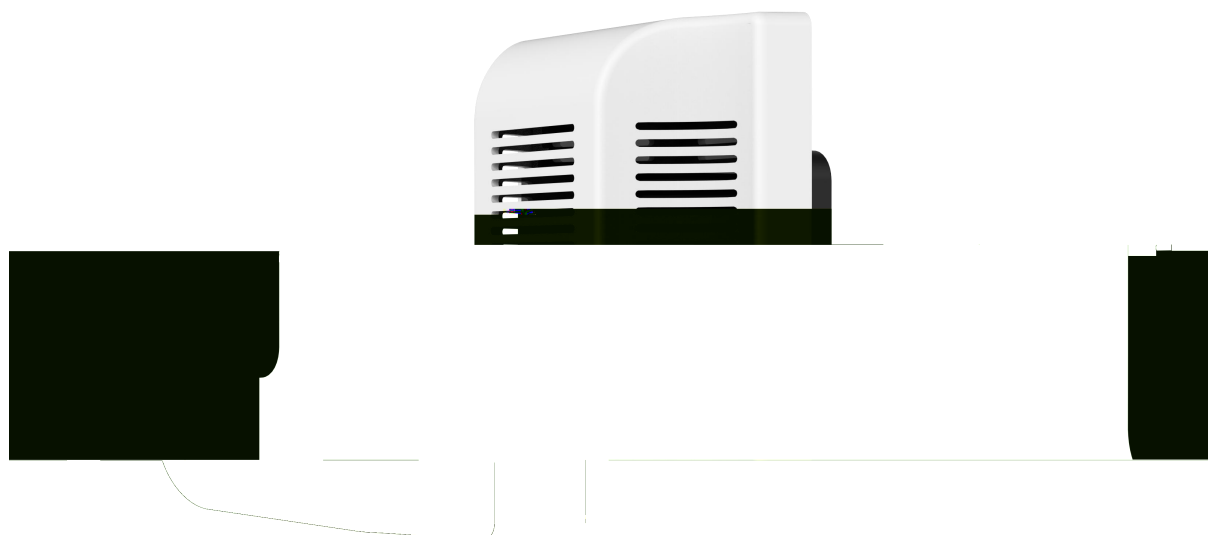


K-BUS KNX

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。

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KNX

V2

PM2.5/PM10 VOC CO2 AQI

PM2.5 VOC CO2

KNX

KNX

V2

KNX

12-30V DC

80 86

knxprod

ETS (ETS4

- **PM2.5 PM10**

-

- **AQI**

- **VOC**

- **CO2**

-

-

-

-

•

• VOC

• CO2

• 3

•

CO2

CO2

400ppm

6-8s

CO2

10s

CO2

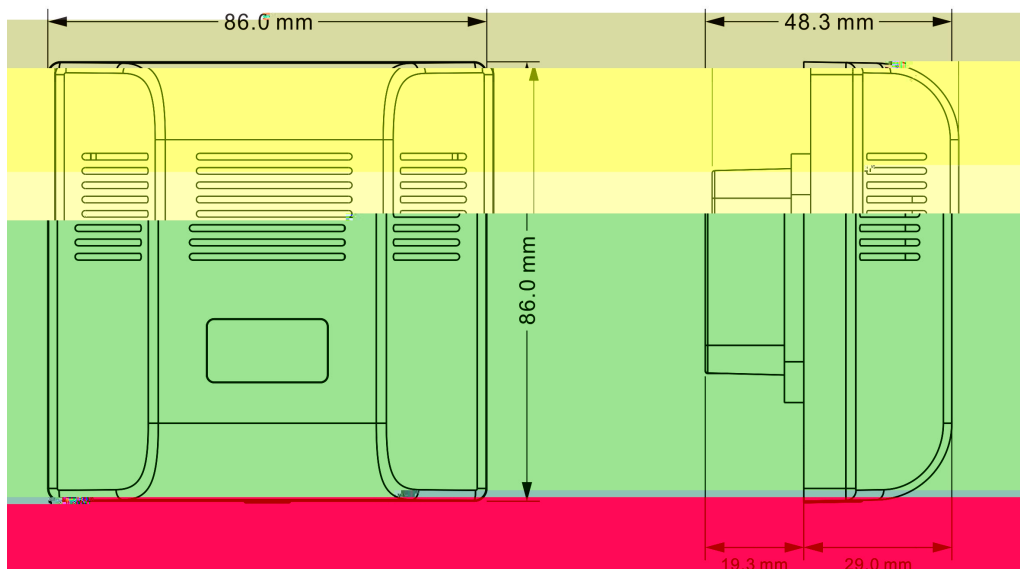
CO2

CO2

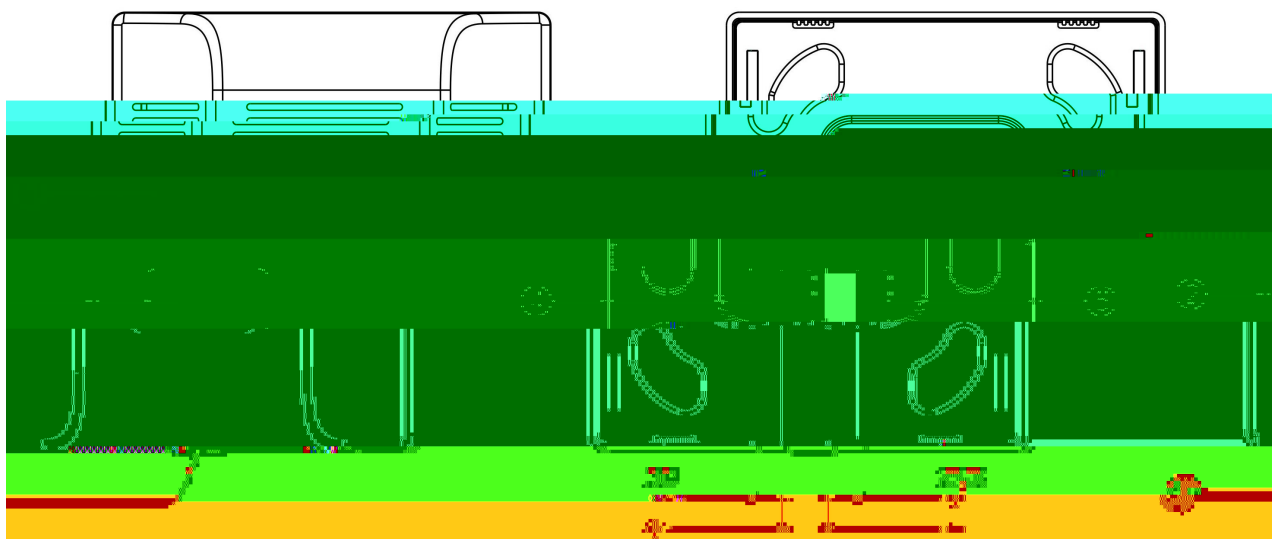
400ppm

	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%(t =0.3µm) 98%(t ≥0.5 µm) ≤ 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	
86Ö86Ö48.3mm	
0.15KG	

3.1



3.2



LED

KNX

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

PM2.5 PM10 AQI

VOC CO2

AQI

CO2

VOC

AQI

AQI 6

1bit 4bit 1byte

AQI

AQI

/

/

/

/

1bit 4bit 1byte

VOC

VOC

CO2

CO2

PM2.5 VOC CO2

3

1bit/1byte

5

AQI

1bit

AQI

1bit

1bit

1bit

VOC

1bit

1bit

6

ETS

5.1

5.2 "General"

"General settings"

5.2

--- Air Quality Sensor, 6 in 1 > General > General settings

General	After voltage recovery or download	
General settings	VOC stability time	Fixed 2 mins
	CO2 stability time	Fixed 2 mins
+ AQI	PM2.5/PM10 stability time	Fixed 10s
+ Temperature	Request external sensor after	Fixed 2 mins
+ Humidity	Display PM2.5	☐ No ☒ Yes
+ VOC	Display PM10	☐ No ☒ Yes
+ CO2	Display AQI level	☐ No ☒ Yes
+ Ventilation	Display temperature	☐ No ☒ Yes
+ Logic	Display humidity	☐ No ☒ Yes
	Display VOC	☐ No ☒ Yes
	Display CO2	☐ No ☒ Yes
	Warning buzzer for	AQI
	Alarm cycle [2..255]	2 s
	Alarm on proportion [1..100]	50 %

5.2 "General settings"

After voltage recovery or download

"VOC stability time"

VOC

2mins

"CO2 stability time"

CO2

2mins

"PM2.5/PM10 stability time"

PM2.5/PM10

10s

"Request external sensor after"

AQI,

2mins

"Display PM2.5"

"Display PM10"

"Display AQI level"

"Display temperature"

"Display humidity"

"Display VOC"

"Display CO2"

No

Yes

"Yes"

"No"

"Warning buzzer for"

Do not used

AQI

Temperature

Humidity

VOC

CO2

"Do not used"

"AQI"

"AQI Alarm settings"

"Alarm level"

"Temperature"

"Temperature settings"

"Heating/Frost alarm temperature [0..500]*0.1°C"

"Humidity"

"Humidity settings"

"Humidity

alarm value [1..99]%"

"VOC"

VOC

"VOC settings"

"VOC alarm value

[100..5000]ug/m³"

"CO₂"

CO₂

"CO₂ settings"

"CO₂ alarm value

[400..2000]ppm"

"Alarm cycle [2..255]"

2...255(s)

"Alarm on proportion [1..100]"

2s

50%

1s

1s

1...100(%)

5.3

"AQI"

5.3.1

"AQI General settings"

"AQI General settings"

5.3.1

--- Air Quality Sensor, 6 in 1 > AQI > AQI General settings

+ General PM2.5/PM10 real value 100%Internal

Data type of PM2.5

☒ Value in ug/m3(DPT_7.001)

☐ Float value in ug/m3(DPT_9.030)

Data type of PM10

☒ Value in ug/m3(DPT_7.001)

☐ Float value in ug/m3(DPT_9.030)

Time period for request external sensor [0..255] 10 min

Send PM2.5/PM10 value Send on change

Send AQI value Send on change

Send AQI level Send on change

Send AQI level out value Send on change

Send AQI alarm out value Send on change

Internal measure send on change 5

Send value cyclically 10

5.3.1 "AQI General settings"

"PM2.5/PM10 Real Value"

PM2.5/PM10

KNX

100%External

10%Internal+90%External

...

100%Internal

"40%Internal+60%External"

PM2.5/PM10

A

40%

B 60%

= $A \times 40\% + B \times 60\%$

"Data type of PM2.5"

"Data type of PM10"

PM2.5 PM10

Value in ug/m³(DPT_7.001)

"Send AQI level"

AQI

0

35 36 75 76 115 116 150 151 250 250

No send**Send on change****Send cyclically**

"No send" AQI

"Send on change" AQI

"Send Cyclically" AQI "Send value Cyclically"

"Send AQI level out value"

AQI

No send**Send on change****Send cyclically**

"No send" "AQI Value settings"

"Send on change" AQI "AQI Value settings"

"Send Cyclically" "AQI Value settings" "Send value
Cyclically"**"Send AQI alarm out value"**

AQI

No send**Send on change****Send cyclically**

"No send" "AQI Alarm settings"

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

Level"

"Send Cyclically"

"AQI Value settings"

"Send

value Cyclically"

"Internal measure send on change"

5

10

30

50

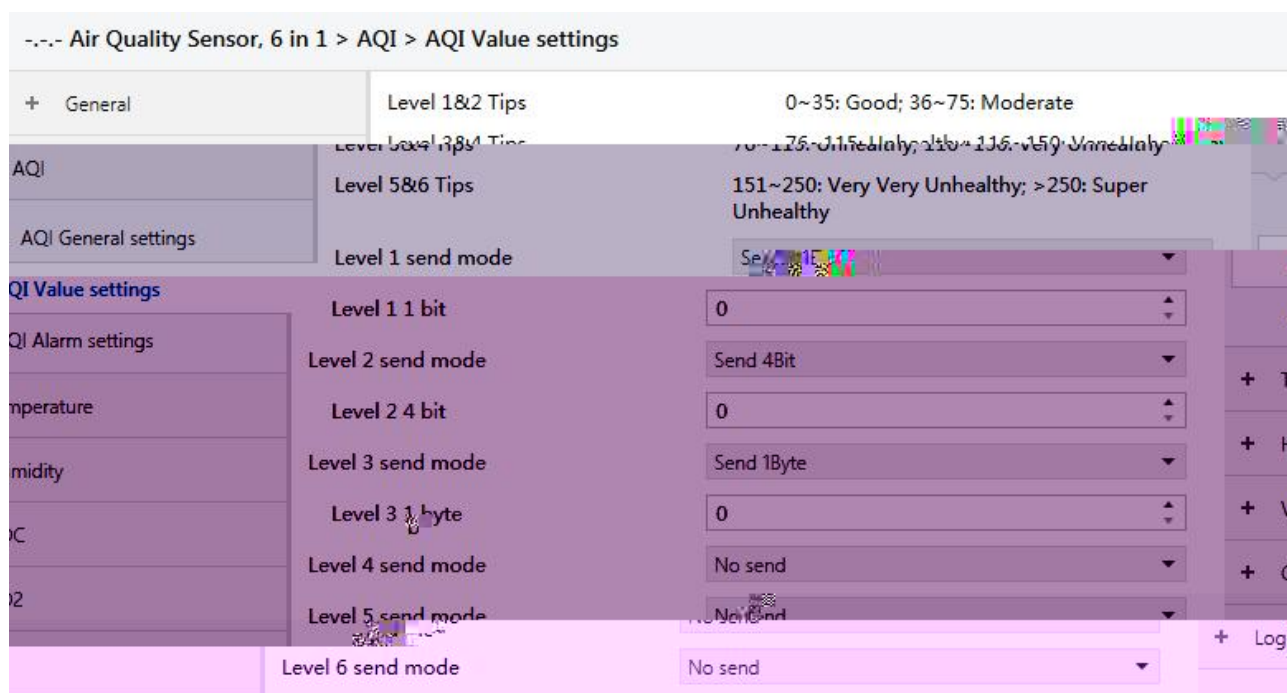
"Send value Cyclically"

10..50000

5.3.2 "AQI Value settings"

"AQI Value settings"

AQI



5.3.2 "AQI Value settings"

"Level x Send Mode"

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

"Level x 1Bit"

1Bit

0...1

"Level x 4Bit"

4Bit

0...15

"Level x 1Byte"

1Byte

0...255

5.3.3 “AQI Alarm settings”

“AQI Alarm settings”	5.3.3	AQI
--- Air Quality Sensor, 6 in 1 > AQI > AQI Alarm settings		
+ General	Alarm level	Level 2
- AQI	No alarm send mode	Send 1bit+4Bit+1Byte
AQI General settings	No alarm 1 bit	0
- 2. Value settings	No alarm 4 bit	0
AQI Alarm settings	No alarm 1 byte	0
	Alarm send mode	Send 1bit

5.3.3 “AQI Alarm settings”

“Alarm Level”

AQI

“Alarm send mode”

“No alarm send mode”

Level 2

...

Level 3

“No alarm (Alarm)Send Mode”

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

“No alarm (Alarm) 1 bit”

1Bit

0...1

“No alarm (Alarm) 4 bit”

4Bit

0...15

"No alarm (Alarm) 1 byte"

1Byte

0...255

5.4 "Temperature"

"Temperature settings"

5.4

--- Air Quality Sensor, 6 in 1 > Temperature > Temperature settings

+ General	Temperature real value	100%Internal
+ AQI	Internal temperature correction [-100..100]*0.1	0 °C
- Temperature	Time period for request external sensor [0...255]	10 min
Temperature settings	Send temperature value	Send on change
	Send on change	0.3
+ Humidity	Enable heating/cooling function	☒ Enable ☐ Disable
+ VOC	Control option after reset	☒ Cooling ☐ Heating
+ CO2	Cooling	
+ Ventilation	Cooling setpoint [200..350]*0.1	200 °C
+ ...	Cooling hysteresis range [10..50]*0.1	10 °C
	Cooling send mode	No send
	Stop cooling send mode	No send
	Heating	
	Heating setpoint [200..350]*0.1	200 °C
	Heating hysteresis range [10..50]*0.1	10 °C
	Heating send mode	No send
	Stop heating send mode	No send
	Heating alarm temperature [0..500]*0.1	350 °C
	Frost alarm temperature [0..500]*0.1	70 °C

5.4 "Temperature settings"

"Temperature real value"

KNX

100%External

10%Internal+90%External

...

100%Internal

"40%Internal+60%External"

A 40%

B 60% = A×40% + B×60%

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

= +

100%External

-100...100(*0.1°C)

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

0..255

"Send temperature value"

No send

Send on change

Send cyclically

"No send"

"Send on change"

"Send cyclically"

"Send on change"

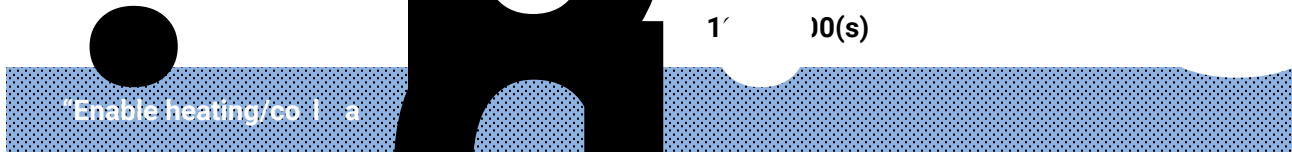
0.1

0.2

...

5

Log



Open

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

4Bit

0...15

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

1Byte

0...255

"Heating alarm temperature [0..500]"

0...500(*0.1℃)

"Frost alarm temperature [0..500]"

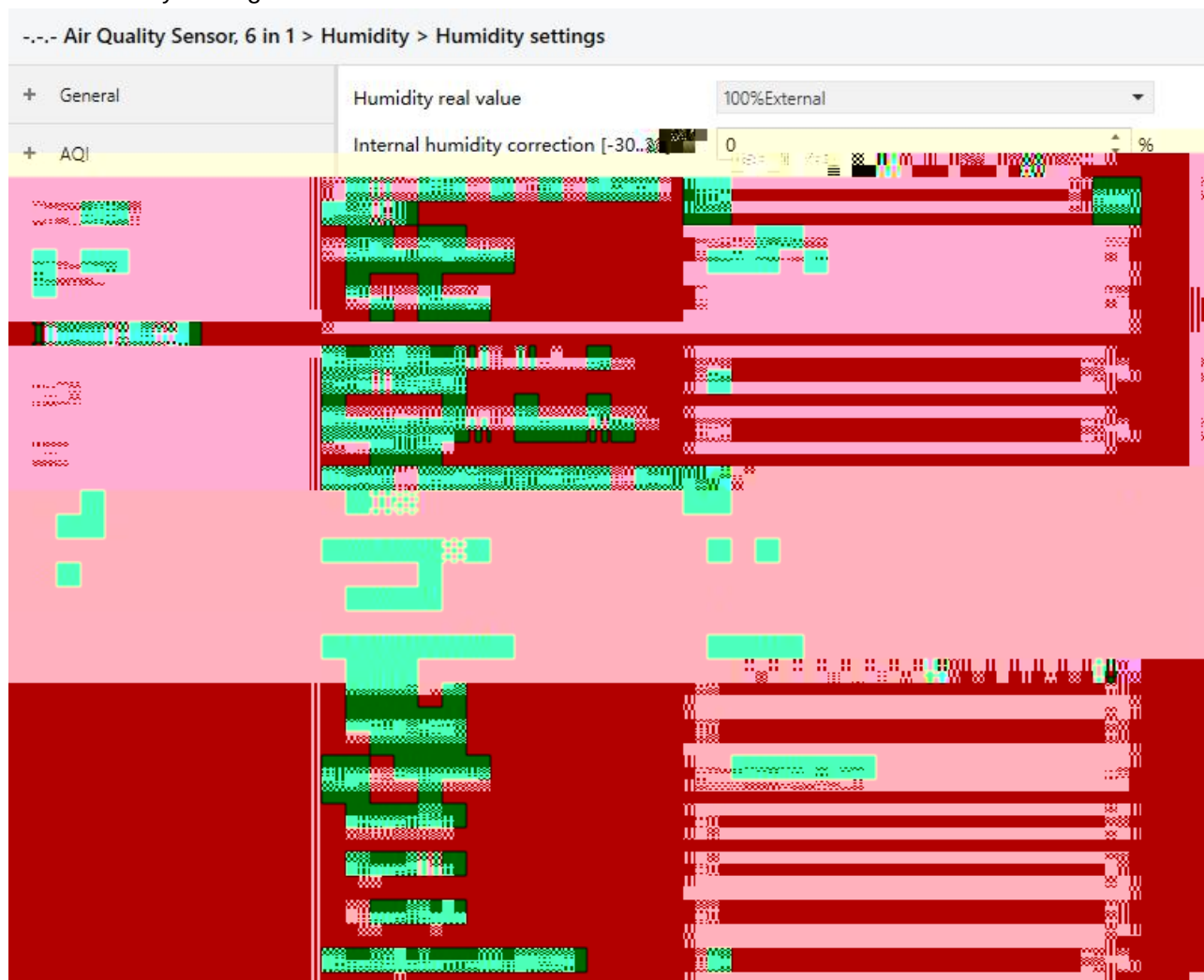
0...500(*0.1℃)

5.5

"Humidity"

"Humidity settings"

5.5



5.5 "Humidity settings"

"Humidity real value"

KNX

100%External

10%Internal+90%External

...

100%Internal

"40%Internal+60%External"

A

40%

B

60%

= A×40% + B×60%

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

-30...30(%)

= +

100%external

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

0..255

"Send humidity value"

No send

Send on change

Send cyclically

"No send"

"Send on change"

"Send cyclically"

"Send on change"

0.1

0.2

...

5

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

10...50000 (*1s)

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

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

1...99(%)

0% ~Humidity threshold value 1

Humidity threshold value 1~Humidity threshold value 2

Humidity threshold value 2~ 100%

Humidity threshold value 1<Humidity threshold value 2

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

10...50000(s)

"Upper/Middle/Lower send mode"

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

"Upper/Middle/ Lower 1Bit"

1Bit

0...1

"Upper/Middle/Lower 4Bit"

4Bit

0...15

"Upper/Middle/Lower 1Byte"

1Byte

0...255

"Humidity alarm value [1..99]"

1...99(%)

5.6

"VOC"

"VOC settings"

5.6

5.6 "VOC settings"

"VOC alarm value [100..5000]"

VOC

mg/m³,ug/m³100...5000(ug/m³)

"Data type of VOC"

VOC

Value in ug/m3(DPT_7.001)

Float value in ug/m3(DPT_9.030)

"Send VOC value"

VOC

No send

Send on change

Send cyclically

"No send"

VOC

"Send on change"

VOC

"Send cyclically" VOC

"Send on change"

VOC

VOC

5

10

30

50

"Period of send VOC value [10..50000]"

VOC

10...50000(s)

"No alarm(alarm) send mode"

VOC

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

"No alarm(Alarm) 1Bit"

VOC

1Bit

0...1

"No alarm(Alarm) 4Bit"

VOC

4Bit

0...15

"No alarm(Alarm) 1Byte"

VOC

1Byte

0...255

5.7

"CO2"

"CO2 settings"

5.7

--- Air Quality Sensor, 6 in 1 > CO2 > CO2 settings

+ General	CO2 alarm value [400..2000]	700	ppm
+ AQI	CO2 hysteresis value [100..500]	100	ppm
+ Temperature	Data type of CO2	☒ Value in ppm(DPT_7.001) ☐ Float value in ppm(DPT_9.008)	
+ Humidity	Send CO2 value	Send on change	
+ VOC	Send on change	5	
- CO2	No alarm send mode	Send 1Bit	
CO2 settings	No alarm 1 bit	0	
+ Logic	Alarm send mode	Send 4Bit	
	Alarm 4 bit	0	

5.7 "CO2 settings"

CO2 alarm value [400..2000]

CO2

400...2000(ppm)

CO2 hysteresis value [100..500]

CO2

100...500(ppm)

700

100

700ppm

600

Data type of CO2

CO2

Value in ppm(DPT_7.001)

Float value in ppm(DPT_9.008)

Send CO2 value

CO2

No send

Send on change

Send cyclically

"No send"

CO2

"Send on change"

CO2

"Send cyclically" CO2

Send on change

CO2

CO2

5

10

30

50

Period of send CO2 value [10..50000]

CO2

10...50000(s)

No alarm(Alarm) send mode

CO2

No send

Send 1Bit

...

Send 1bit+4Bit+1Byte

No alarm(Alarm) 1Bit

CO2

1Bit

0...1

No alarm(Alarm) 4Bit

CO2

4Bit

0...15

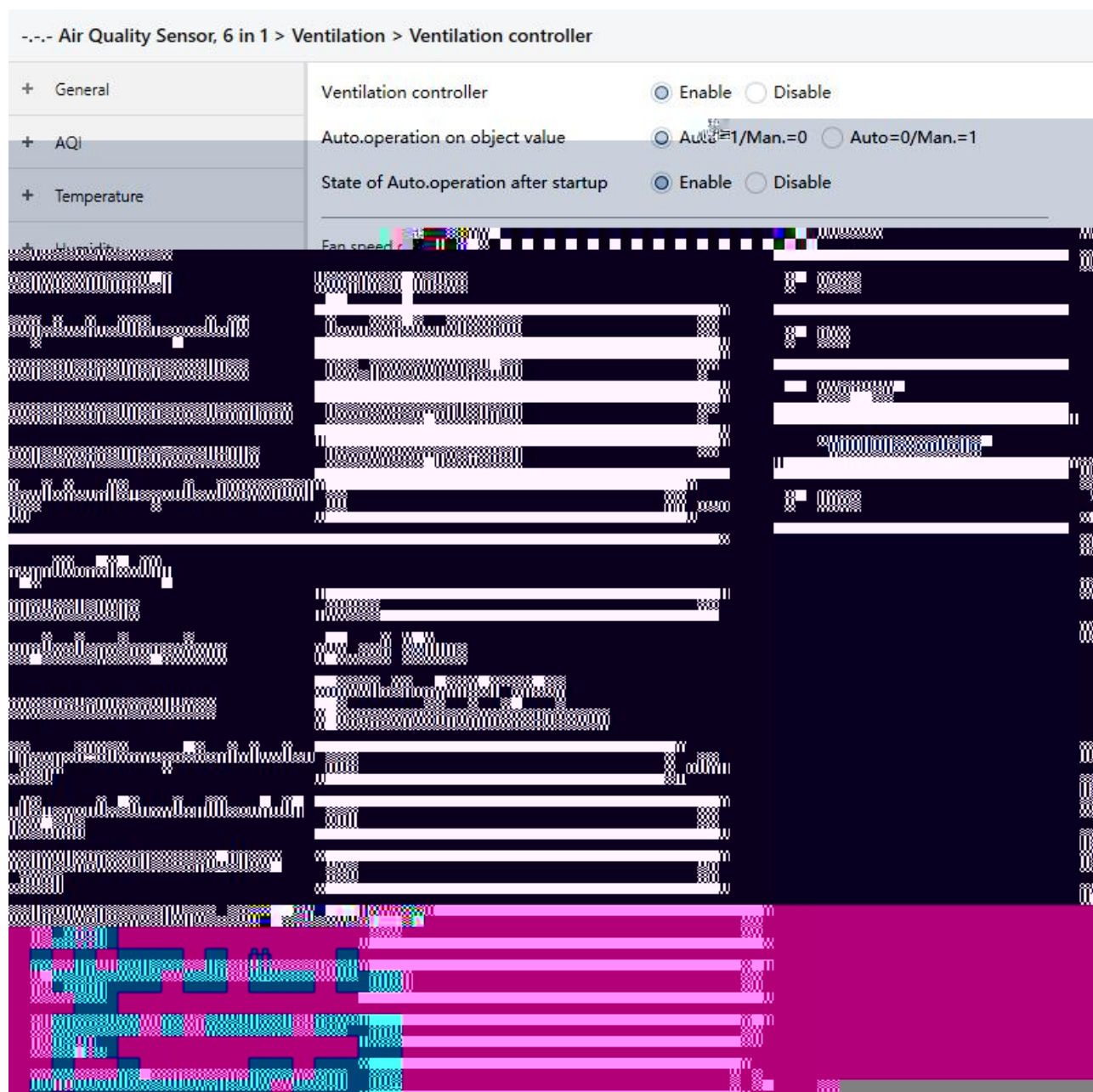
No alarm(Alarm) 1Byte

CO2

1Byte

0...255

5.8 “Ventilation controller”



5.8 “Ventilation controller”

“Ventilation controller”

Enable

Disable

"Auto operation on object value"

Auto=1/Man.=0

Auto=0/Man.=1

"State of Auto operation after startup"

Enable

Disable

Fan speed output setting

"Data type of fan speed"

1bit

1byte

"Object datatype of 1byte fan speed"

1byte

Fan stage (DPT_5.100)

Percentage (DPT_5.001)

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

1byte

0..255/0..100

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

1bit

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

0..100

0

Fan speed control setting

"Control value type"

PM2.5

CO2

VOC

"Control value reference from"

Local

Bus

"Bus"

"Object datatype of PM2.5/VOC"

PM2.5

VOC

PM2.5

VOC

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]"

1..999/1..4000

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

1..999/1..4000

OFF <-->

<-->

<-->

OFF <-->

<-->

<-->

<-->

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

10..30/100..400

CO2

100

450

550

+

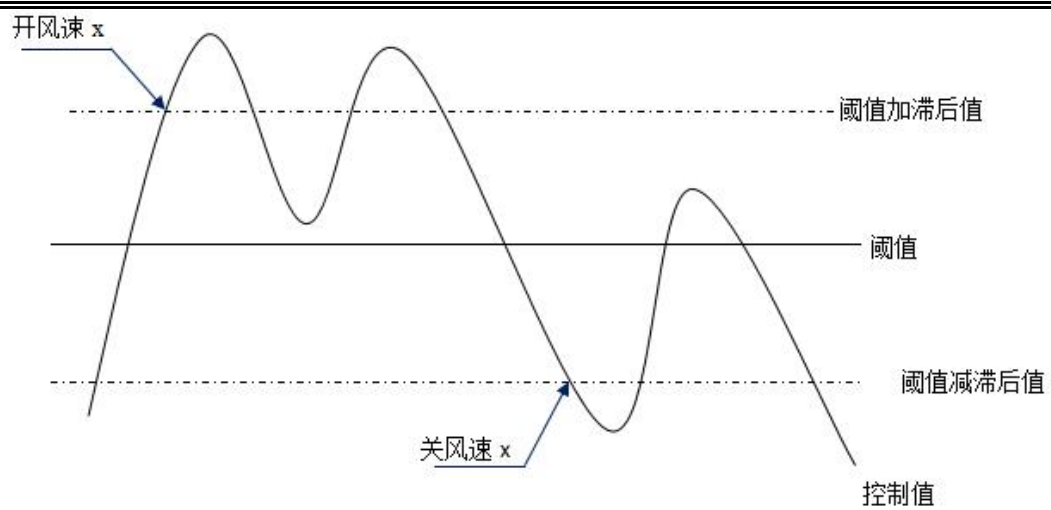
350

-

350~550

350

550



1

2

2

PM2.5

OFF <->

20

<->

40

<->

70

10

OFF

OFF

30

20+10

41

41

40

70

39

39

20

40

60 <70-10

39

39

20

40

3

0

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

0..65535

0

5.9

"Logic"

5.9

--- Air Quality Sensor, 6 in 1 > Logic > Logic settings

+ General	Logic 1 enable	☒ Enable ☐ Disable
+ AQI	Logic 2 enable	☐ Enable ☒ Disable
+ Temperature	Logic 3 enable	☐ Enable ☒ Disable
+ Humidity		
+ VOC		
+ CO2		
- Logic		
Logic settings		
Logic 1		

5.9(1) "Logic"

--- Air Quality Sensor, 6 in 1 > Logic > Logic 1

+ General	Input 1	PM value (1bit)
+ AQI	Input 2	Temperature value (1bit)
+ Temperature	Input 3	Humidity value (1bit)
+ Humidity	Input 4	VOC value (1bit)
+ VOC	Input 5	CO2 value (1bit)
+ CO2	Function 1: input 1 and 2	AND
- Logic	Function 2: input 3 and function 1	AND
Logic settings	Function 3: input 4 and function 2	AND
Logic 1	Function 4: input 5 and function 3	AND
	Gate function	Do not use
	If logic result=0	Send 1Bit
	1 bit	0
	If logic result=1	Send 4Bit+1Byte
	4 bit	0
	1 byte	0

5.9(2) "Logic"

"Logic x enable"

Enable

Disable

"Input x:"

"Gate function"

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

“R” “C” “W” “T” “U”

6.1 AQI

Number	Name	Object Function	Description	Group A	Length	C	R	W	T	U	Data Type	Priority
1	AQI	PM2.5	PM2.5 value		2 bytes	C	R	T			7.001 pulses	Low
2	AQI	External PM2.5 value	External PM2.5 value		2 bytes	C	W	T	U		9.030 concentration ug/m3	Low
3	AQI	PM10 value	PM10 value		2 bytes	C	R	T			7.001 pulses	Low
4	AQI	External PM10 value	External PM10 value		2 bytes	C	W	T	U		9.030 concentration ug/m3	Low
5	AQI	AQI value	AQI value		2 bytes	C	R	T			7.001 pulses	Low
6	AQI	AQI level	AQI level		1 byte	C	R	T			5.010 counter pulses (0..255)	Low
7	AQI	AQI level output value float	AQI level output value float		1 byte	C	W	T	U		0.0001 concentration ug/m3	Low

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		ug/m ³
2	4	PM2.5	PM10		ug/m ³
5	AQI value	AQI	2byte	C, R, T	7.001 pulses
					0...500
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			

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"					
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"					

6.1 AQI

6.2

Number	Name	Object Function	Description	Group Add	Length	C	R	W	T	U	D
13	Temperature		Temperature		2 byte						
14	External temperature		Temperature		2 byte						
15	Heating/Cooling switchover		Temperature		1 bit						
16	Heating/Cooling output value, 1bit		Temperature		1 bit						
17	Heating/Cooling output value, 4bit		Temperature		4 bit						
18	Heating/Cooling output value, 1byte		Temperature		1 byte						
19	Heating setpoint		Temperature		2 byte						

6.2

					DPT
13	Temperature	Temperature	2 byte	C, R, T	9.001 temperature (°C)
14	External temperature	Temperature	2 byte	C, W, T, U	9.001 temperature (°C)
15	Heating/Cooling switchover	Temperature	1 bit	C, W	1.100 heating/cooling
/ 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)
19	Heating setpoint	Temperature	2 byte	C, W	9.001 temperature (°C)

20	Cooling setpoint	Temperature	2 byte	C, W	9.001 temperature (°C)

6.2

6.3

Number	Name	Object Function	Description	Unit	Value
21	Humidity	Humidity	Humidity	2 byte	C, R, T
22	External humidity	Humidity	Humidity	2 byte	C, W, T, U
23	Humidity output value,1bit	Humidity	Humidity	1 bit	C, T
24	Humidity output value,4bit	Humidity	Humidity	4 bit	C, T
25	Humidity output value,1byte	Humidity	Humidity	1 byte	C, T

6.3

					DPT
21	Humidity	Humidity	2 byte	C, R, T	9.007 humidity (%)
22	External humidity	Humidity	2 byte	C, W, T, U	9.007 humidity (%)
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)

6.3

6.4 VOC

Number	Name	Object Function	Description	Group Add	Length	C	R	W	T	U	Data Type	Priority
26	VOC	VOC valu										

6.4 VOC

					DPT
26	VOC value	VOC	2 byte	C, R, T	7.001 pulses 9.030 concentration (ug/m3)
VOC		VOC			
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			

6.4 VOC

6.5 CO2

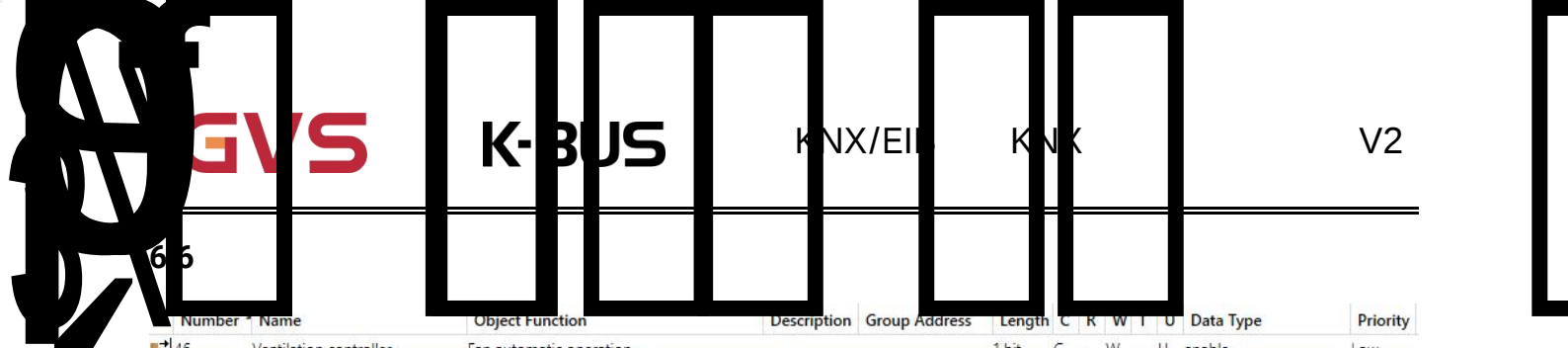
Number	Name	Object Function	Description	Group Add	Length	C	R	W	T	U	Data Type	Priority
30	CO2	CO2 value										

6.5 CO2

DPT

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



6.6 Ventilation controller

DPT

46	Fan automatic operation	Ventilation controller	1bit	C,W,U	1.003 enable
	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"		PM2.5/VOC/CO2	
			ug/m3 ppm	0~999ug/m3 0~4000ppm	
		PM2.5		PM2.5	
48	Fan speed	Ventilation controller	1byte	C,R,T	5.001 percentage
					5.100 fan stage
		"1byte"	1byte	□ □ □	
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

Number	Name	Object Function	Description	Group Add	Length	C	R	W	T	U	Data Type	Priority
34	Logic 1	Logic 1 output value			1 bit							

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						
37/41/45	Logic x extern input(x=1,2,3)	Logic x	1 bit	C, W		1.002 boolean

6.7