

## Indoor Air Quality Transmitter Series



## ■ THR23

Temp. / Humidity

## ■ GS23

CO<sub>2</sub>

## ■ THG03

Temp. / Humidity / CO<sub>2</sub>

## ■ TGP03

Temp. / Humidity / CO<sub>2</sub> / PM2.5

## | Features |

- Measuring temperature, humidity, carbon dioxide and PM2.5
- Analog outputs and RS-485
- LCD display and real-time data monitoring
- Long-term stability
- Easy installation and maintenance
- Data can be logged and transferred to PC via RS-485 software

## | Applications |

Monitoring indoor environments HVAC / Data centers / Indoor ventilation, regulation, and air conditioning systems / Production warehouses / Commercial smart office buildings / Residential homes / Green industries / Convenience stores and department stores / Storage rooms / Vegetable and fruit storage rooms / Mushroom cultivation / Incubation rooms / Indoor public spaces / Museums / Libraries

## | Specification |

### Sensor type

Temperature	MEMS
Humidity	MEMS
CO <sub>2</sub>	NDIR
PM2.5	Infrared LED

### Measuring range

Temperature	0 ... 50°C
Humidity	0 ... 100%RH(Non-condensing)
CO <sub>2</sub>	0 ... 2000 PPM
PM2.5	0 ... 500 µg/m <sup>3</sup>

### Accuracy (at 25°C, 101.3 kPa, DC 24 V)

Temperature	±0.5°C
Humidity	±3%RH (at 30 ... 80%RH)
CO <sub>2</sub>	±40 PPM ±3% of reading
PM2.5	±10 µg/m <sup>3</sup> ±5% of reading
Temp. influence	±0.15%RH/°C

### Analog output

Output signal	0 ... 10 V / 4 ... 20 mA / RS-485
Signal connection	3-wire
Load resistance	Voltage output : ≥100 KΩ Current output : <250 Ω
Warm-up time	< 2 min., stable time 20 mins.

### Digital output

Output signal	RS-485
Protocol	Protocol
Interface	Modbus RTU
Address	1 ... 247
Baud rate	9600, 19200, 38400, 57600, 115200

### Environment

Medium	Air
Operating Temp.	0 ... 50°C
Operating Humidity	0 ... 85%RH
Storage Temp.	-20 ... +60°C

### Electrical

Power supply	DC 24 V±10% & AC 24 V±10%
Current consumption	DC : 150 mA / AC : 120 mA
Starting current	DC 24 V : 250 mA / AC : 230 mA
Electrical connection	Terminal block

### Response time

Temperature & Humidity	t63(15 ... 45°C / 33 ... 75%RH) ≤10 sec
CO <sub>2</sub>	t90 < 2 min.
PM2.5	3 sec

### Installation

Installation	Wall mount
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### Protection

IP rating	IP20
Electrical protection	■ Reverse polarity ■ Short-circuit

### Certification

Certification	CE
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### Material

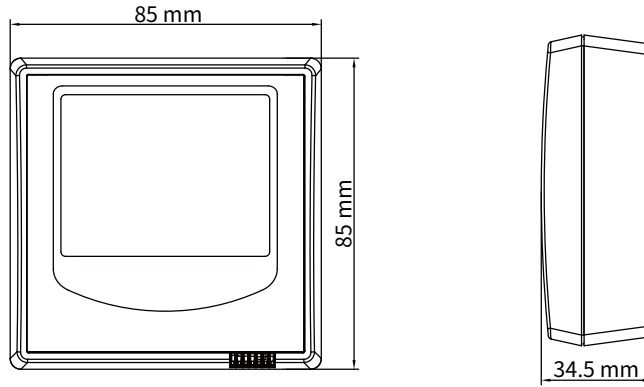
Housing	PC(PC-110)(UL94V-2)
Weight	115 g (Display) / 100 g (Without display)

## | Display |

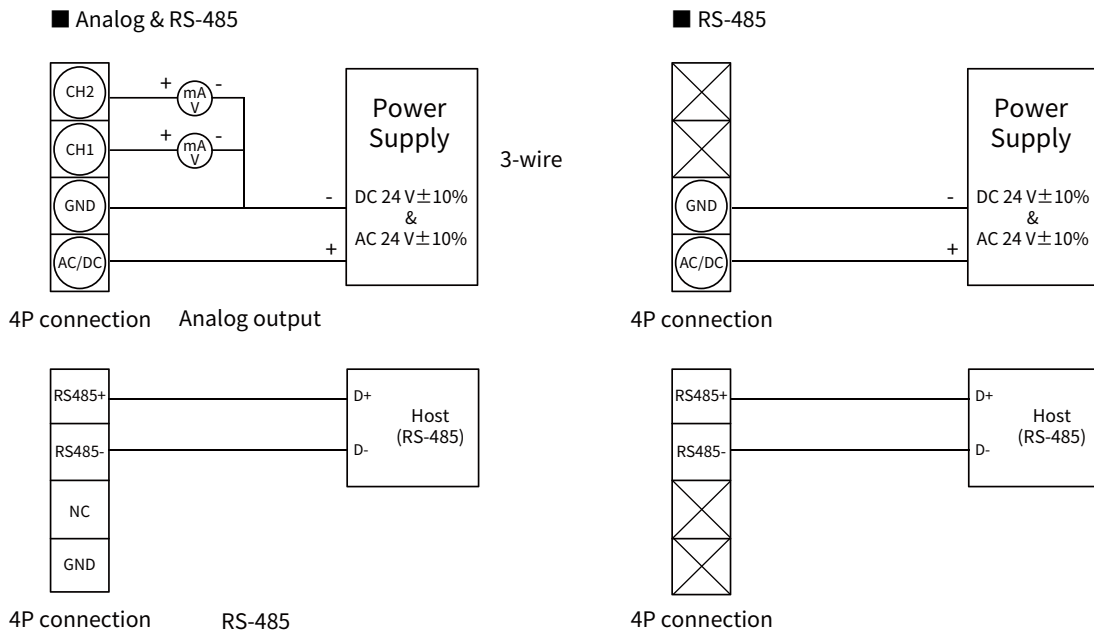
Display : LCD without backlight / Digit height : 17.91 mm

THR23	GS23	THG03	TGP03
Up : Temp. (3 digits + 1 decimal) Down : Humidity (3 digits + 1 decimal)	Up : CO <sub>2</sub> (4 digits) Down : None	Up : CO <sub>2</sub> (4 digits) Down : Temp. (3 digits + 1 decimal)	Up : Temp. (3 digits + 1 decimal) Down : Humidity (3 digits + 1 decimal)
No switch	No switch	Up : CO <sub>2</sub> (4 digits) Down : Humidity (3 digits + 1 decimal)	Up : CO <sub>2</sub> (4 digits) Down : PM2.5 (3 digits + 1 decimal)

### | Dimension |



### | Diagram |



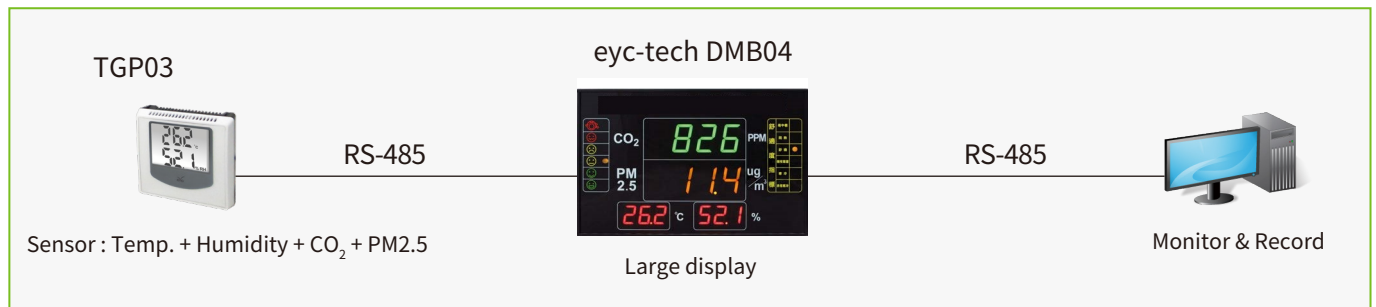
\*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

### | Ordering Guide |

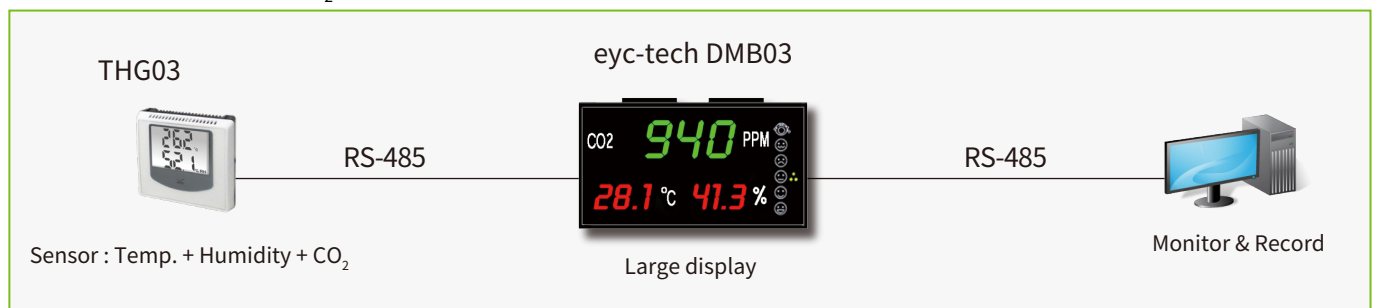
Product ordering number	Function				Analog output		Digital output	Display
	Temp.	Humidity	CO <sub>2</sub>	PM2.5	Type	Channel		
THR23-TH13-30-2D	V	V			4 ... 20 mA	CH1 : Temp., CH2 : Humidity	RS-485	Yes
THR23-TH13-30-2N	V	V			4 ... 20 mA	CH1 : Temp., CH2 : Humidity	RS-485	No
THR23-TH63-30-2D	V	V			0 ... 10 V	CH1 : Temp., CH2 : Humidity	RS-485	Yes
THR23-TH63-30-2N	V	V			0 ... 10 V	CH1 : Temp., CH2 : Humidity	RS-485	No
GS23-1132-2D			V		4 ... 20 mA	CH1 : CO <sub>2</sub>	RS-485	Yes
GS23-1632-2D			V		0 ... 10 V	CH1 : CO <sub>2</sub>	RS-485	Yes
THG03-NNN3-000-2D	V	V	V			No	RS-485	Yes
TGP03-3D	V	V	V	V		No	RS-485	Yes

## | Optional Combination |

### ■ Temp. + Humidity + CO<sub>2</sub> + PM2.5



### ■ Temp. + Humidity + CO<sub>2</sub>



## | Additional Option Test Report | For more detailed information please contact us.

### ■ ILAC / TAF

Calibration Laboratory - ( ILAC / TAF ) Test report.

(TAF accreditation : 3032, complying with ISO / IEC 17025 ) TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Hygrometer	Temperature : 0°C ... 69.5°C
	Humidity : 10% ... 95%

### ■ ISO 9001

Project	Measurand level or range
Temperature and Humidity	Temperature : 0°C ... 200°C
	Humidity : 0.1% ... 99.8%