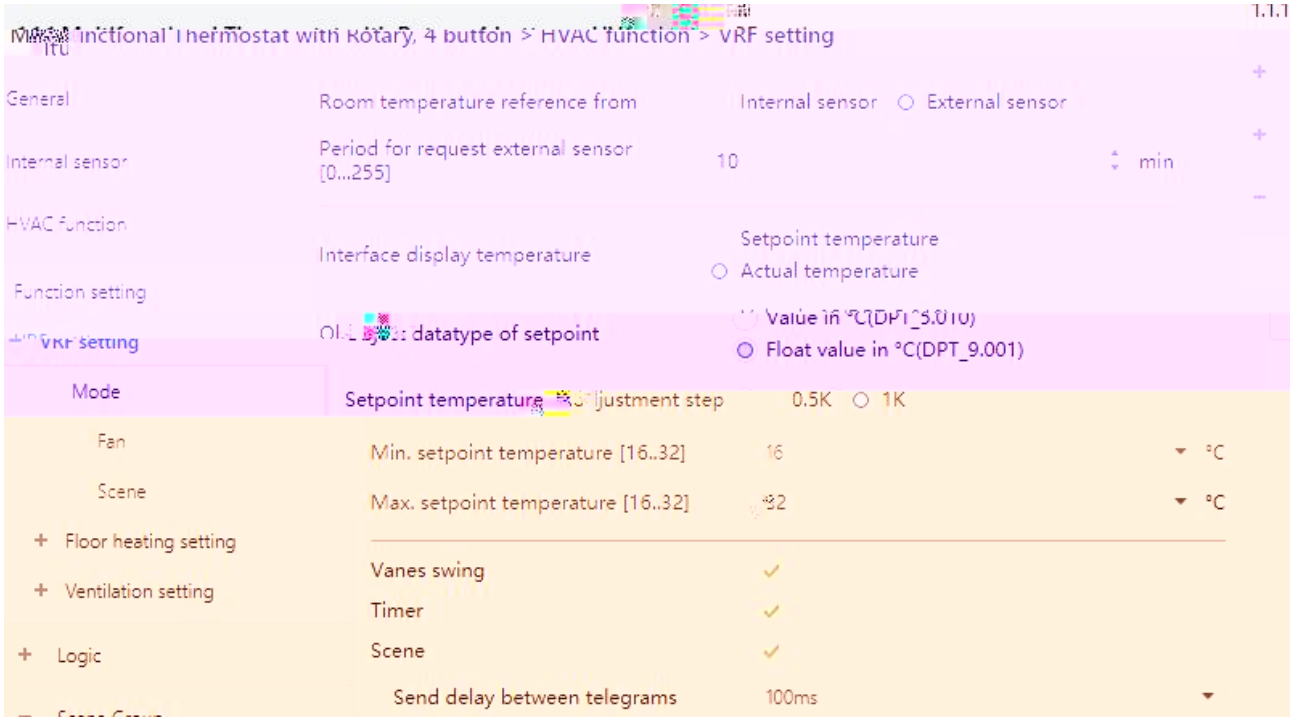
Comfort mode

Economy mode

Frost/heat protection

Unchange

5.3.3. “VRF setting”



"Room temperature reference from"

k

Internal sensor

External sensor

k

"Period for request external sensor [0...255]min"

k k

0..255

"Interface display temperature"

k

Setpoint temperature

Actual temperature

k

"Object datatype of setpoint"

k

Value in °C (DPT_5.010)

Float value in °C (DPT_9.001) **KNX**

"Setpoint temperature adjustment step"

k

0.5K

1K

1K

Min./Max. setpoint temperature [16..32]-C

k k

16°C

17°C

...

32°C

k

ETS k

"Vanes swing"

k k

1s k

"Timer"

k k

"Scene"

k ! ! !

k

"Send delay between telegrams"

k k

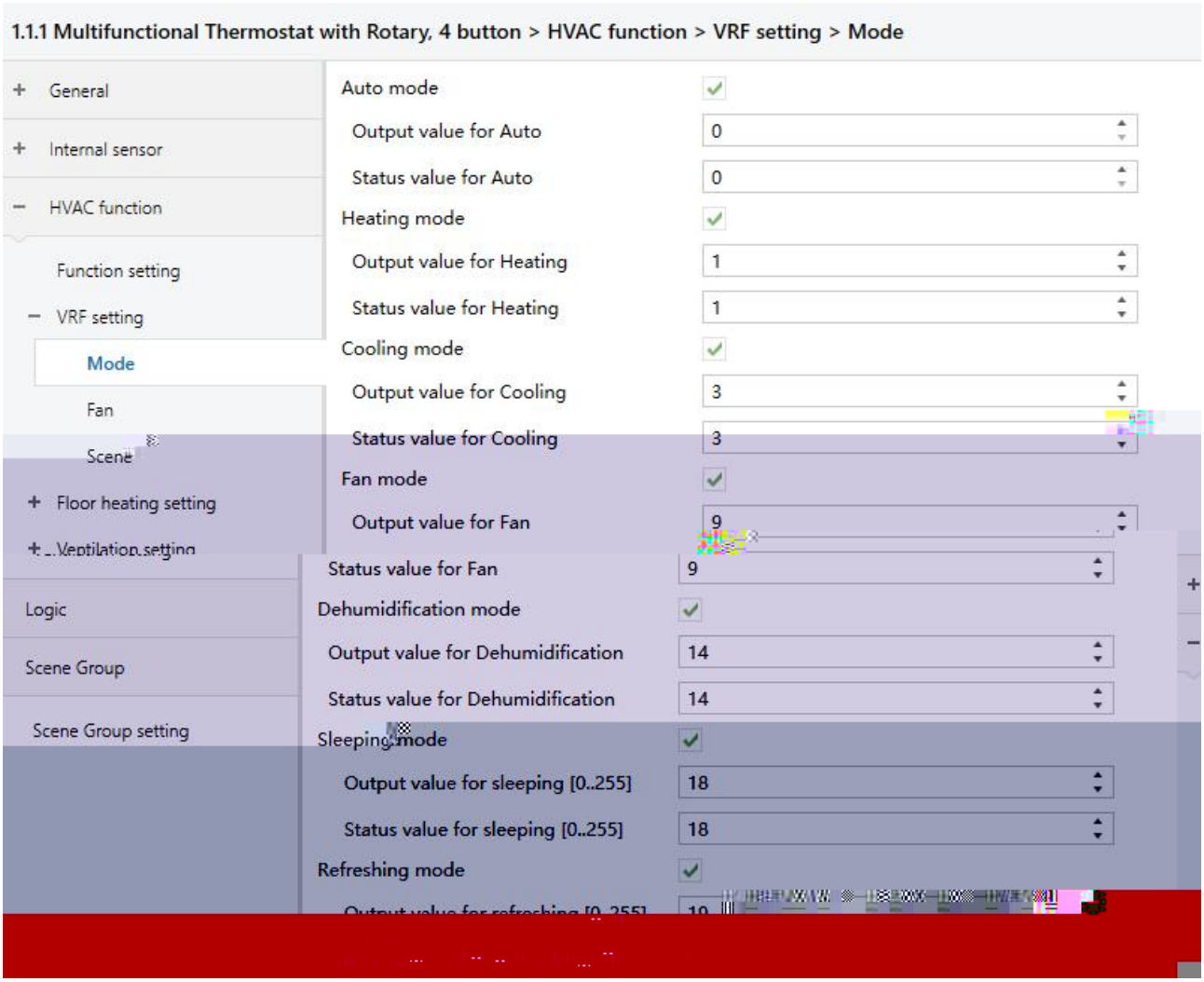
Disable

100ms

300ms

500ms

5.3.3.1. “Mode”



“Auto/Heating/Cooling/Fan/Dehumidification/Sleeping/Refreshing mode”

k

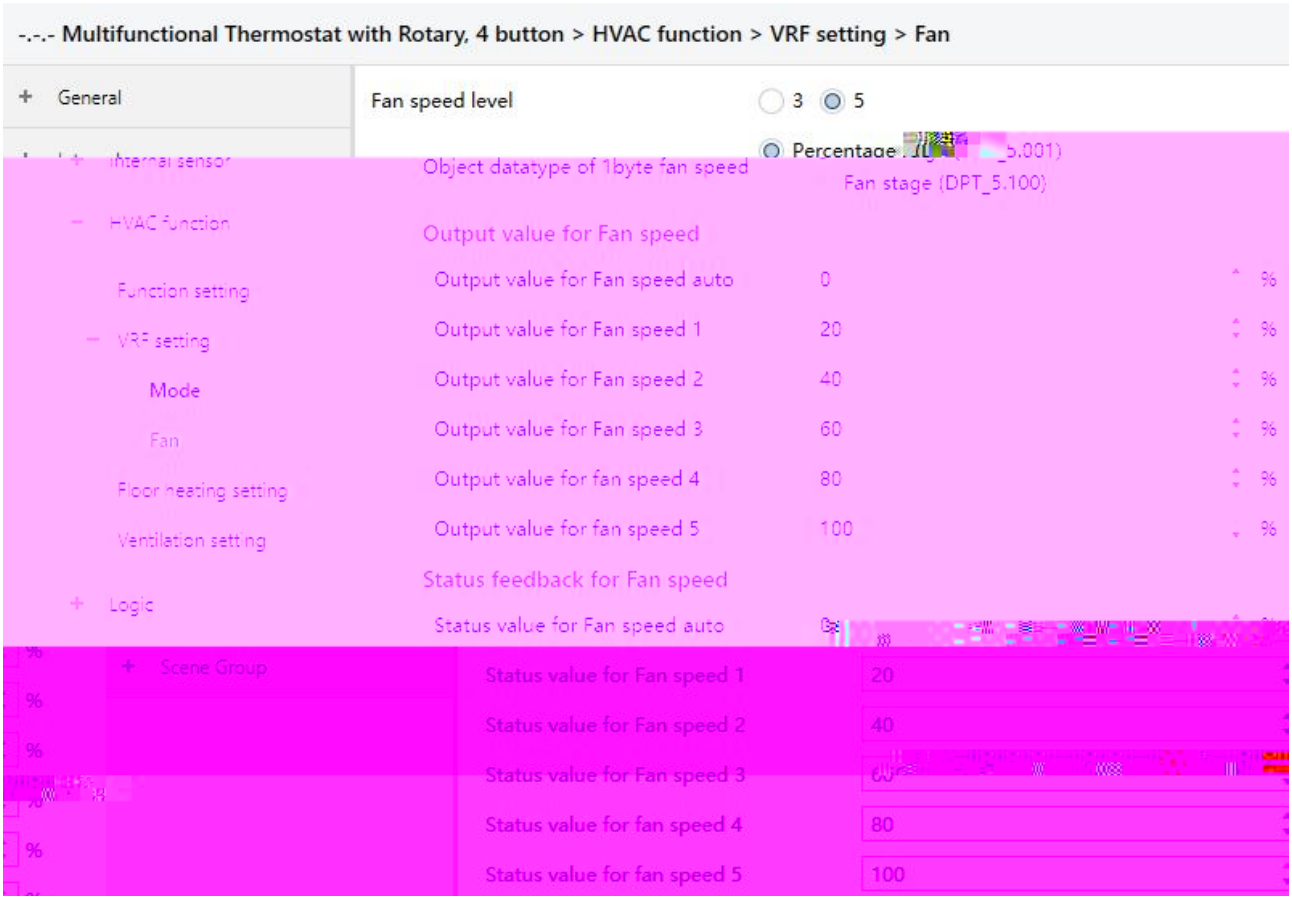
“Output value for auto/heating/cooling/fan/dehumidification/sleeping/refreshing [0..255]”

k **0..255**

“Status value for auto/heating/cooling/fan/dehumidification/sleeping/refreshing [0..255]”

k **0..255**

5.3.3.2. “Fan”



“Fan speed level”

k

3

5

k

“Object datatype of 1byte fan speed”

k

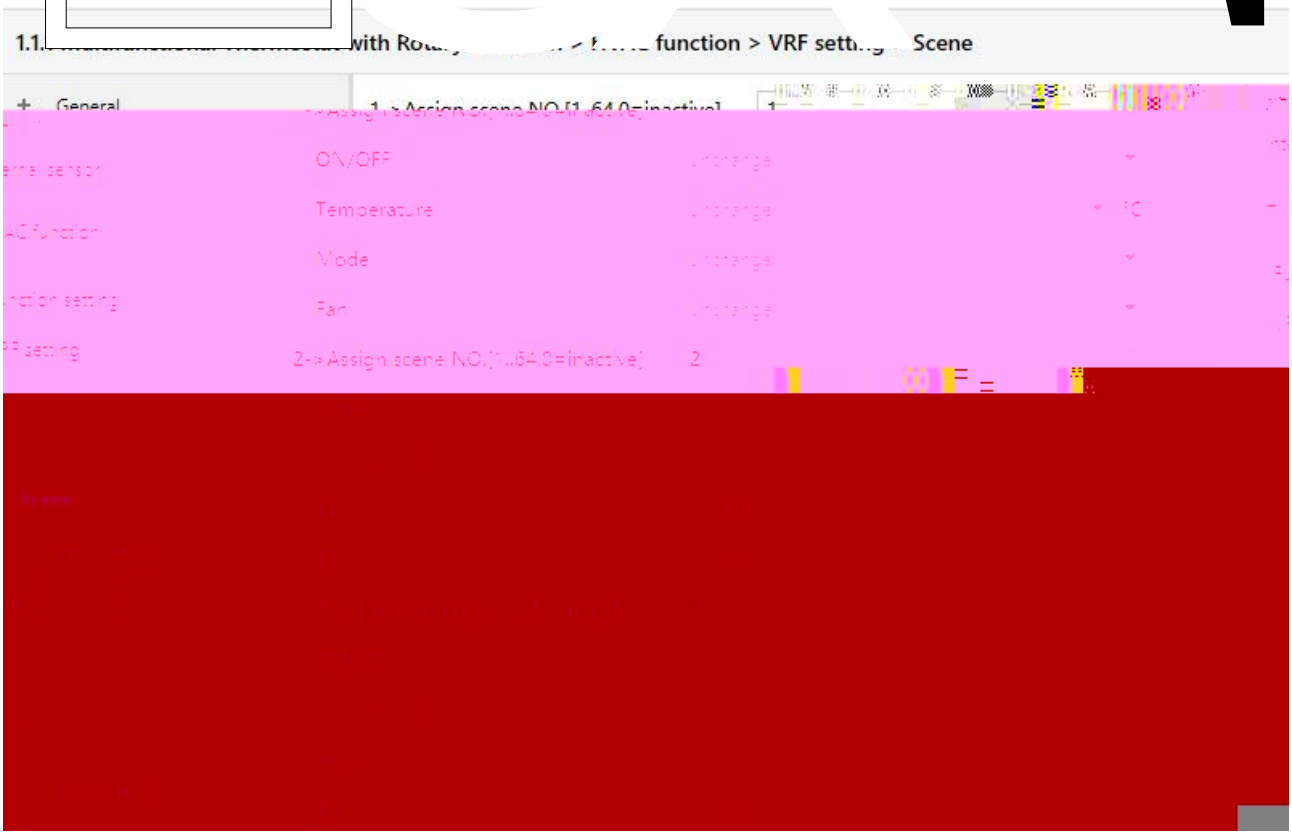
Fan stage (DPT 5.100)

Percentage (DPT 5.001)

Output value for fan speed

* *	*Output value

5 .3.3. ne ”



?g+=ñt3]Î "G8 ?g

'Æ'Æ \ >

k

- "Temperature"

16°C

17°C

..

32°C

Unchange

The setpoint is less than minimum,so minimum will regard as setpoint in fact

The setpoint is greater than maximum,so maximum will regard as setpoint in fact

- "Mode"

C

Medium

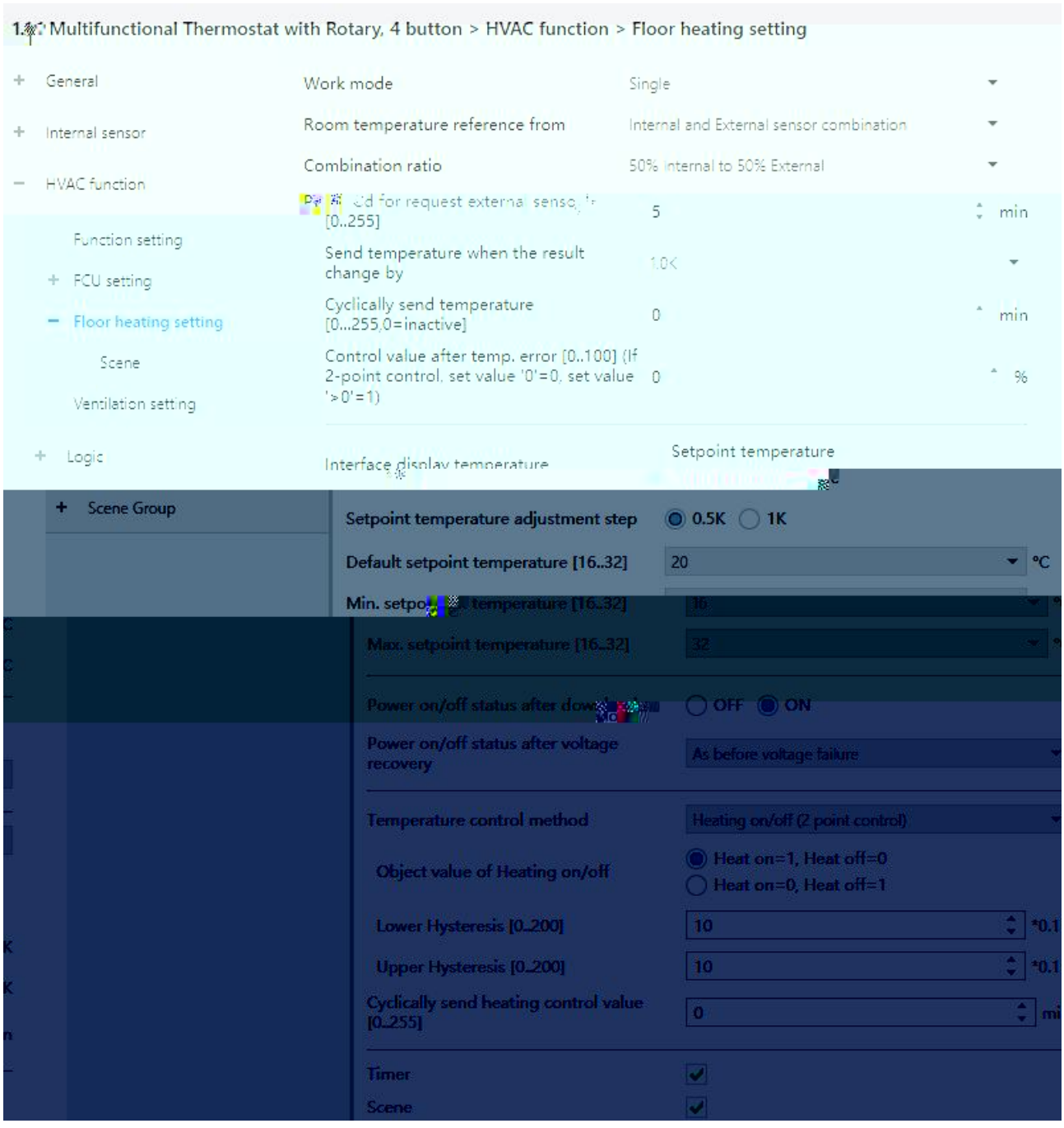
High

Unchange

! ! k

k k

5.3.4. “Floor heating setting”



"Work mode"

k

Single

Master

– **Slave**

k

"Room temperature reference from"

k

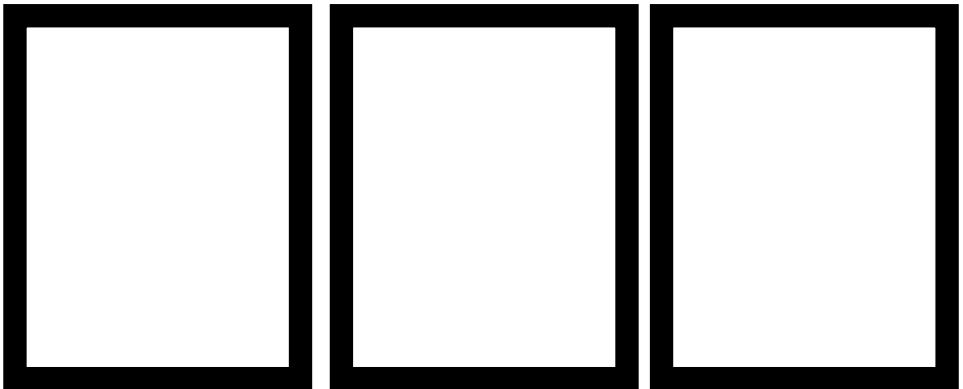
Internal sensor

External sensor

Internal sensor combine with External sensor

□ □ □ k

"Period for request external sensor [0...255]min



k

10% Internal to 90% External

20% Internal to 80% External

...

90% Internal to 10% External

% % % %

% %

k

k

“Send temperature when the result change by [0...10]K”

k k

Disable

0.5K

1.0K

...

10.0K

“Cyclically send temperature [0...255]min”

k **0..255**

k

“Control value after temp. error[0..100]% (if 2-point control, set value ‘0’=0, set value ‘>0’=1)”

k k **0..100**

k

"Interface display temperature"

k

Setpoint temperature

Actual temperature

k

"Setpoint temperature adjustment step"

k

0.5K

1K

"Default setpoint temperature [16..32]-C"

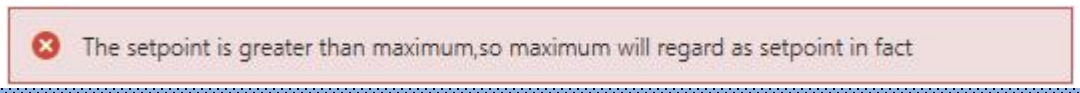
k k

16°C

17°C

...

32°C



"Min./Max. setpoint temperature [16..32]-C"

k k

k

16°C

17°C

...

32°C

ETS k

"Power on/off status after download "

k k

OFF

ON

"Power on/off status after power on"

k k

OFF

ON

As before voltage failure

k

"Temperature control method"

k

Heating on/off (2 point control)

Heating PWM (use PI control) **PWM**

Heating continuous control (use PI control)

“Heating on/off (2 point control)”

k

- **“Object value of Heating on/off”**

k

Heat on=1, Heat off=0

Heat on=0, Heat off=1

- **“Lower Hysteresis [0..200]*0.1K”**
- **“Upper Hysteresis [0..200]*0.1K”**

k **0..200**

T > +

T < - k

k

“Heating PWM (use PI control)” **“Heating continuous control (use PI control)”**

k

k

- **“Invert control value”**

k

k

- **“PWM cycle time [1..255] min”**

%

k **1...255**

- **“Heating speed”**

k k

Hot water heating (5K/150min)

Underfloor heating (5K/240 min)

Electrical heating (4K/100min)

User defined

- **“Proportional range [10..100]*0.1K”(P value)**
- **“Reset time[0..255]min”(I value)**

k k

10..100 (P value)

0..255 (I value)

- **“Send control value on change by [0..100,0=inactive]%”**

k **0..100 0**

PI **5.3.2** k

“Cyclically send control value [0..255]min”

k **0..255**

"Timer"

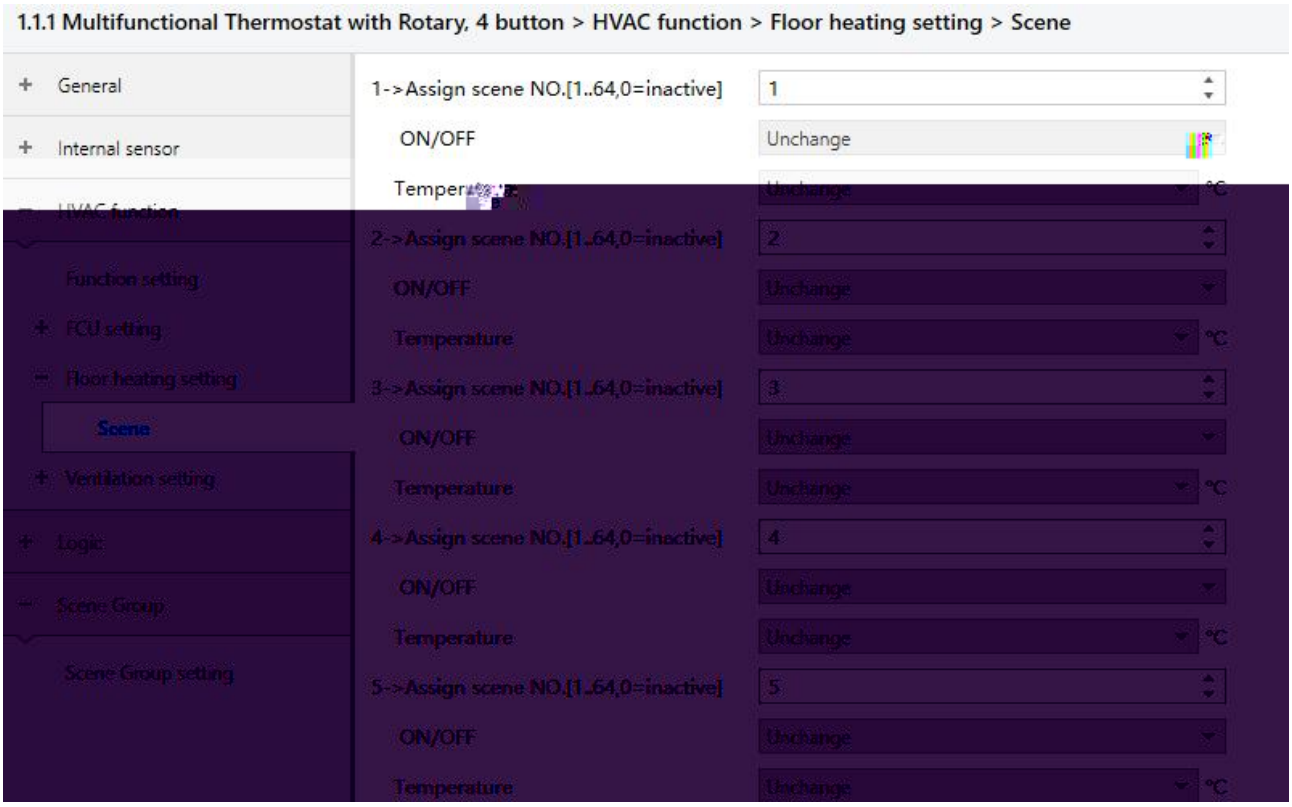
k k

k

"Scene"

k k ! k

5.3.4.1. "Scene "



k k

"x->Assign scene NO.[1..64,0=inactive]"(x=1~5)

k k **0..64 0=**

k

k

" ON/OFF"

OFF

ON

Unchange

"Temperature"

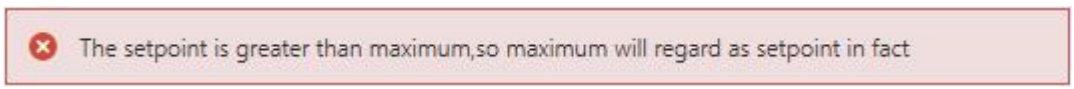
16°C

17°C

...

32°C

Unchange



5.3.5. “Ventilation setting”

“Power on/off status after download ”

k

OFF

ON

“Power on/off status after voltage recovery”

k

OFF

ON

As before voltage failure

!

k

"Default fan speed after ventilation on"

k

Low

Medium

High

Last status

k

"Object datatype of 1byte fan speed"

k

Fan stage (DPT 5.100)

Percentage (DPT 5.001)

Output value for fan speed

“Output value for fan speed low/medium/high”

k k

1..255 /1..100

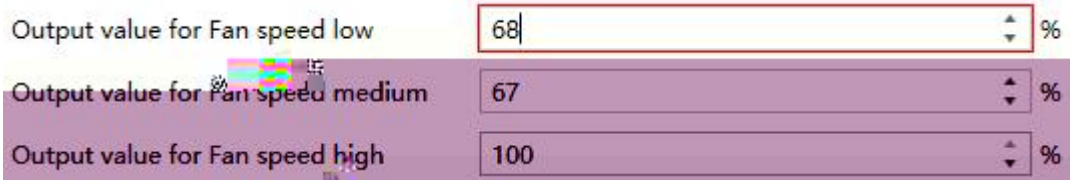
Status feedback for fan speed

“Status value for fan speed low/medium/high”

k k

1..255 /1..100

< < k ETS



"Automatic operation function"

k !

k k

"Filter timer counter"

k

"Evaluation time [100..10000]h"

k k **100..10000**

k

3s

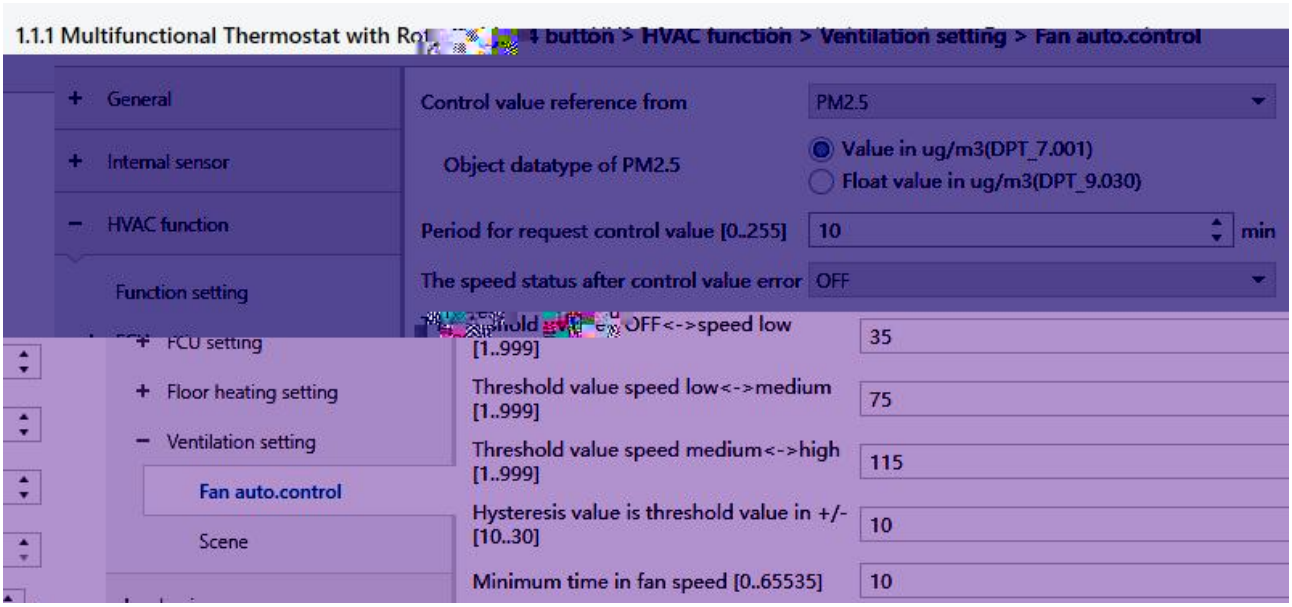
k

k

"Scene"

k k

5.3.5.1. “Fan auto.control”



k

“Control value reference from”

k

CO2

PM2.5

VOC

“Object datatype of CO2”

k k

Value in ppm(DPT_7.001)

Float value in ppm(DPT_9.008)

k

k

"Object datatype of PM2.5/VOC"

k

k

Value in ug/m3(DPT_7.001)

Float value in ug/m3(DPT_9.030)

k

k

"Period for request control value [0...255]min"

k

2min k **0..255**

"Threshold value speed OFF<-->low [1..999]/ [1...4000]"

k **1..999/1..4000**

k

"Threshold value speed low<-->medium [1..999]/ [1...4000]"

k

k **1..999/1..4000**

"Threshold value speed medium<-->high [1..999]/ [1...4000]"

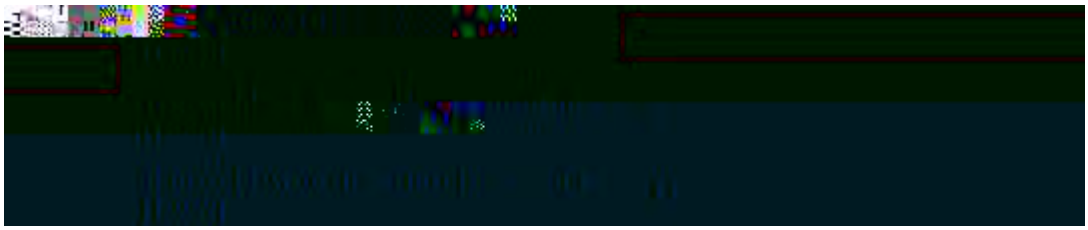
k

k **1..999/1..4000**

k

OFF <-> <-> <-> k

ETS



OFF <-> <-> <-> <->

k

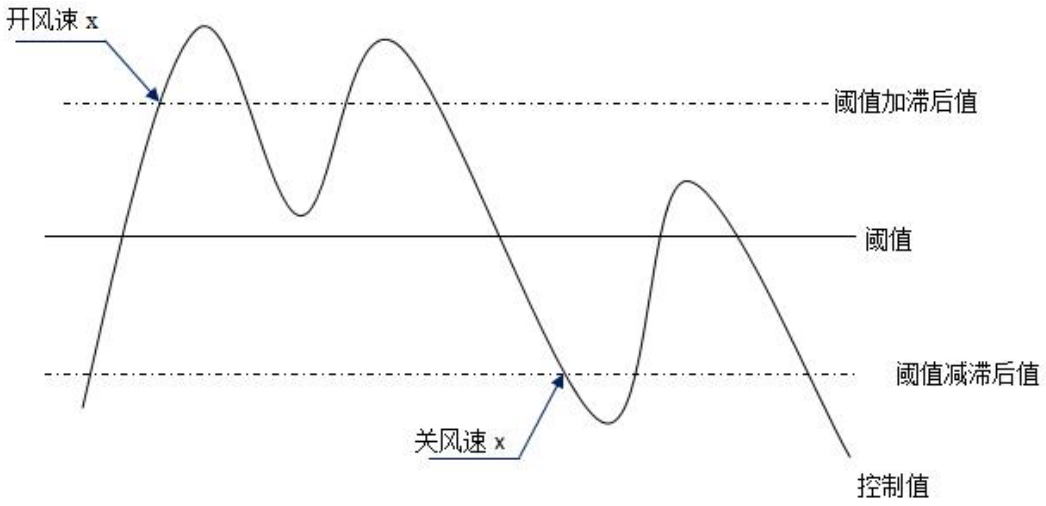
"Hysteresis threshold value in +/- [10...30]/[100..400]"

k

10..30/100..400

k

k



1

2 k

1

PM2.5

OFF <-> 35

<-> 55

<-> 75

25

OFF

OFF 60 25+35 60 55 75

50 <75-25 50 35 55

k

2

PM2.5

OFF <-> 20

<-> 40

<-> 70

10

OFF

OFF 30 20+10 k

41 41 40 70

39 39 20 40 k

60 <70-10 k

39 39 20 40

k

3 0 k

"Minimum time in fan speed [0..65535]s"

k 0..65535

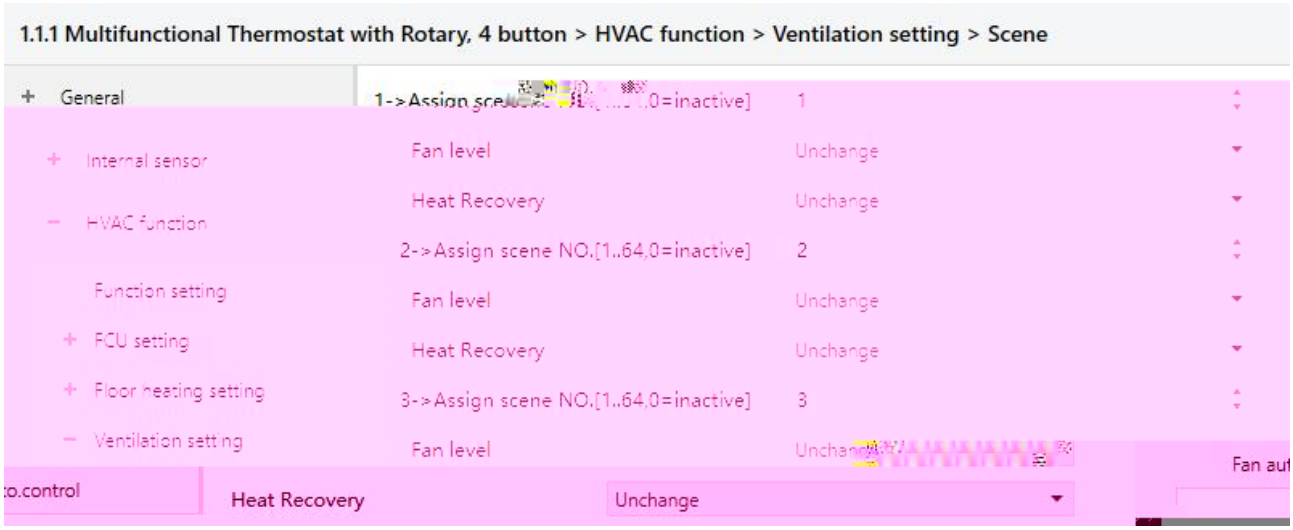
k

k

k

k

5.3.5.2. “Scene ”



k

“x->Assign scene NO.[1..64,0=inactive]”(x=1~5)

k k **0..64 0=**

“Fan”

OFF

Low

Medium

High

"Heat recovery"

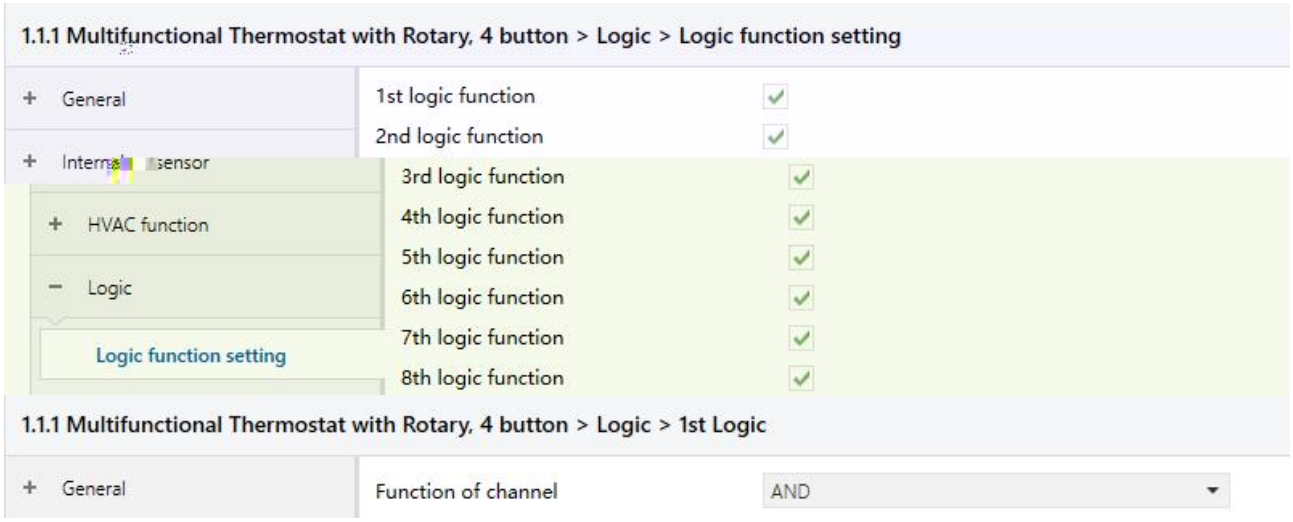
k

OFF

ON

Unchange

5.4. "Logic"



"1st/2nd/3rd... Logic function"

k k

"Function of channel"

k

AND

OR

XOR

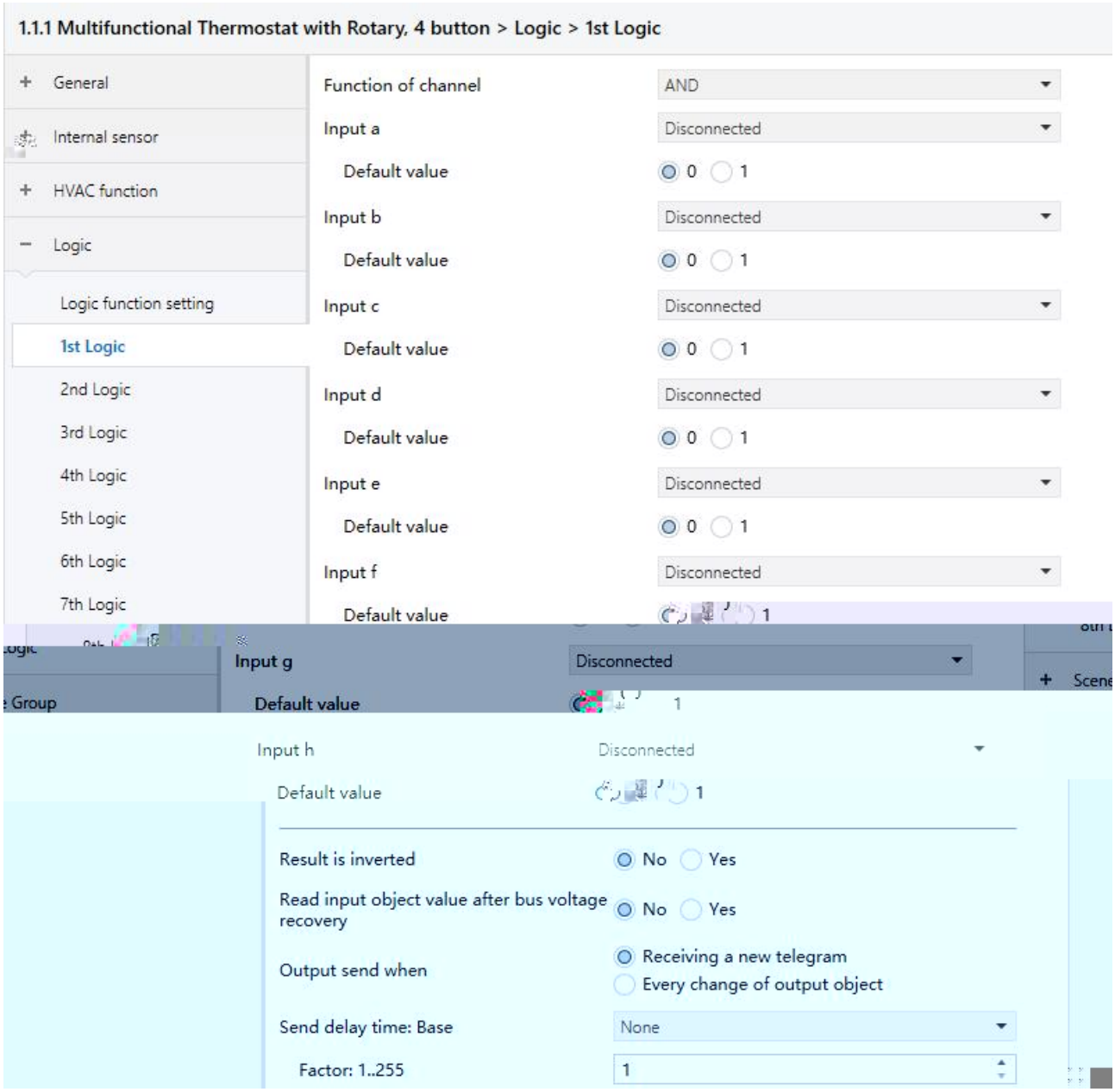
Gate forwarding

Threshold comparator

Format convert

k

5.4.1. “AND/OR/XOR”



"Input a/b/c/d/e/f/g//h"

k

Disconnected

Normal

Inverted

k k

" " "Default value"

k

0

1

"Result is inverted"

k

No

Yes

k

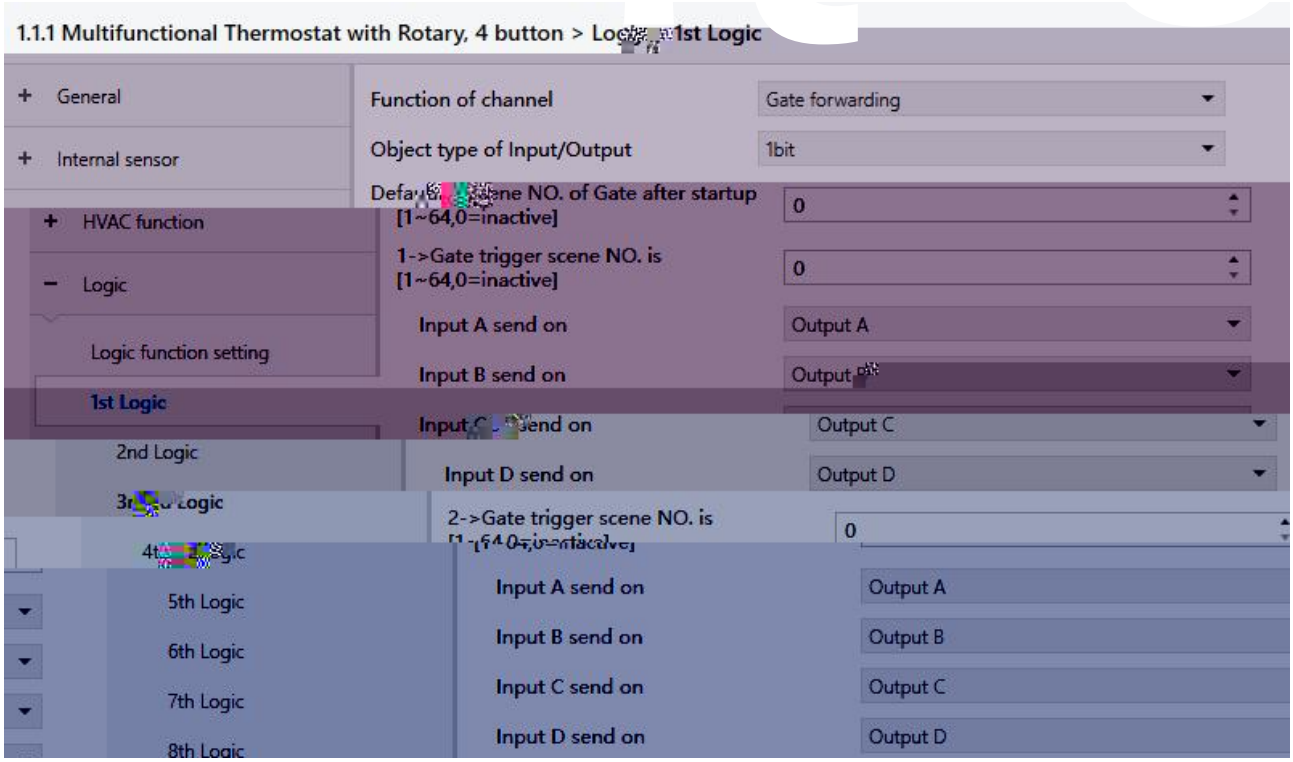
"Read input object value after voltage recovery"

k

No

Yes

5.4.2. “Gate forwarding”



“Object type of Input/Output”

°Å Ú k

1bit

4bit

1byte

“Default sc !

“Input A/B/C/D send on”

k

Disable

Output A

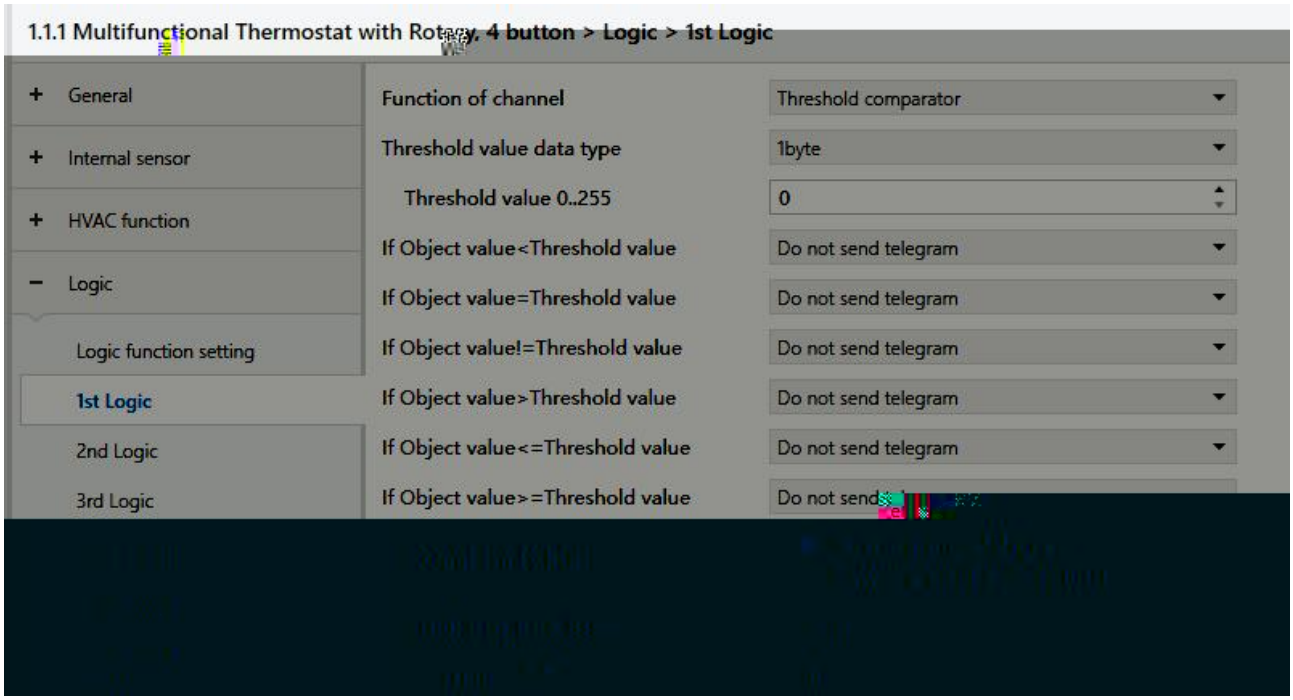
Output B

...

Output B,C,D

k k

5.4.3. “Threshold comparator”



“Threshold value data type”

k

4bit

1byte

2byte

4byte

“Threshold value ”

k

4bit 0..15 / 1byte 0..255 / 2byte 0..65535 / 4byte 0..4294967295

”If Object value<Threshold value”

“If Object value=Threshold value”

“If Object value!=Threshold value”

“If Object value>Threshold value”

“If Object value<=Threshold value”

“If Object value>=Threshold value”

! ! ! !

k

Do not send telegram

Send value "0"

Send value "1"

k

k If Object

value=Threshold value Send value 0 If Object value<=Threshold value Send value

1 1 k

"Output send when"

k

Receiving a new telegram

Every change of output object

k

k

"Send delay time"

Base: **None**

0.1s

1s

...

10s

25s

Factor: **1..255**

k k

5.4.4. “Format convert”

“Function”

k

2x1bit-->1x2bit

8x1bit-->1x1byte

1x1byte-->1x2byte

2x1byte-->1x2byte

2x2byte-->1x4byte

1x1byte-->8x1bit

1x2byte-->2x1byte

1x4byte-->2x2byte

1x3byte-->3x1byte

3x1byte-->1x3byte

“Output send when”

k

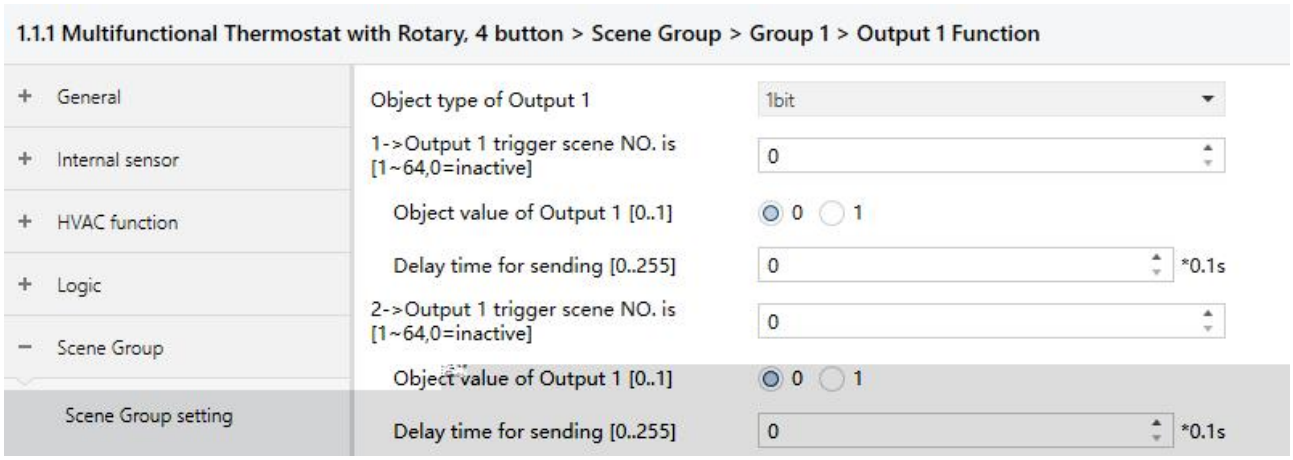
Receiving a new telegram

Every change of output object

k

k

5.5. “Scene Group”



“Scene Group x Function”(x=1~8)

k

“Object type of Output y”(y=1~8)

k

1bit

1byte

2byte

“z->Output y trigger scene NO. is [1~64,0=inactive]”(z=1~8)

k k

0..64 0=

" "Object value of Output y"

1bit 0..1 / 1byte 0..255 / 2byte 0..65535

" "Delay time for sending [0...255]*0.1s"

k **0..255**

k

“C” **“W”**

212	**Dis/En Proximity function**	**Extension function**	**1bit**	**C,W**	**1.003 enable**

k

213

6.2. “Internal sensor”

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
5	Internal sensor	Actual temperature			2 bytes	C	R	-	T	-	temperature (°C)	Low
6	Internal sensor	Low temperature alarm			1 bit	C	R	-	T	-	alarm	Low
7	Internal sensor	High temperature alarm			1 bit	C	R	-	T	-	alarm	Low

5	**Actual temperature**	**Internal sensor**	**2byte**	**C,R,T**	**9.001 temperature**
		k			

6	**Low temperature alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
			k		
7	**High temperature alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
			k		

6.3. “HVAC controller”

6.3.1. “FCU”

Master ! !

! ! ! / ! ! !

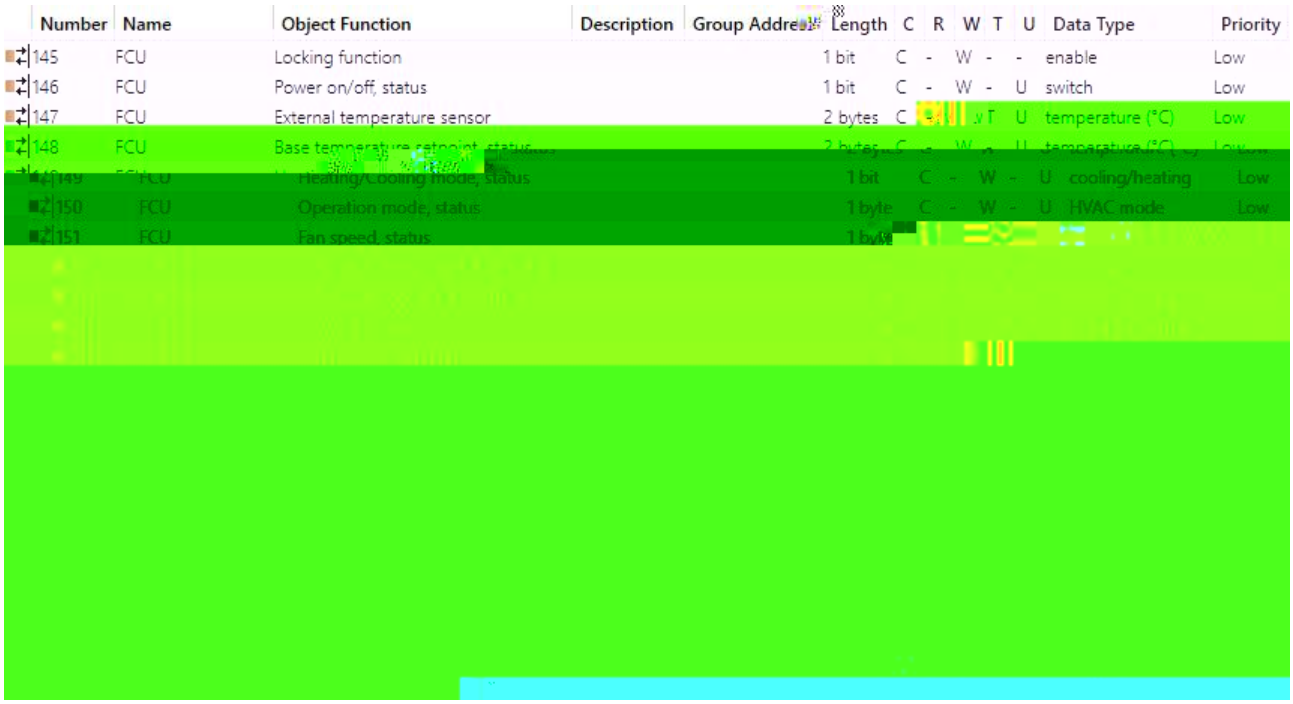
k

Single ! !

k k

Slave ! ! !

/ ! ! ! k



Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
145	FCU	Locking function			1 bit	C	-	W	-	-	enable	Low
146	FCU	Power on/off, status			1 bit	C	-	W	-	U	switch	Low
147	FCU	External temperature sensor			2 bytes	C			T	U	temperature (°C)	Low
148	FCU	Base temperature setpoint, status			2 bytes	C	-	W	-	U	temperature (°C)	Low
149	FCU	Heating/cooling mode, status			1 bit	C	-	W	-	U	cooling/heating	Low
150	FCU	Operation mode, status			1 byte	C	-	W	-	U	HVAC mode	Low
151	FCU	Fan speed, status			1 byte							

145	**Locking function**	**FCU**	**1bit**	**C,W**	**1.003 enable**
k , , , ,					
146	**Power on/off, status**	**FCU**	**1bit**	**C,W,U** **C,W,T,U**	**1.001 switch**
k , , , , **C,W,U** **C,W,T,U** k					
147	**External temperature sensor**	**FCU**	**2byte**	**C,W,T,U**	**9.001 temperature**
k					

148	Current temperature setpoint, status Base temperature setpoint, status	FCU	2byte	C,W,U C,W,T,U	9.001 temperature
k k k k C,W,U C,W,T,U k					
149	Heating/Cooling mode, status	FCU	1bit	C,W,U C,W,T,U	1.100 cooling/heating
k , , , , C,W,U C,W,T,U k					
150	Operation mode, status	FCU	1byte	C,W,U C,W,T,U	20.102 HVAC mode
k k C,W,U C,W,T,U k					
151	Fan speed, status	FCU	1byte	C,W,T,U	5.001 percentage 5.100 fan stage
k k					

152	Fan automatic operation, status	FCU	1bit	C,W,U C,W,T,U	1.003 enable

156	**Timer**	**FCU**	**1bit**	**C,W**	**1.003 enable**
k k k					
157	**Scene**	**FCU**	**1byte**	**C,W**	**18.001 scene control**
k k k					
158	**Power on/off**	**FCU**	**1bit**	**C,T C,R,T**	**1.001 switch**
k **C,R,T** **C,T** k					
159	**Actual temperature**	**FCU**	**2byte**	**C,R,T**	**9.001 temperature**
k k					
160	**Current base setpoint temperature**	**FCU**	**2byte**	**C,T**	**9.001 temperature**
k k k					
161	**Current setpoint adjustment**	**FCU**	**2byte**	**C,T C,R,T**	**9.001 temperature**
k **C,R,T** **C,T** k					

162	Heating/Cooling mode	FCU	1bit	C,T C,R,T	1.100 cooling/heating
k k , , , , C,R,T C,T k					
163	Operation mode	FCU	1byte	C,T C,R,T	20.102 HVAC mode
k k C,R,T C,T k					
164	Heating control value	FCU	1bit 1byte	C,R,T	1.001 Switch 5.001 percentage
165	Cooling control value	FCU	1bit 1byte	C,R,T	1.001 Switch 5.001 percentage
k k k					
166	Fan speed	FCU	1byte	C,T C,R,T	5.001 percentage 5.100 fan stage
k k k C,R,T C,T k					
167	Fan automatic operation	FCU	1bit	C,T C,R,T	1.003 enable
k , , , , C,R,T C,T k					

6.3.2. “VRF”

! ! !

! ! k

Number
Name
Object Function
Description
Group Address
Length
C
R
W
T
U
Data Type
Priority
VRF
172
Low

168	**Locking function**	**VRF**	**1bit**	**C,W**	**1.003 enable**
k , , , ,					
169	**Power on/off, status**	**VRF**	**1bit**	**C,W,T,U**	**1.001 switch**
k , , , ,					
170	**External temperature sensor**	**VRF**	**2byte**	**C,W,T,U**	**9.001 temperature**
k					
171	**Current temperature setpoint, status**	**VRF**	**1byte** **2byte**	**C,W,T,U**	**5.010 counter pulses** **9.001 temperature**
k					
172	**Control mode, status**	**VRF**	**1byte**	**C,W,T,U**	**20.105 HVAC control mode**
k k					

173	**Fan speed, status**	**VRF**	**1byte**	**C,W,T,U**	**5.001 percentage** **5.100 fan stage**
k					k
174	**Vanes swing (1-swing,0-stop), status**	**VRF**	**1bit**	**C,W,T,U**	**1.010 start/stop**
k , , , ,					k
175	**Timer**	**VRF**	**1bit**	**C,W**	**1.003 enable**
k					k
176	**Scene**	**VRF**	**1byte**	**C,W**	**18.001 scene control**
k					k
177	**Power on/off**	**VRF**	**1bit**	**C,T**	**1.001 switch**
k					
178	**Current setpoint adjustment**	**VRF**	**1byte**	**C,T**	**5.001 percentage** **5.100 fan stage**
k					
179	**Fan speed**	**VRF**	**1byte**	**C,T**	**5.001 percentage** **5.100 fan stage**
k					k
180	**Vanes swing (1-swing,0-stop)**	**VRF**	**1bit**	**C,T**	**1.010 start/stop**
k , , , ,					k
181	**Control mode**	**VRF**	**1byte**	**C,T**	**20.105 HVAC control mode**
k k					

6.3.3. “Floor heating”

Master

!

!

k

Single

k

Slave

!

!

k

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
182	Floor heating	Locking function			1 bit	C	-	W	-	-	enable	Low
183	Floor heating	Power on/off, status			1 bit	C	-	W	-	U	switch	Low
184	Floor heating	External temperature sensor			2 bytes	C	-	W	T	U	temperature (°C)	Low
185	Floor heating	Current temperature setpoint, status			2 bytes	C	-	W	-	U	temperature (°C)	Low
186	Floor heating	Timer			1 bit	C	-	W	-	-	enable	Low
187	Floor heating	Scene			1 byte	C	-	W	-	-	scene control	Low
188	Floor heating	Power on/off			1 bit	C	R	-	T	-	switch	Low
189	Floor heating	Actual temperature			2 bytes	C	R	-	T	-	temperature (°C)	Low
190	Floor heating	Current setpoint adjustment			2 bytes	C	R	-	T	-	temperature (°C)	Low
191	Floor heating	Heating on/off			1 bit	C	-	-	T	-	switch	Low

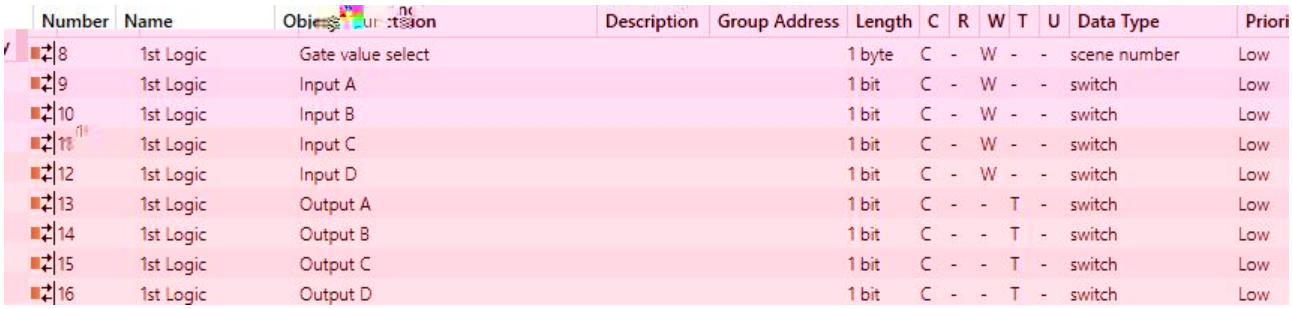
182	**Locking function**	**Floor heating**	**1bit**	**C,W**	**1.003 enable**
k , , , ,					
183	**Power on/off, status**	**Floor heating**	**1bit**	**C,W,U** **C,W,T,U**	**1.001 switch**
k , , , , **C,W,U** **C,W,T,U** k					
184	**External temperature sensor**	**Floor heating**	**2byte**	**C,W,T,U**	**9.001 temperature**
k					
185	**Current temperature setpoint, status**	**Floor heating**	**2byte**	**C,W,U** **C,W,T,U**	**9.001 temperature**
k **C,W,U** **C,W,T,U** k					

186	**Timer**	**Floor heating**	**1bit**	**C,W**	**1.003 enable**
k k k					
187	**Scene**	**Floor heating**	**1byte**	**C,W**	**18.001 scene control**
k k k					
188	**Power on/off**	**Floor heating**	**1bit**	**C,T C,R,T**	**1.001 switch**
k **C,R,T** **C,T** k					
189	**Actual temperature**	**Floor heating**	**2byte**	**C,R,T**	**9.001 temperature**
k k					
190	**Current setpoint adjustment**	**Floor heating**	**2byte**	**C,T C,R,T**	**9.001 temperature**
k **C,R,T** **C,T** k					
191	**Heating on/off Heating control value**	**Floor heating**	**1bit 1byte**	**C,T**	**1.001 switch 5.001 percentage**
k k % k					

196	**Heat recovery on/off, status**	**Ventilation**	**1bit**	**C,W**	**1.001 switch**
k , , , ,					
197	**En./Dis. Heat recovery**	**Ventilation**	**1bit**	**C,W**	**1.003 enable**
k					
198	**Filter timer counter change**	**Ventilation**	**2byte**	**C,W**	**7.007 time(h)**
k					
199	**Filter timer reset, status**	**Ventilation**	**1bit**	**C,W**	**1.015 reset**
k , , k					
201	**Scene**	**Ventilation**	**1byte**	**C,W**	**18.001 scene control**
k k					
202	**CO2 value**	**Ventilation**	**2byte**	**C,W,T,U**	**7.001 pulse** **9.008 parts/million(ppm)**
203	**PM 2.5 value**	**Ventilation**	**2byte**	**C,W,T,U**	**7.001 pulse** **9.030 concentration(ug/m3)**
204	**VOC value**	**Ventilation**	**2byte**	**C,W,T,U**	**7.001 pulse** **9.030 concentration(ug/m3)**
k k k					
205	**Power on/off**	**Ventilation**	**1bit**	**C,T**	**1.001 switch**
k k					
206	**Fan speed**	**Ventilation**	**1byte**	**C,T**	**5.001 percentage** **5.100 fan stage**
k k					

207	**Fan automatic operation**	**Ventilation**	**1bit**	**C,T**	**1.003 enable**
k , , , ,					
208	**Heat recovery on/off**	**Ventilation**	**1bit**	**C,T**	**1.001 switch**
k , , , ,					
209	**Filter timer counter**	**Ventilation**	**2byte**	**C,T**	**7.007 time(h)**
k					
210	**Filter alarm**	**Ventilation**	**1bit**	**C,T**	**1.005 alarm**
k , ,					
211	**Filter timer reset**	**Ventilation**	**1bit**	**C,W**	**1.015 reset**
3s k					

6.4.2. “Gate forwarding”



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priori
8	1st Logic	Gate value select			1 byte	C	-	W	-	-	scene number	Low
9	1st Logic	Input A			1 bit	C	-	W	-	-	switch	Low
10	1st Logic	Input B			1 bit	C	-	W	-	-	switch	Low
11	1st Logic	Input C			1 bit	C	-	W	-	-	switch	Low
12	1st Logic	Input D			1 bit	C	-	W	-	-	switch	Low
13	1st Logic	Output A			1 bit	C	-	-	T	-	switch	Low
14	1st Logic	Output B			1 bit	C	-	-	T	-	switch	Low
15	1st Logic	Output C			1 bit	C	-	-	T	-	switch	Low
16	1st Logic	Output D			1 bit	C	-	-	T	-	switch	Low

8	**Gate value select**	**1st Logic**	**1byte**	**C,W**	**17.001 scene number**
k					
9/.../12	**Input x**	**1st Logic**	**1bit** **4bit** **1byte**	**C,W**	**1.001 switch** **3.007 dimming control** **5.010 counter pulses(0..255)**
k					
13/../16	**Output x**	**1st Logic**	**1bit** **4bit** **1byte**	**C,T**	**1.001 switch** **3.007 dimming control** **5.010 counter pulses(0..255)**
k k					

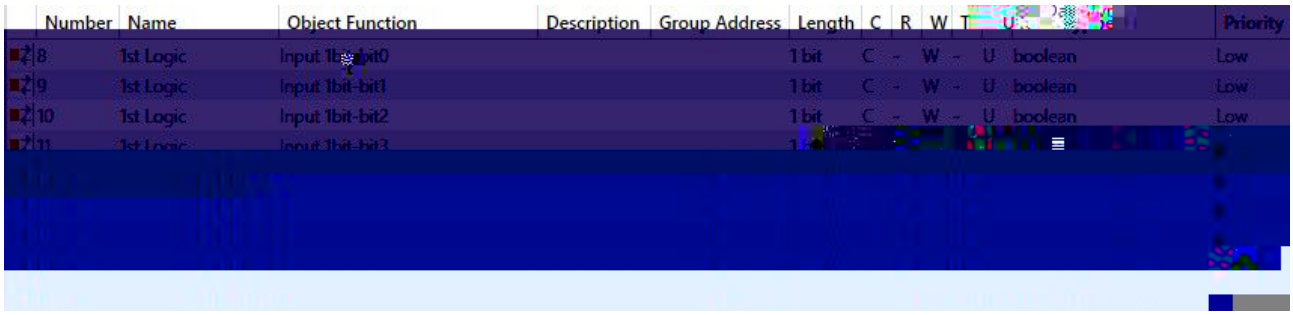
6.4.3. “Threshold comparator”

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Threshold value input			4 bit	C	-	W	-	U	dimming control	Low
8	1st Logic	Threshold value input			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
8	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	pulses	Low
8	1st Logic	Threshold value input			4 bytes	C	-	W	-	U	counter pulses (unsigned)	Low

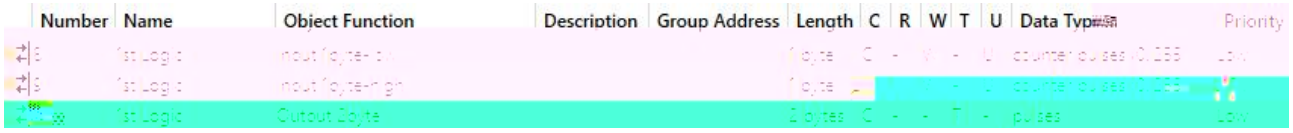
8	**Threshold value input**	**1st Logic**	**4bit** **1byte** **2byte** **4byte**	**C,W, U**	**3.007 dimming** **5.010 counter pulses** **7.001 pulses** **12.001 counter pulses**
k					
16	**Logic result**	**1st Logic**	**1bit**	**C,T**	**1.002 boolean**
k					k

6.4.4. “Format convert”

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
9	1st Logic	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
16	1st Logic	Output 2bit			2 bit	C	-	-	T	-	switch control	Low



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
16	1st Logic	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low



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Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
9	1st Logic	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
16	1st Logic	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

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Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
9	1st Logic	Output 1bit-bit0			1 bit	C	-	-	T	-	boolean	Low
10	1st Logic	Output 1bit-bit1			1 bit	C	-	-	T	-	boolean	Low
11	1st Logic	Output 1bit-bit2			1 bit	C	-	-	T	-	boolean	Low
12	1st Logic	Output 1bit-bit3			1 bit	C	-	-	T	-	boolean	Low
13	1st Logic	Output 1bit-bit4			1 bit	C	-	-	T	-	boolean	Low
14	1st Logic	Output 1bit-bit5			1 bit	C	-	-	T	-	boolean	Low
15	1st Logic	Output 1bit-bit6			1 bit	C	-	-	T	-	boolean	Low
16	1st Logic	Output 1bit-bit7			1 bit	C	-	-	T	-	boolean	Low

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 2byte			2 bytes	C	-	W	-	U	pulses	Low
15	1st Logic	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
16	1st Logic	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

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Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st L											

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Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 3byte			3 bytes	C	-	W	-	U	RGB value 3x(0..255)	Low
14	1st Logic	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
15	1st Logic	Output 1byte-middle			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
16	1st Logic	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

$

$ $ $

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
8	1st Logic	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
9	1st Logic	Input 1byte-middle			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
10	1st Logic	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
16	1st Logic	Output 3byte			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low

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$ $ $

8	**Input ...**	**1st Logic**	**1bit** **1byte** **2byte** **3byte** **4byte**	**C,W,U**	**1.001 switch** **5.010 counter pulses(0..255)** **7.001 pulses** **232.600 RGB value 3x(0..255)** **12.001 counter pulses**
k					
16	**Output ...**	**1st Logic**	**1bit** **2bit** **1byte** **2byte** **3byte** **4byte**	**C,T**	**1.001 switch** **2.001 switch control** **5.010 counter pulses(0..255)** **7.001 pulses** **232.600 RGB value 3x(0..255)** **12.001 counter pulses**
k					

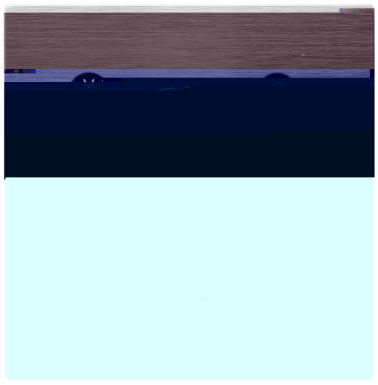
6.5. “Scene Group”

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
80	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
81	1st Scene Group	Sub scene output 1			1 bit	C	-	-	T	-	switch	Low
82	1st Scene Group	Sub scene output 2			1 bit	C	-	-	T	-	switch	Low
83	1st Scene Group	Sub scene output 3			1 bit	C	-	-	T	-	switch	Low
84	1st Scene Group	Sub scene output 4			1 bit	C	-	-	T	-	switch	Low
85	1st Scene Group	Sub scene output 5			1 bit	C	-	-	T	-	switch	Low
86	1st Scene Group	Sub scene output 6			1 bit	C	-	-	T	-	switch	Low
87	1st Scene Group	Sub scene output 7			1 bit	C	-	-	T	-	switch	Low
88	1st Scene Group	Sub scene output 8			1 bit	C	-	-	T	-	switch	Low

80	**Main scene trigger**	**Scene Group**	**1byte**	**C,W**	**17.001 scene number**
					k
81/../	**Sub scene output x**	**1st Scene Group**	**1bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.010 counter pulses** **7.001 pulses**
					k k k

! ! !

k k



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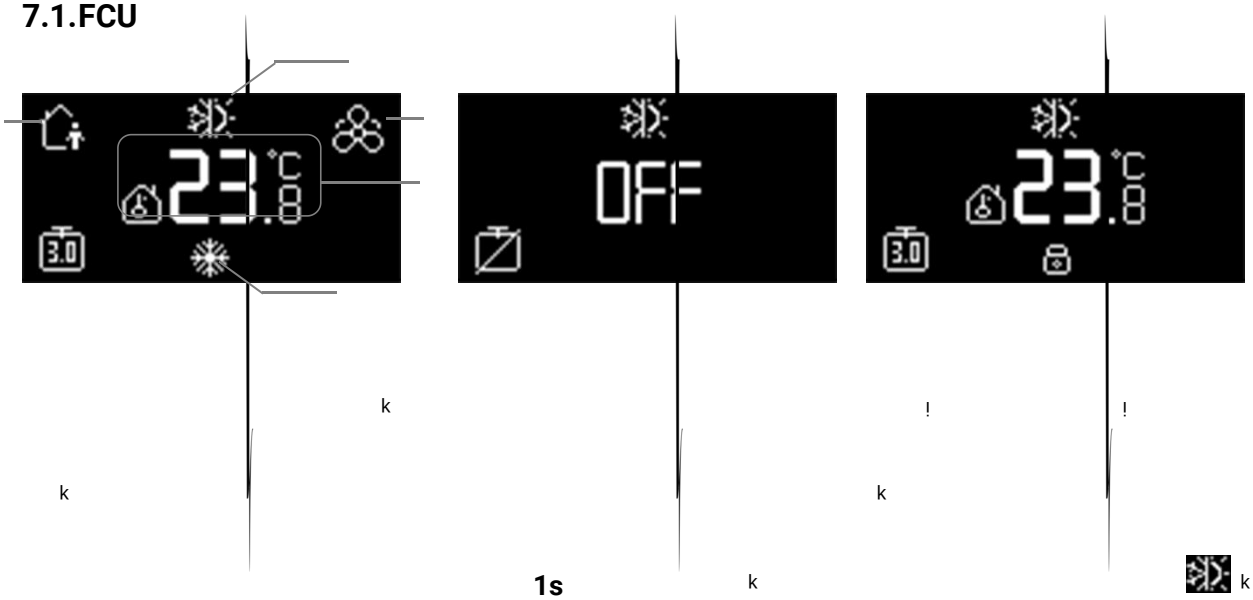
7.1.FCU



k ! !

k k

F 1s k k

F ! ! ! !

k

ϒ k k

VRF
23.8 °C
1s

k

k

k

k

k

1s !

k

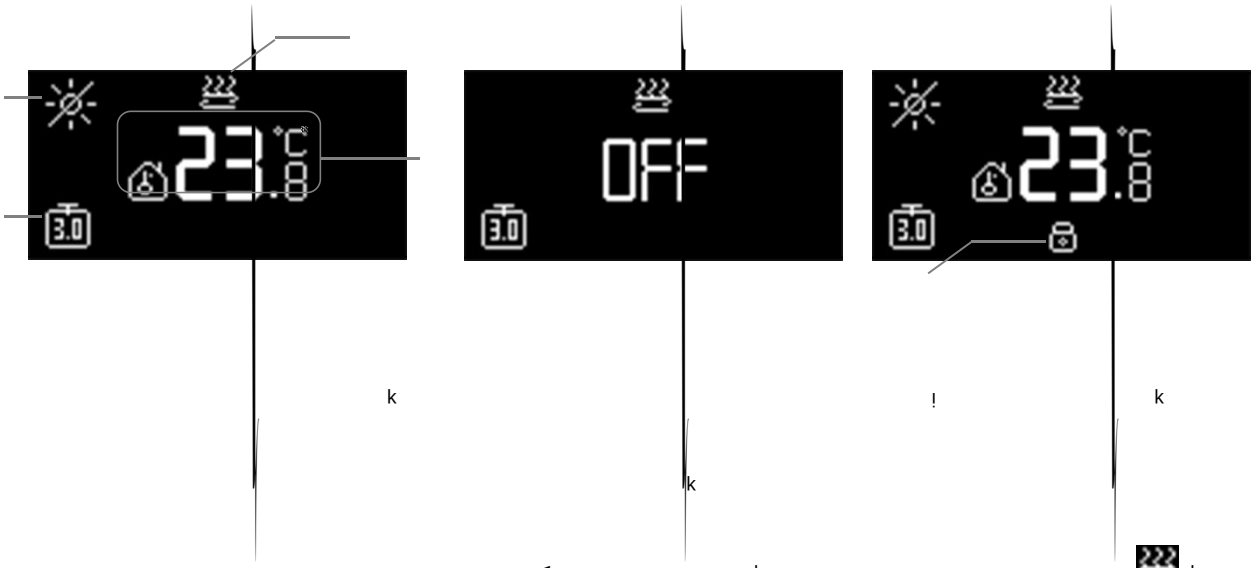
k

k

k

k

7.3.



k

!

k

k

1s

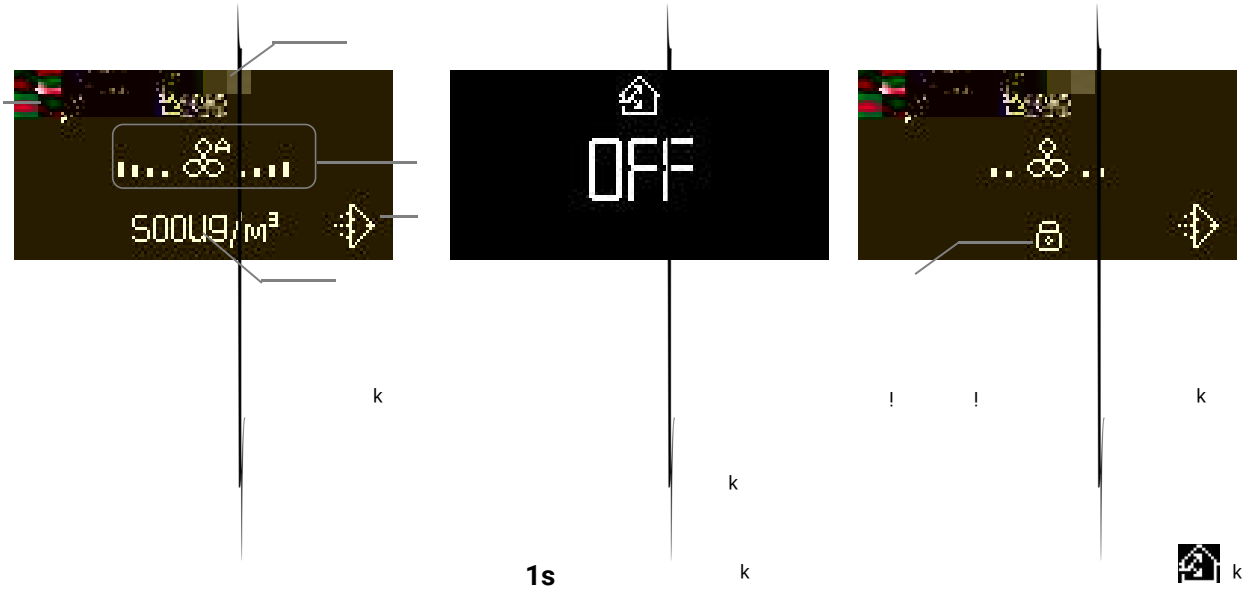
k

k

F

k k □ □□ □□□□ k

7.4.



k ! ! k

k

F 1s k k

F k ! ! !

k

k

k

k k k

k

k 3s k

k

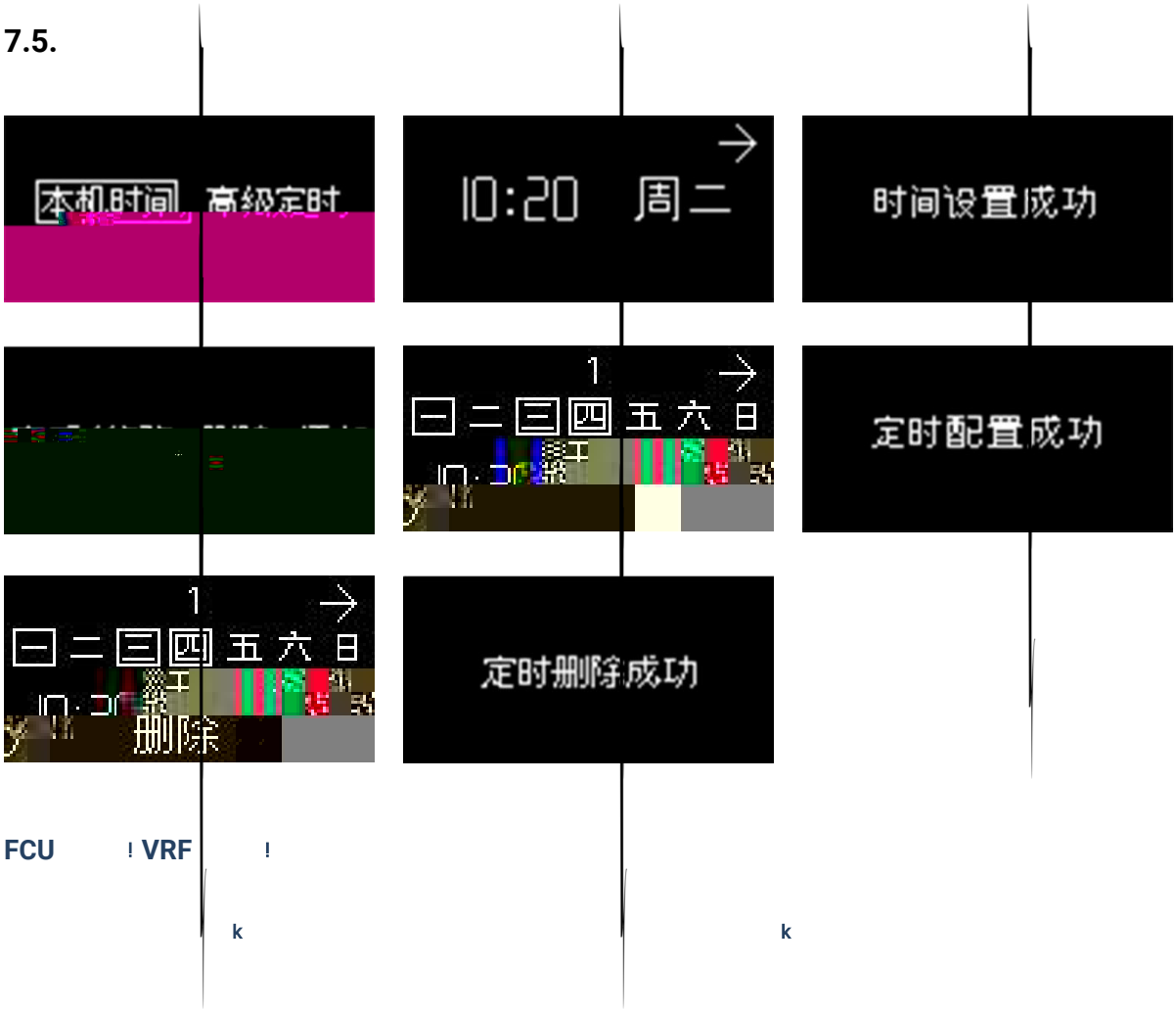
k

k

k

k

7.5.



FCU ! VRF !

k k

3s

!

k

k

k

k

k

!

k

k k

!

k k

FCU/VRF **4** **k**

! !

k

k

k k

k

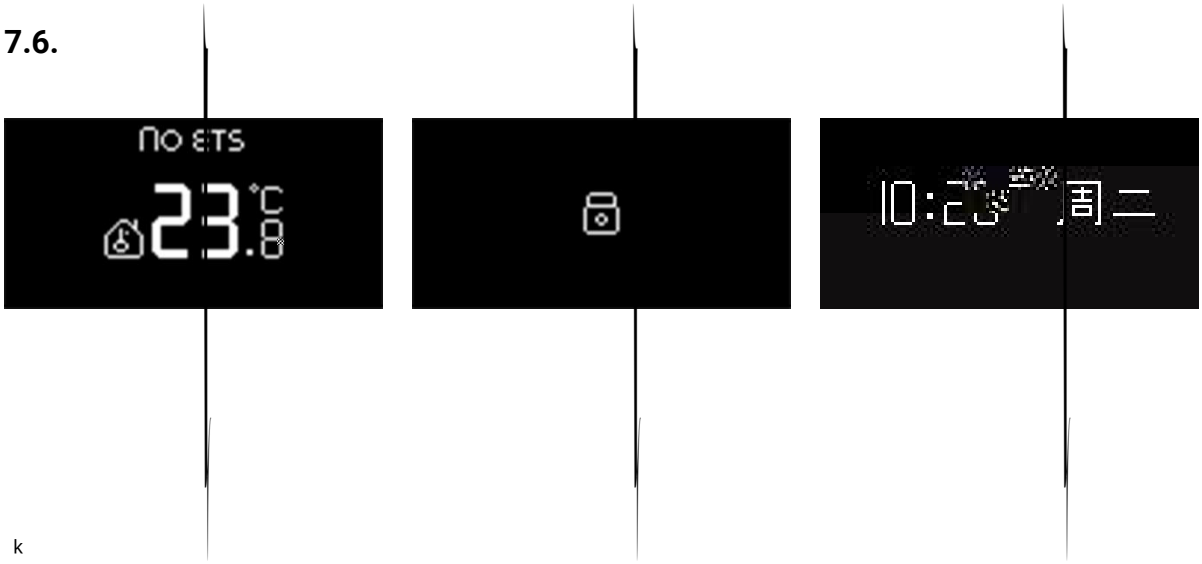
k

k

k

! k

7.6.



k

k

k