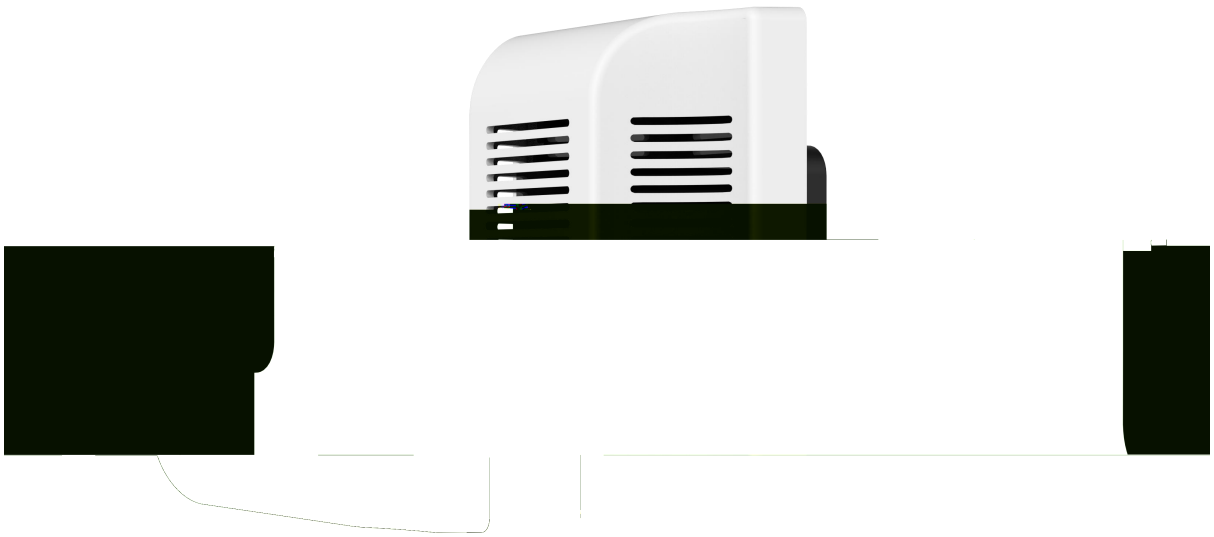
K-BUS KNX V2

KNX Air Quality Sensor V2_V1.3

CSAQI-06/00.1.0x



KNX/EIB

注意事项

1、请远离强磁场、高温、潮湿等环境；

4、请勿自行拆卸本设备。

1

3

4

3.1 4

3.2 4

5

ETS 7

5.1 7

5.2 “General” 7

5.3 “AQI” 10

5.3.1 “AQI General settings” 10

5.3.2 “AQI Value settings” 14

5.3.3 “AQI Alarm settings” 15

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5.5 “Humidity” 20

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6.4 VOC 41

6.5 CO2 42

6.6 43

6.7 44

k KNX

V2 PM2.5/PM10 VOC CO2 AQI

k

PM2.5 ! VOC ! CO2 k KNX

k

KNX V2 KNX 12-30V DC

80 86 k knxprod

ETS (ETS4 k

- **PM2.5 PM10**
-
- **AQI**
- **VOC**
- **CO2**
-
-
-
-

-
- **VOC**
- **CO2**
- **3**
-

CO2 **CO2** **400ppm** **k**

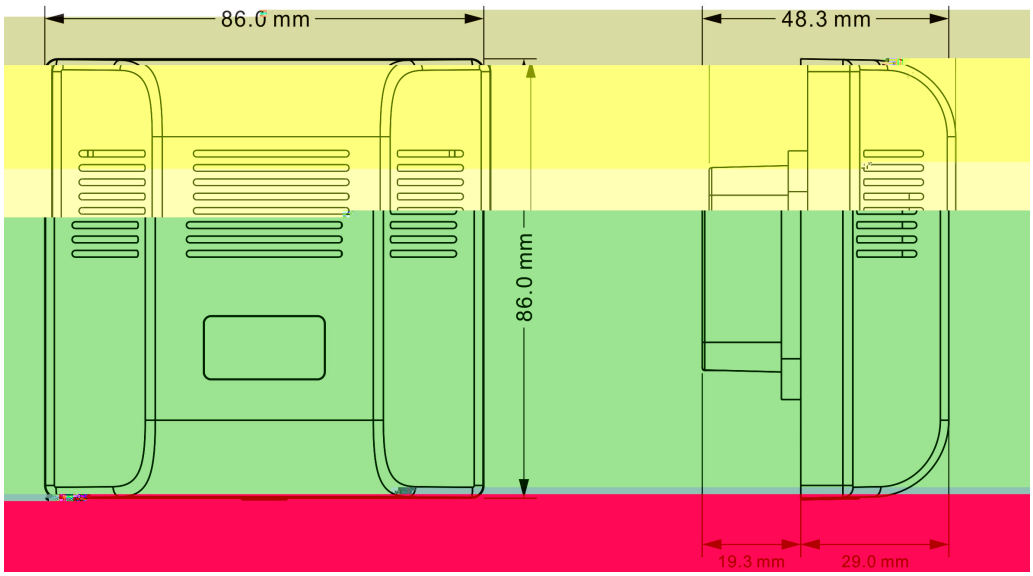
6-8s **CO2**

10s **CO2** **k**

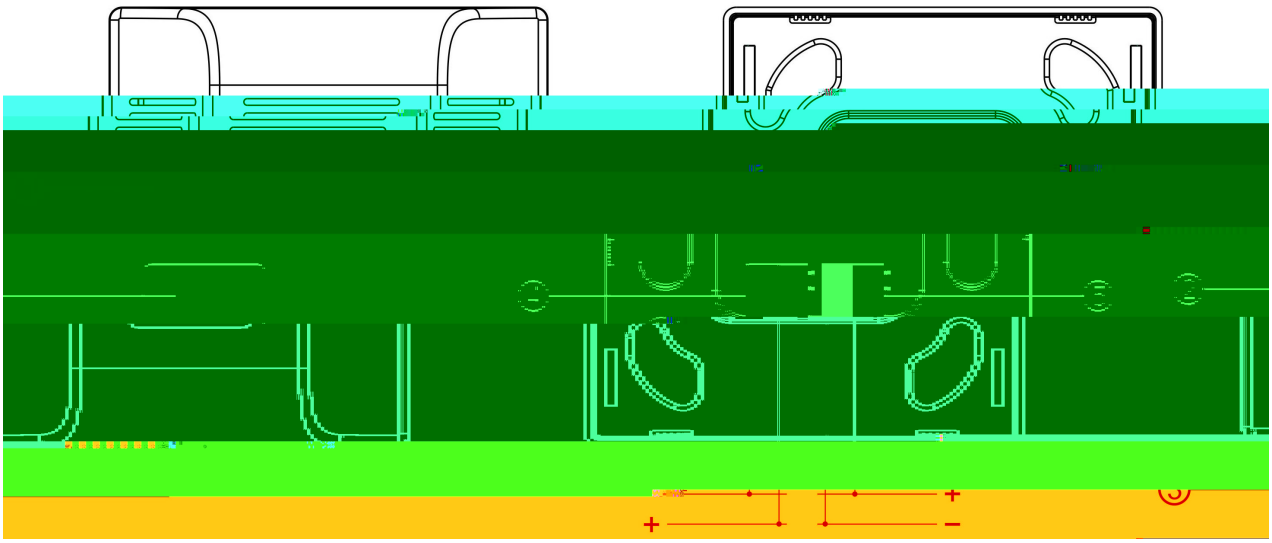
CO2 **CO2** **400ppm** **k**

	21-30V DC
	<3.0mA/24V DC, <2.6mA/30V DC <80mW
	12-30V DC
	<73mA/12V DC, <34mA/24V DC <26mA/30V DC <0.9W
KNX	/
	/
LED	
	-5°C...45°C ±1°C
	0.1°C
	10...90% ±4.5% 0...10% / 90...100% ±8%
	0.1%
	0-999 µg/m³
	50%(ť=0.3um) 98%(ť≥0.5 um) ≤ 10s
VOC	0-9.99 mg/m³ ±10%
CO2	400ppm~2000ppm ®40ppm
	¨ 5 °C... + 45 °C
	– 25 °C ... +55 °C – 25 °C ... +70 °C
	<93%
80 86	
86Ô86Ô48.3mm	
0.15KG	

3.1



3.2



F LED ϟ

F ϶KNX

ϟ

Air Quality Sensor, 6 in 1/2.0	45	120	120

PM2.5 PM10 AQI VOC CO2 k k

AQI CO2 VOC

k

AQI

AQI 6 1bit 4bit 1byte k

AQI

AQI k

/ /

k

k / /

k

1bit 4bit 1byte k

k

VOC

VOC k

CO2

CO2 k

PM2.5 ! VOC ! CO2 3 k 1bit/1byte k

5 AQI 1bit !

AQI 1bit 1bit 1bit VOC 1bit

1bit k 6 k

k

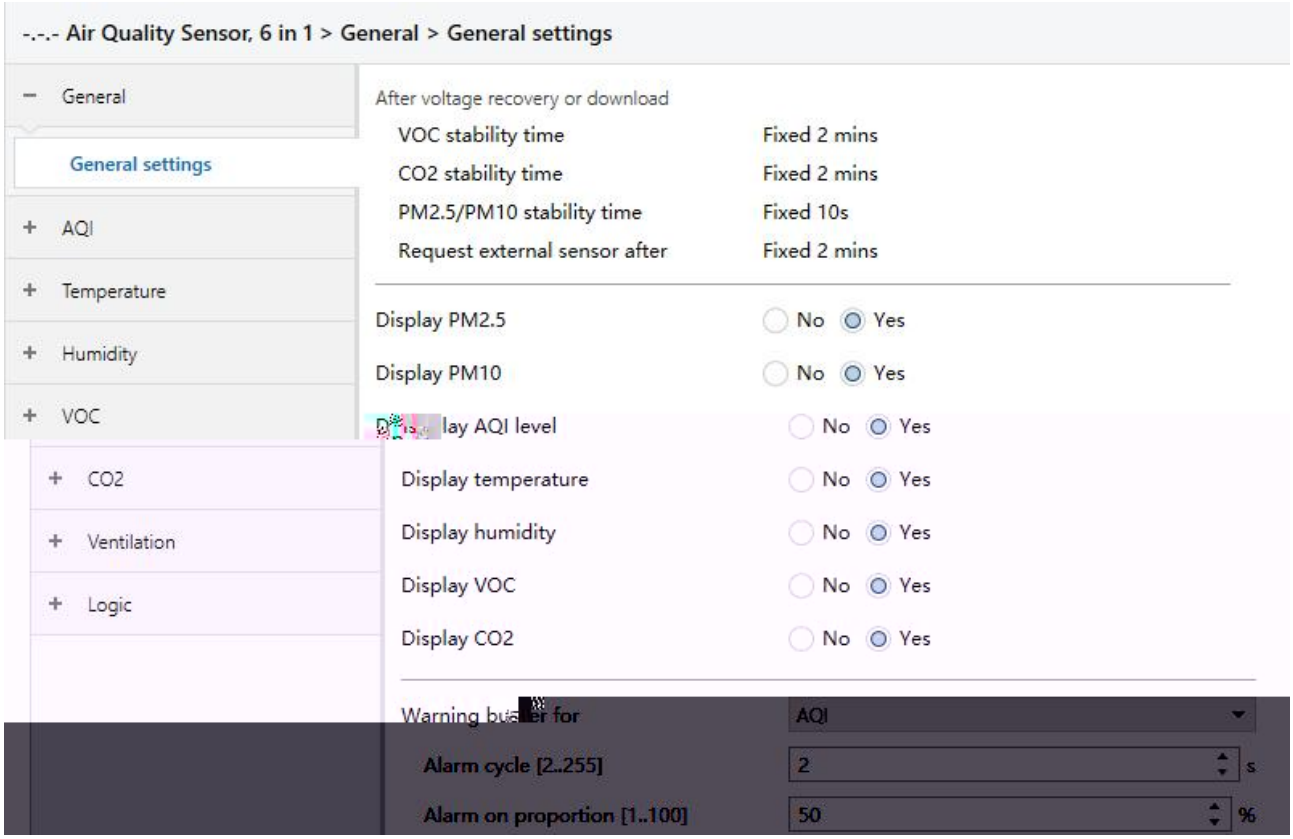
ETS

5.1

k

5.2 “General”

“General settings” 5.2 k



5.2 “General settings”

After voltage recovery or download

“VOC stability time”

VOC k **2mins** k

“CO2 stability time”

CO2 k **2mins** k

"PM2.5/PM10 stability time"

PM2.5/PM10 k **10s** k

"Request external sensor after"

AQI, k

2mins k

"Display PM2.5"

"Display PM10"

"Display AQI level"

"Display temperature"

"Display humidity"

"Display VOC"

"Display CO2"

k

No

Yes

"Yes" "No" k

"Warning buzzer for"

k

Do not used

AQI

Temperature

Humidity

VOC

CO2

“Do not used”

“AQI” “AQI Alarm settings”

“Alarm level” k

“Temperature” “Temperature settings”

“Heating/Frost alarm temperature [0..500]*0.1°C” k

“Humidity” “Humidity settings” “Humidity

alarm value [1..99]%” k

“VOC” VOC “VOC settings” “VOC alarm value

[100..5000]ug/m³” k

“CO2” CO2 “CO2 settings” “CO2 alarm value

[400..2000]ppm” k

k

“Alarm cycle [2..255]”

k **2…255(s)**

“Alarm on proportion [1..100]”

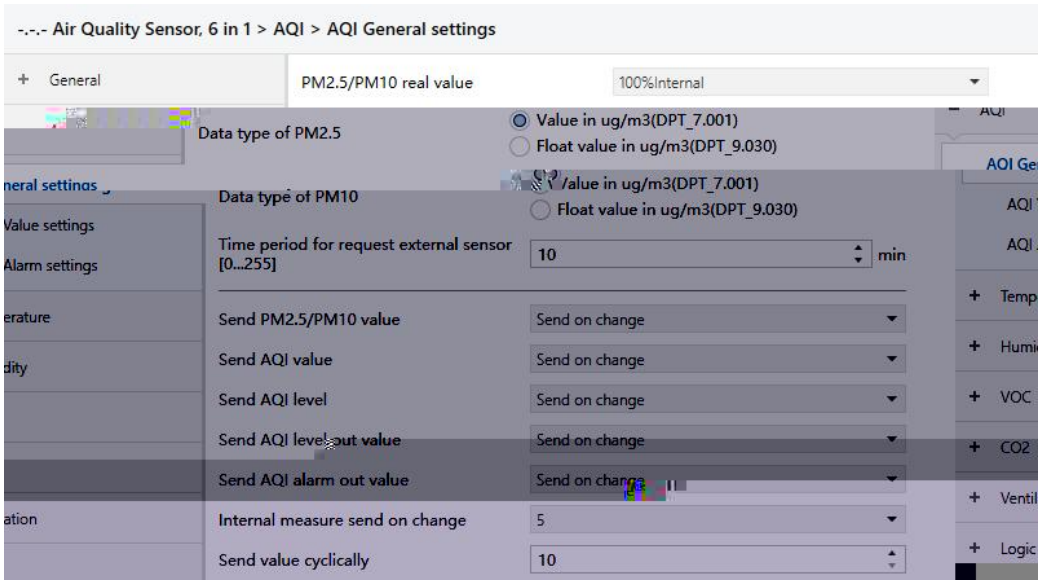
k 2s 50%

1s 1s k **1…100(%)**

5.3 “AQI”

5.3.1 “AQI General settings”

“AQI General settings” 5.3.1 k



5.3.1 “AQI General settings”

“PM2.5/PM10 Real Value”

PM2.5/PM10 KNX k

100%External

10%Internal+90%External

...

100%Internal

“40%Internal+60%External” PM2.5/PM10 A 40%

B 60% = A×40% + B×60% k

“Data type of PM2.5”

“Data type of PM10”

PM2.5 ! PM10 k

Value in ug/m³(DPT_7.001)

"Send AQI level"

k AQI 0

35 ! 36 75 ! 76 115 ! 116 150 ! 151 250 250 k

No send

Send on change

Send cyclically

"No send" AQI k

"Send on change" AQI k

"Send Cyclically" AQI "Send value Cyclically" k

"Send AQI level out value"

AQI k

No send

Send on change

Send cyclically

"No send" "AQI Value settings" k

"Send on change" AQI "AQI Value settings"

k

"Send Cyclically" "AQI Value settings" "Send value Cyclically" k

"Send AQI alarm out value"

AQI k

No send

Send on change

Send cyclically

"No send" "AQI Alarm settings" k

"Send on change" AQI "AQI Alarm settings" "Alarm

Level” k

“Send Cyclically” “AQI Value settings” “Send value Cyclically” k

"Internal measure send on change"

k

5

10

30

50

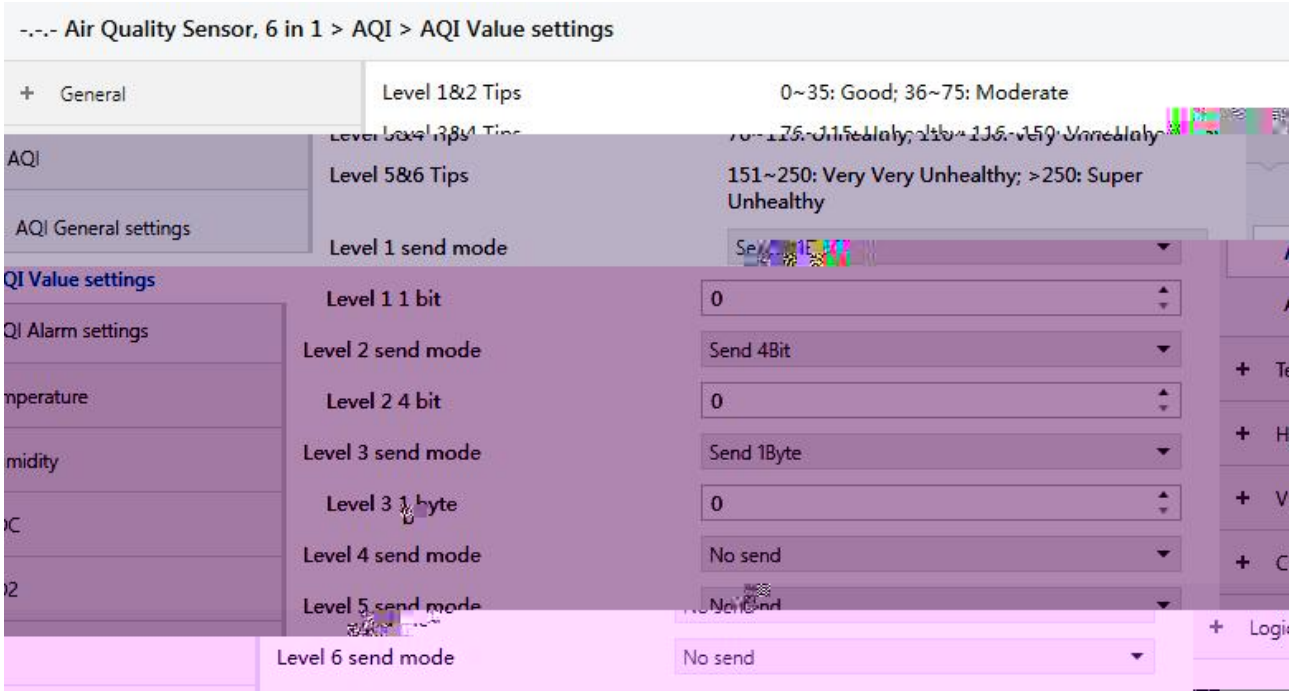
"Send value Cyclically"

k

10..50000

5.3.2 “AQI Value settings”

“AQI Value settings” AQI k



5.3.2 “AQI Value settings”

“Level x Send Mode”

k

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

“Level x 1Bit”

1Bit k **0...1**

“Level x 4Bit”

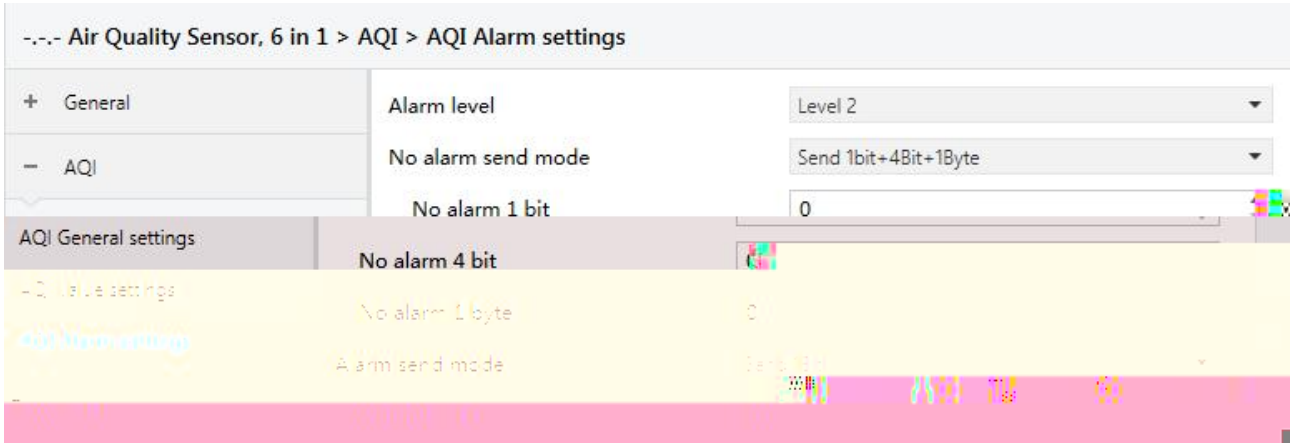
4Bit k **0...15**

“Level x 1Byte”

1Byte k **0...255**

5.3.3 “AQI Alarm settings”

“AQI Alarm settings” 5.3.3 AQI k



5.3.3 “AQI Alarm settings”

“Alarm Level”

AQI “Alarm send mode”

“No alarm send mode” k

Level 2

...

Level 3

“No alarm (Alarm)Send Mode”

k

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

“No alarm (Alarm) 1 bit”

1Bit k **0...1**

“No alarm (Alarm) 4 bit”

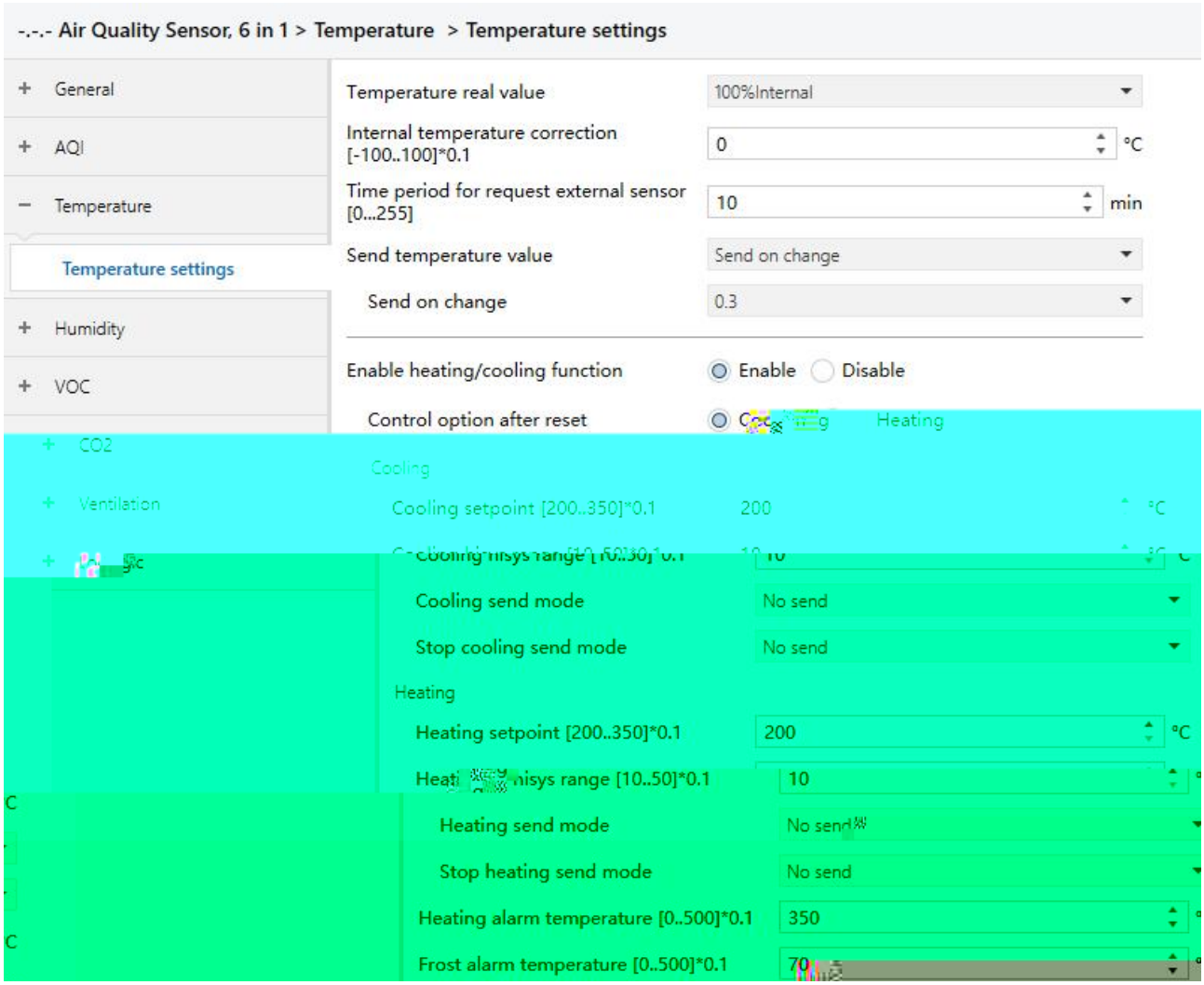
4Bit k **0...15**

"No alarm (Alarm) 1 byte"

1Byte k **0...255**

5.4 "Temperature"

"Temperature settings" 5.4 k



5.4 "Temperature settings"

"Temperature real value"

KNX k

100%External

10%Internal+90%External

...

100%Internal

“40%Internal+60%External” A 40%

B 60% = A×40% + B×60% k

”Internal temperature correction [-100..100]”

k = + k

100%External k **-100...100(*0.1-C)**

”Time period for request external sensor [0...255]min”

k

0..255

”Send temperature value”

k

No send

Send on change

Send cyclically

“No send” k “Send on change”

k “Send cyclically” k

” ” “Send on change”

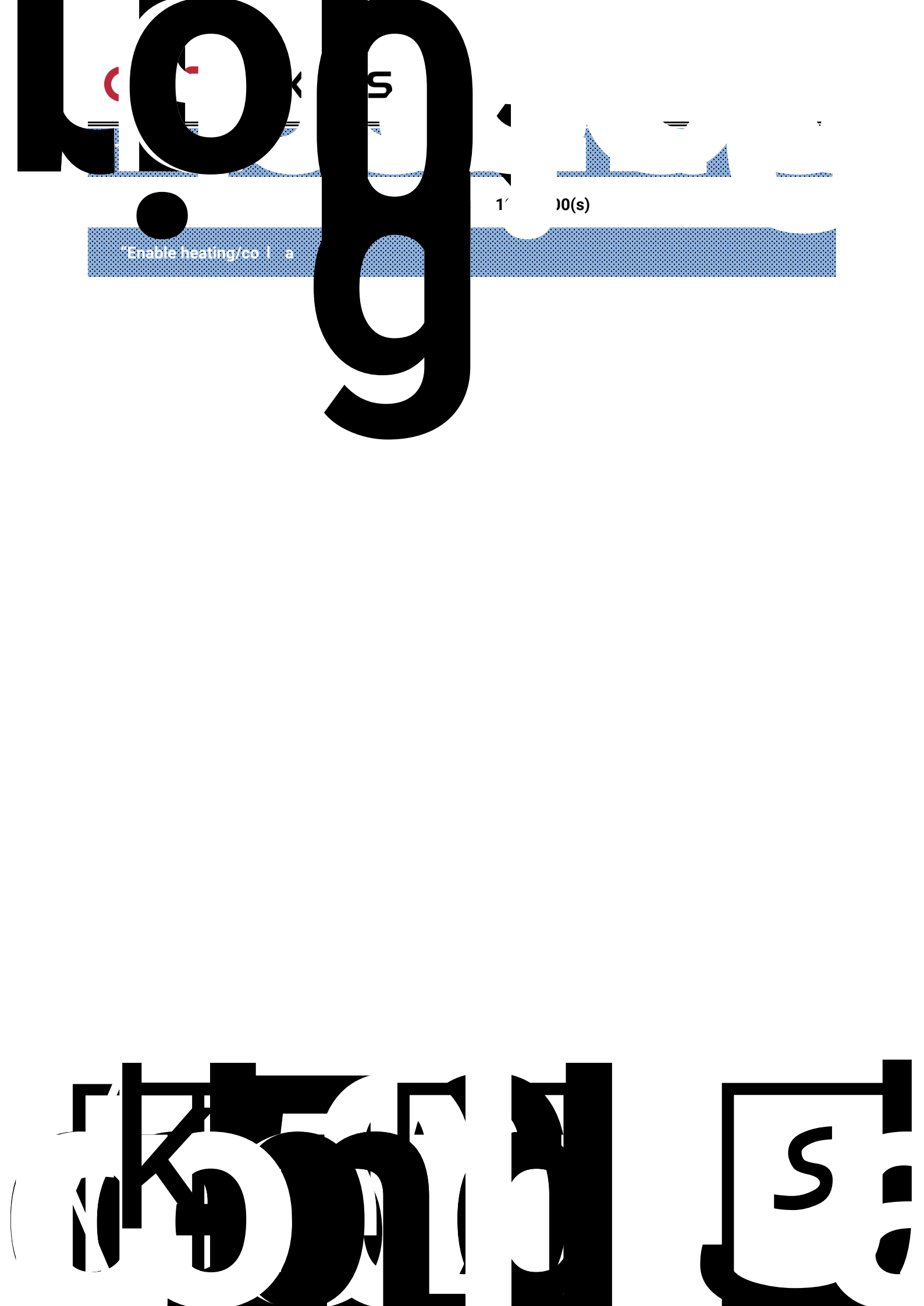
k

0.1

0.2

...

5


1
00(s)
"Enable heating/co
a

" " "Cooling/Heating(Stop cooling/heating) 4Bit"

4Bit k **0...15**

" " "Cooling/Heating(Stop cooling/heating) 1Byte"

1Byte k **0...255**

"Heating alarm temperature [0..500]"

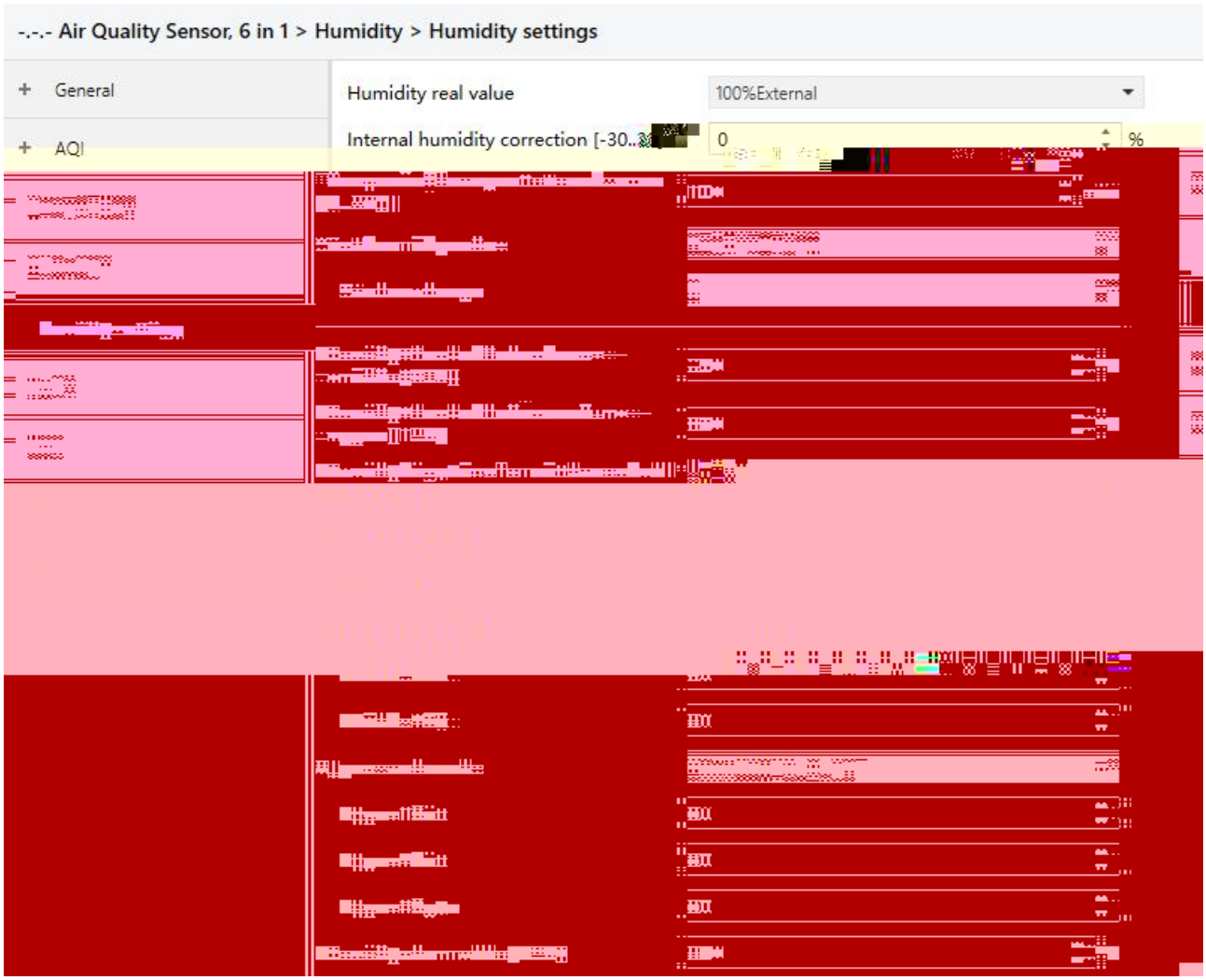
k **0...500(*0.1-C)**

"Frost alarm temperature [0..500]"

k **0...500(*0.1-C)**

5.5 “Humidity”

“Humidity settings” 5.5 k



5.5 “Humidity settings”

“Humidity real value”

KNX k

100%External

10%Internal+90%External

...

100%Internal

“40%Internal+60%External” A 40%

B 60% = A×40% + B×60% k

"Internal humidity correction [-30..30]"

k **-30...30(%)**

= + k

100%external k

"Time period for request external sensor [0...255]min"

k

0..255

"Send humidity value"

k

No send

Send on change

Send cyclically

"No send" k "Send on change"

k "Send cyclically" k

"Send on change"

k

0.1

0.2

...

5

"Period of send humidity [10..50000]"

k **10...50000 (*1s)**

"Humidity threshold value 1 [1..99]"

"Humidity threshold value 2 [1..99]"

k **1...99(%)**

0% ~Humidity threshold value 1

Humidity threshold value 1~Humidity threshold value 2

Humidity threshold value 2~ 100% k

Humidity threshold value 1<Humidity threshold value 2

"Humidity hisys time for switchover level [10..50000]"

k **10...50000(s)**

k

"Upper/Middle/Lower send mode"

k

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

" " "Upper/Middle/ Lower 1Bit"

1Bit k **0...1**

" " "Upper/Middle/Lower 4Bit"

4Bit k **0...15**

" " "Upper/Middle/Lower 1Byte"

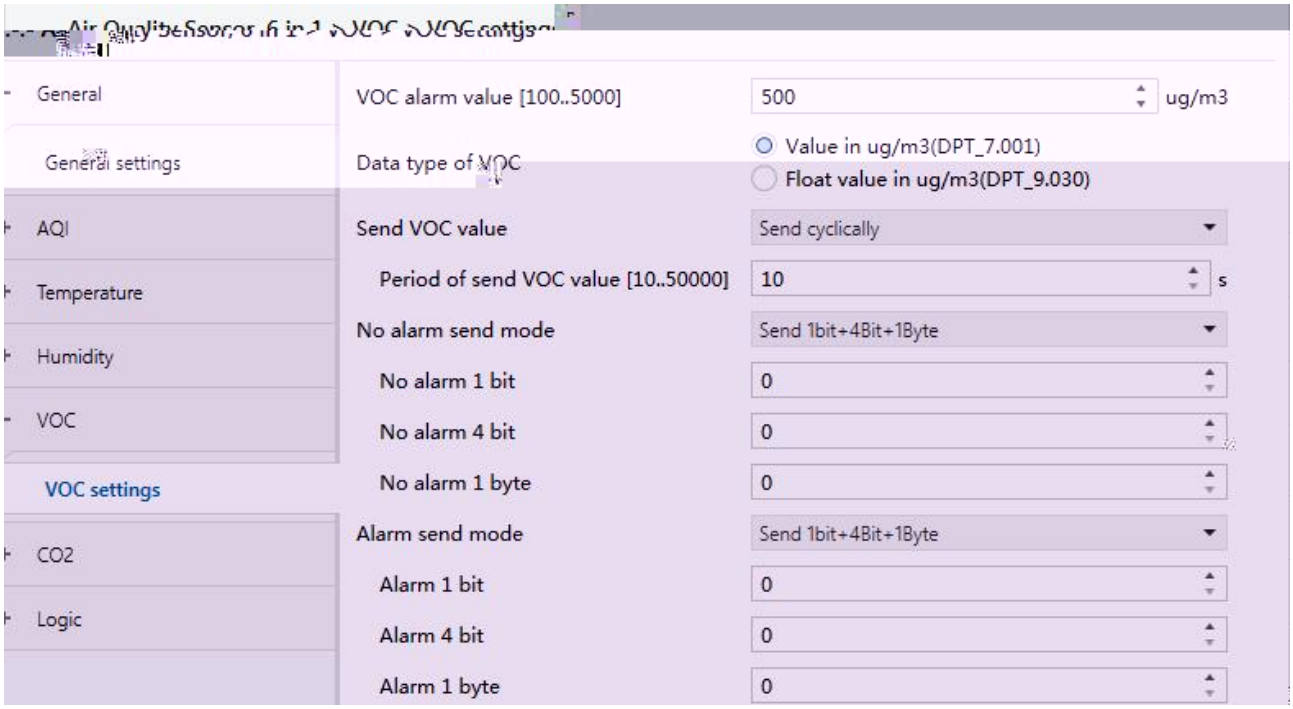
1Byte k **0...255**

"Humidity alarm value [1..99]"

k **1...99(%)**

5.6 “VOC”

“VOC settings” 5.6 k



5.6 “VOC settings”

“VOC alarm value [100..5000]”

VOC k mg/m^3, ug/m^3 k

100...5000(ug/m^3)

“Data type of VOC”

VOC k

Value in ug/m3(DPT_7.001)

Float value in ug/m3(DPT_9.030)

“Send VOC value”

VOC k

No send

Send on change

Send cyclically

“No send” VOC k “Send on change” VOC

k “Send cyclically” VOC k

“Send on change”

VOC VOC k

5

10

30

50

“Period of send VOC value [10..50000]”

VOC k **10...50000(s)**

”No alarm(alarm) send mode”

VOC k

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

“No alarm(Alarm) 1Bit”

VOC 1Bit k **0...1**

“No alarm(Alarm) 4Bit”

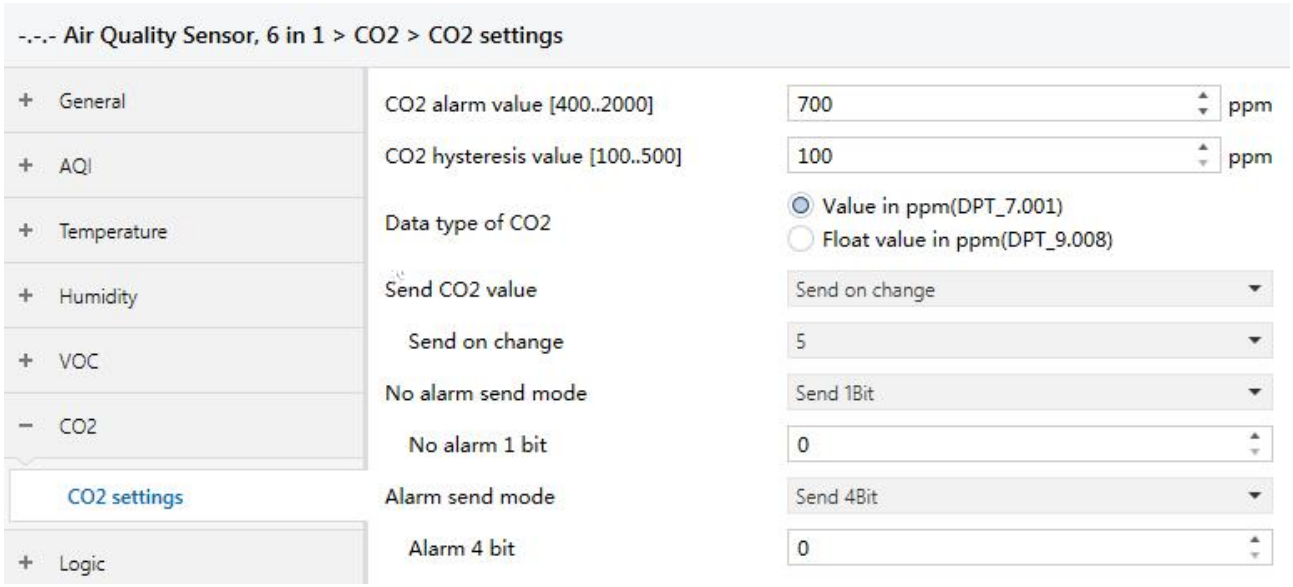
VOC 4Bit k **0...15**

“No alarm(Alarm) 1Byte”

VOC 1Byte k **0...255**

5.7 “CO2”

“CO2 settings” 5.7 k



5.7 “CO2 settings”

CO2 alarm value [400..2000]

CO2 k **400...2000(ppm)**

CO2 hysteresis value [100..500]

CO2 k **100...500(ppm)**

700 100 700ppm 600

k

Data type of CO2

CO2 k

Value in ppm(DPT_7.001)

Float value in ppm(DPT_9.008)

Send CO2 value

CO2 k

No send

Send on change

Send cyclically

“No send” CO2 k “Send on change” CO2

k “Send cyclically” CO2 k

Send on change

CO2 CO2 k

5

10

30

50

Period of send CO2 value [10..50000]

CO2 k **10...50000(s)**

No alarm(Alarm) send mode

CO2 k

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

No alarm(Alarm) 1Bit

CO2 1Bit k **0...1**

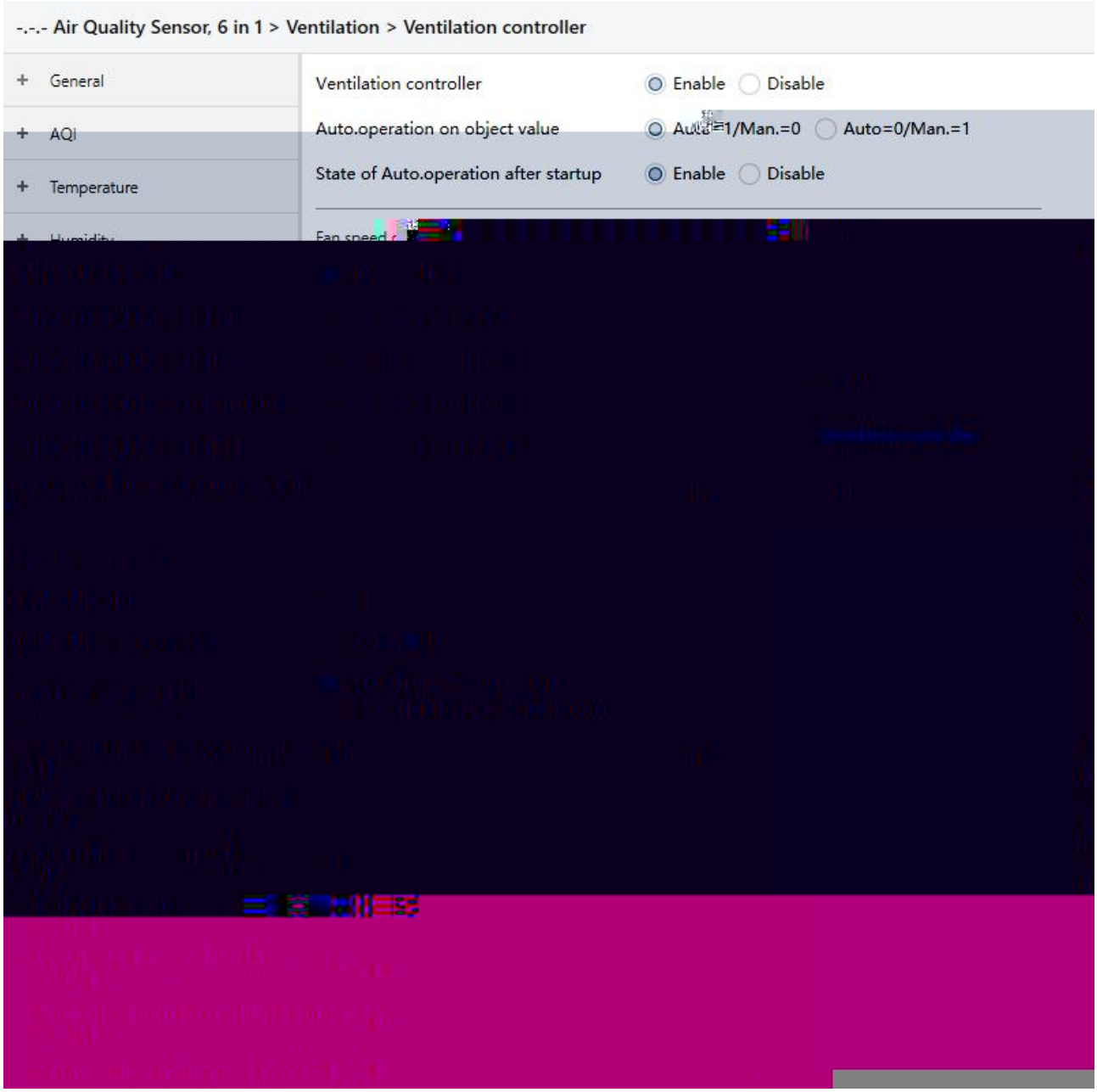
No alarm(Alarm) 4Bit

CO2 4Bit k **0...15**

No alarm(Alarm) 1Byte

CO2 1Byte k **0...255**

5.8 “Ventilation controller”



5.8 “Ventilation controller”

“Ventilation controller”

k

Enable

Disable

"Auto.operation on object value"

k

Auto=1/Man.=0

Auto=0/Man.=1

"State of Auto.operation after startup"

k

Enable

Disable

Fan speed output setting

"Data type of fan speed"

k

1bit

1byte

"Object datatype of 1byte fan speed"

1byte k

Fan stage (DPT_5.100)

Percentage (DPT_5.001)

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

1byte k

0..255/0..100

" " "Output value for fan speed off/low/medium/high"

1bit k

Low=0,Medium=0,High=0

Low=1,Medium=0,High=0

Low=0,Medium=1,High=0

Low=1,Medium=1,High=0

Low=0,Medium=0,High=1

Low=1,Medium=0,High=1

Low=0,Medium=1,High=1

Low=1,Medium=1,High=1

"Delay between fan speed switch [0..100]*50ms"

1bit k **0..100**

k 0

k

Fan speed control setting

"Control value type"

k

PM2.5

CO2

VOC

"Control value reference from"

k

Local

Bus

"Bus" k

" "Object datatype of PM2.5/VOC"

PM2.5 VOC k PM2.5

VOC k

Value in ug/m3(DPT_7.001)

Float value in ug/m3(DPT_9.030)

DPT_7.001

"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

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

k

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

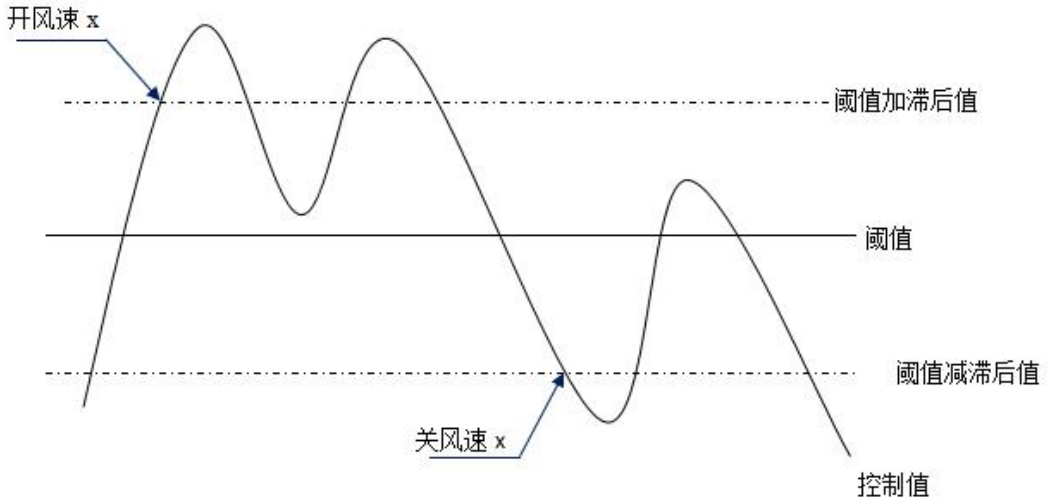
k

10..30/100..400

CO2 100 450 550 + 350

- 350~550 k

350 550 k



1

2 **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

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

k 0..65535

k

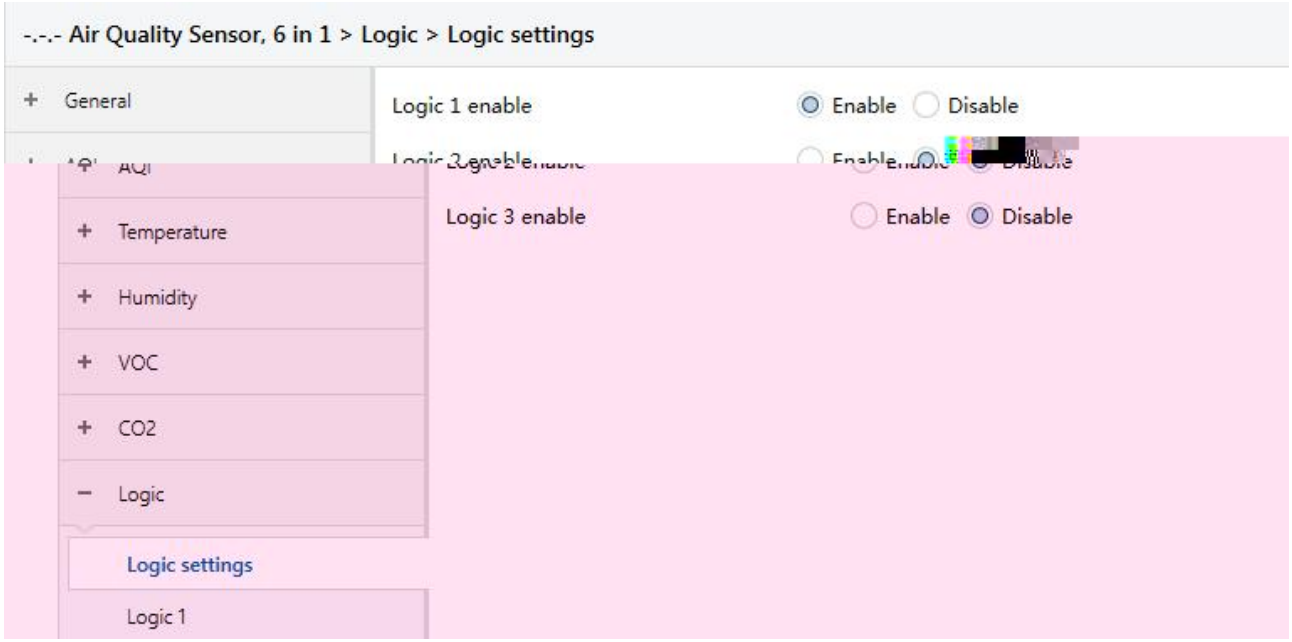
k

0 k

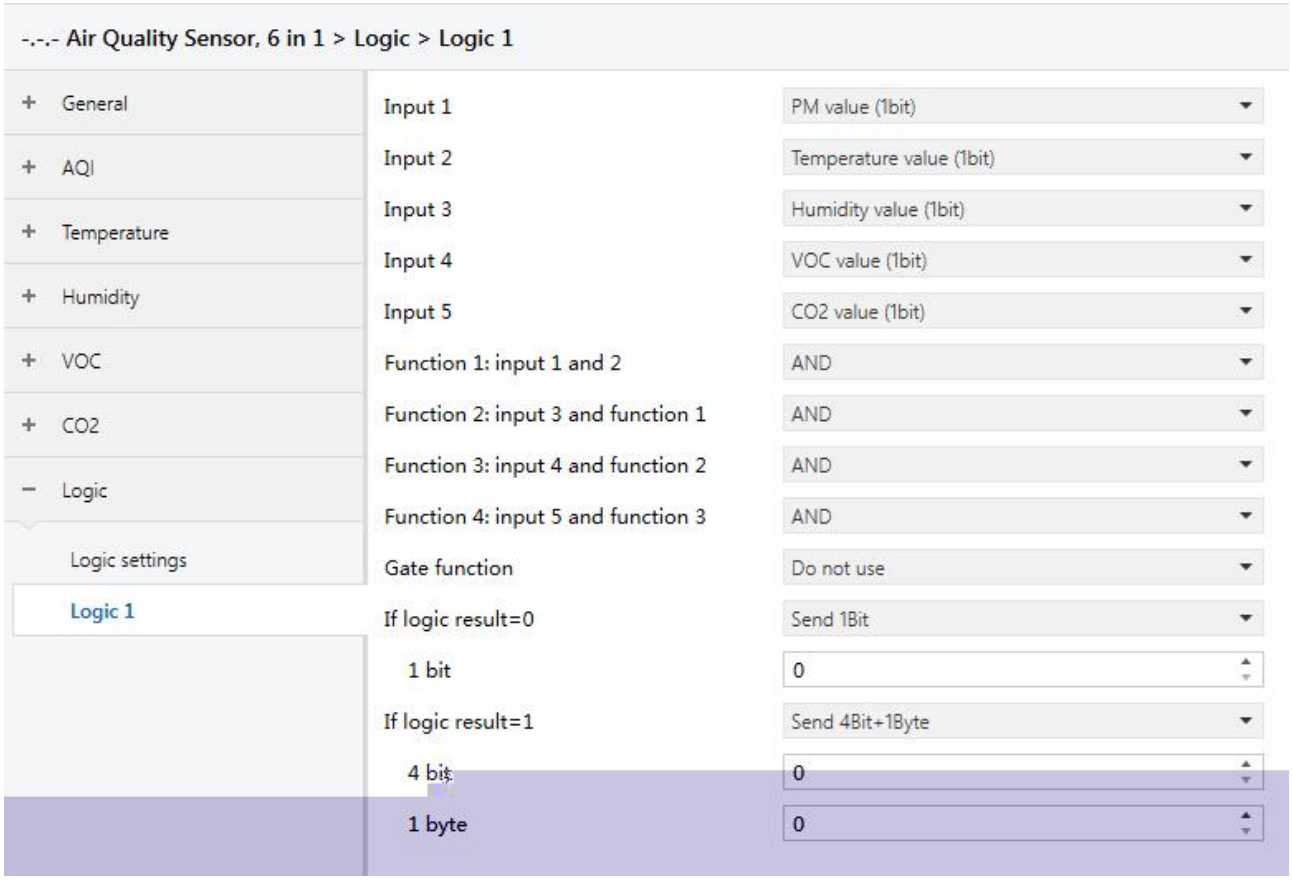
k

5.9 “Logic”

5.9 k



5.9(1) “Logic”



5.9(2) “Logic”

"Logic x enable"

k

Enable

Disable

"Input x:"

"Gate function"

k

Do not use

PM value (1bit)

PM alarm value (1bit)

Temperature value (1bit)

Humidity value (1bit)

VOC value (1bit)

CO2 value (1bit)

Extern input value

Logic 1 value

Logic 2 value

"Do not use"

"PM value (1bit)" 6

"PM alarm value (1bit)" 9

"Temperature value (1bit)" 15

"Humidity value (1bit)" 22

"VOC value (1bit)" 26

"CO2 value (1bit)" 26

"Extern input value" 32/36/40

Logic 1 value 34 1 1bit Logic2 ! Logic3

logic 2 ! 3

Logic 2 value 38 2 1bit Logic3 logic 3

KNX/E

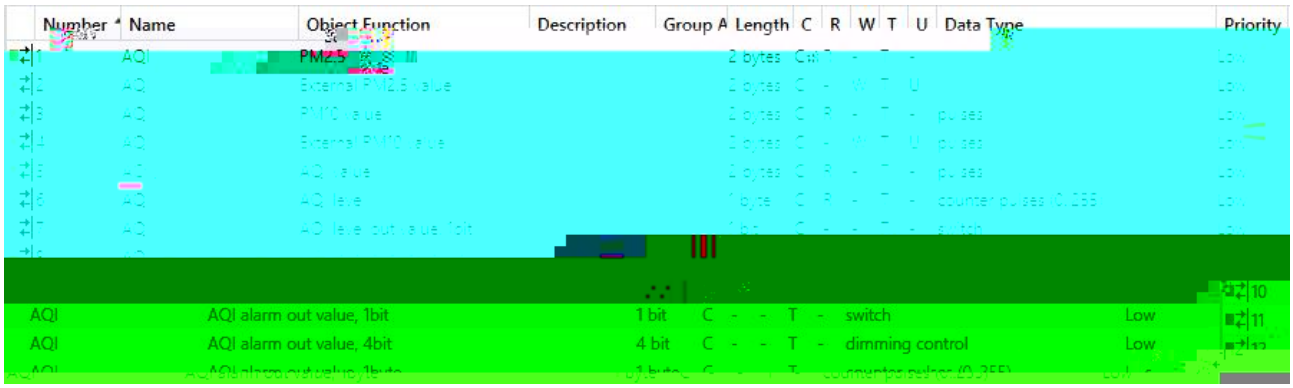
k

“C” **“W”**

“R” **“T”** **“U”**

k

6.1 AQI



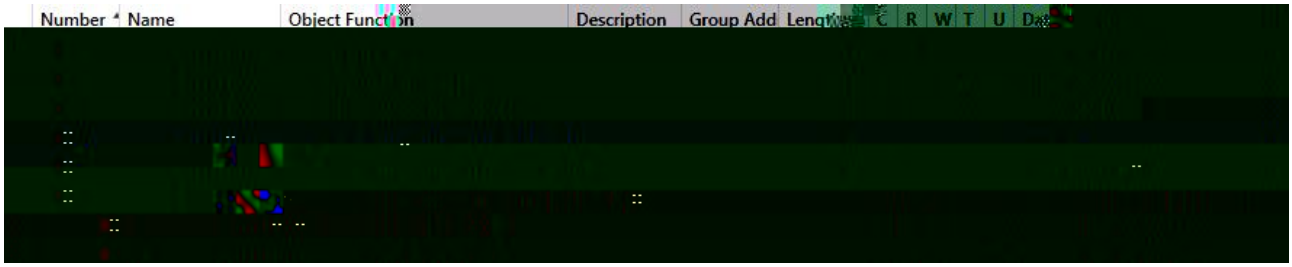
6.1 AQI

					DPT
1	**PM2.5 value**	**AQI**	**2byte**	**C, R,T**	**7.001 pulses** **9.030 concentration ug/m3**
2	**External PM2.5 value**	**AQI**	**2byte**	**C, W, T, U**	**7.001 pulses** **9.030 concentration ug/m3**
3	**PM10 value**	**AQI**	**2byte**	**C, R,T**	**7.001 pulses** **9.030 concentration ug/m3**
4	**External PM10 value**	**AQI**	**2byte**	**C, W, T, U**	**7.001 pulses** **9.030 concentration ug/m3**
	1 3 PM2.5 PM10 k ug/m^3 2 4 PM2.5 PM10 k ug/m^3				
5	**AQI value**	**AQI**	**2byte**	**C, R,T**	**7.001 pulses**
	0...500 k				
6	**AQI Level**	**AQI**	**1byte**	**C, R,T**	**5.010 counter pulses (0..255)**
	0 35 ! 36 75 ! 76 115 ! 116 150 ! 151 250 250 k				

7	**AQI level out value, 1bit**	**AQI**	**1bit**	**C,T**	**1.001 switch**
8	**AQI level out value, 4bit**	**AQI**	**4bit**	**C,T**	**3.007 dimming control**
9	**AQI level out value, 1byte**	**AQI**	**1byte**	**C,T**	**5.010 counter pulses (0..255)**
“AQI Value settings” k					
10	**AQI alarm out value, 1bit**	**AQI**	**1bit**	**C,T**	**1.001 switch**
11	**AQI alarm out value, 4bit**	**AQI**	**4bit**	**C,T**	**3.007 dimming control**
12	**AQI alarm out value, 1byte**	**AQI**	**1byte**	**C,T**	**5.010 counter pulses (0..255)**
“AQI Alarm settings” k					

6.1 AQI

6.2



6.2

					DPT
13	**Temperature**	**Temperature**	**2 byte**	**C, R,T**	**9.001 temperature (-C)**
k					
14	**External temperature**	**Temperature**	**2 byte**	**C, W, T, U**	**9.001 temperature (-C)**
k					
15	**Heating/Cooling switchover**	**Temperature**	**1bit**	**C, W**	**1.100 heating/cooling**
/ k 1—— 0——					
16	**Heating/Cooling output value, 1bit**	**Temperature**	**1 bit**	**C,T**	**1.001 DPT_Switch**
17	**Heating/Cooling output value, 4bit**	**Temperature**	**4 bit**	**C, T**	**3.007 dimming control**
18	**Heating/Cooling output value, 1byte**	**Temperature**	**1 byte**	**C, T**	**5.010 counter pulses(0..255)**
k					
19	**Heating setpoint**	**Temperature**	**2 byte**	**C, W**	**9.001 temperature (-C)**
k					

20	**Cooling setpoint**	**Temperature**	**2 byte**	**C, W**	**9.001 temperature (-C)**
k					

6.2

6.3

6.3

					DPT
21	**Humidity**	**Humidity**	**2 byte**	**C, R,T**	**9.007 humidity (%)**
k					
22	**External humidity**	**Humidity**	**2 byte**	**C, W, T, U**	**9.007 humidity (%)**
k					
23	**Humidity output value,1bit**	**Humidity**	**1 bit**	**C,T**	**1.001 DPT_Switch**
24	**Humidity output value,4bit**	**Humidity**	**4 bit**	**C, T**	**3.007 dimming control**
25	**Humidity output value,1byte**	**Humidity**	**1 byte**	**C, T**	**5.010 counter pulses (0..255)**
k					

6.3

6.4 VOC

6.4 VOC

					DPT
26	**VOC value**	**VOC**	**2 byte**	**C, R,T**	**7.001 pulses** **9.030 concentration (ug/m3)**
VOC			VOC	k	
27	**VOC value,1bit**	**VOC**	**1 bit**	**C, T**	**1.001 DPT_Switch**
28	**VOC value,4bit**	**VOC**	**4 bit**	**C, T**	**3.007 dimming control**
29	**VOC value,1byte**	**VOC**	**1 byte**	**C, T**	**5.010 counter pulses (0..255)**
VOC			VOC	k	

6.4 VOC

6.5 CO2

6.5 CO2

					DPT
30	**CO2 value**	**CO2**	**2 byte**	**C, R,T**	**7.001 pulses** **9.008 parts/million (ppm)**

CO2

6.6

											Priority
46	Ventilation controller	Fan automatic operation	1 bit	C	-	W	-	U	enable		Low
47	Ventilation controller	PM 2.5 value	2 bytes	C	-	W	T	U	pulses		Low
48	Ventilation controller	Fan speed	1 byte	C	R	-	T	-	fan stage (0..255)		Low
49	Ventilation controller	Fan speed low	1 bit	C	R	-	T	-	switch		Low
50	Ventilation controller	Fan speed medium	1 bit	C	R	-	T	-	switch		Low
51	Ventilation controller	Fan speed high	1 bit	C	R	-	T	-	switch		Low

6.6 Ventilation controller

DPT

46	**Fan automatic operation**	**Ventilation controller**	**1bit**	**C,W,U**	**1.003 enable**

k

1 ’

0 ’

	PM 2.5 value				**7.001 pulse**
47	**VOC value**	**Ventilation controller**	**2byte**	**C,W,T,U**	**9.030 concentration(ug/m3)**
	CO2 value				**9.008 parts/million(ppm)**

“Bus” k PM2.5/VOC/CO2

k ug/m3 ppm k 0~999ug/m3 0~4000ppm

PM2.5 PM2.5 k

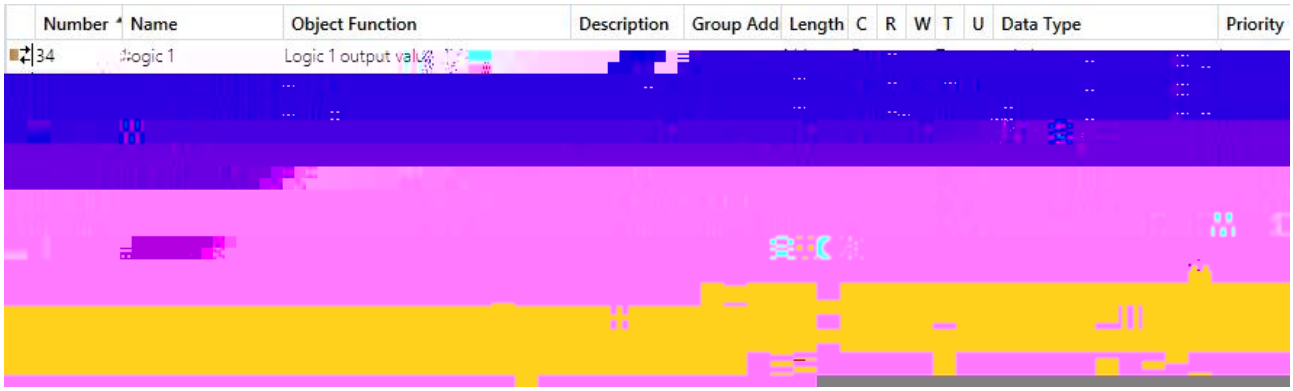
48	**Fan speed**	**Ventilation controller**	**1byte**	**C,R,T**	**5.001 percentage**
					5.100 fan stage

“1byte” 1byte □ □ k □

k

49	**Fan speed low**	**Ventilation controller**	**1bit**	**C,R,T**	**1.001 switch**
50	**Fan speed medium**	**Ventilation controller**	**1bit**	**C,R,T**	**1.001 switch**
51	**Fan speed hi**				

6.7



6.7

					DPT
34/38/42	**Logic x output value, 1bit(x=1,2,3)**	**Logic x**	**1 bit**	**C, T**	**1.001 DPT_Switch**
35/39/43	**Logic x output value, 4bit(x=1,2,3)**	**Logic x**	**4 bit**	**C, T**	**3.007 dimming control**
36/40/44	**Logic x output value, 1byte(x=1,2,3)**	**Logic x**	**1 byte**	**C, T**	**5.010 counter pulses (0..255)**
1 0 k					
37/41/45	**Logic x extern input(x=1,2,3)**	**Logic x**	**1 bit**	**C, W**	**1.002 boolean**
k					

6.7