

DUCT EURO IAQ COMBO SENSOR

4-in-1 duct sensor for air quality (CO₂ & VOC), temperature (T) & relative humidity (RH)

FEATURES

- 4-in-1 measurement over Modbus RTU (RS-485)
- Dual beam infrared CO₂ sensing technology (NDIR)
- CO₂ measurement of 0-5000 ppm
- VOC measurement of 0-100%
- 2% relative humidity within the comfort range
- Dip switch addressing and field-selectable framing parameters
- NEMA4X / IP65 Euro enclosure with AISI 316 SS probe
- LED indicator for connection status
- CE & RoHS compliant
- 5 year limited warranty
- Made in the USA



GENERAL INFORMATION

High quality duct mounted IAQ multi-sensor for CO₂ & VOC, with Relative Humidity (RH) & Temperature (T) output over Modbus RTU (RS-485). All of this is housed in the NEMA 4X / IP65 Euro enclosure equipped with hinged cover and tool-free Quick Connect wire terminals.

The IAQ combo sensor offers field selectable addressing via DIP switches as well as field selectable framing parameters.

These sensors are designed as a 4-in-1 product but also available in 3-in-1 or 2-in-1 combinations. Other available products offer 0-10V analog output(s), with additional option for passive NTC or RTD temperature elements.

SPECIFICATIONS

General:

Supply Voltage:	24 VAC \pm 20%; 18-35 VDC Max
Power Consumption:	3 VA for 24VAC, 3W for 24VDC (peak);
Operating Range:	-5...+55°C / 23...+131°F; 0...95%RH non-condensing
Enclosure Rating:	IP65; NEMA 4X
Enclosure Material:	PC/ABS UL 94 JVA, UV resistant injection-molded
Cover:	Removable Quick snap hinged cover
Probe:	AISI 316L; 8in. Length (205mm), 12mm diameter
Mounting:	Duct, M16 cable inlet
Connection:	30-16 AWG / 0.05—1.31mm ² ; spring-loaded, Quick Connect wire terminals

SPECIFICATIONS CONT.

Function:

Communication: Modbus RTU (RS-485)
Supported baud rate: 9600; 19200; 38400 (default); 57600; 76800; 115200
Transmission format: 8-N-1(default); 8-E-1; 8-O-1; 8-N-2;
Bus termination: 120 ohm, jumper selection
LED:

Color	Pattern	Description / State	Remarks
Green	Constant until device boots	Power up	CO2 sensor >10 s; VOC > 60 sec
	Flashing (1 s on / 5 s off)	Power-up completed Working properly	
	Flickering	Bus communication	
Orange	Flashing (1 s on / 5 s off)	Bus communication failure	Frame Error, CRC
Red	Flashing (0.1 s on / 1 s off)	Invalid data received	
	Flashing (1 s on / 5 s off)	Internal error: Sensing element malfunction Sensing element not connected	Inc. needs to configure the firmware what sensing element to expect

CO2 Sensor:

Measurement Range: 0...5000 ppm
Accuracy: $\pm 30\text{ppm} + 3\%$ measured value (@25°C 400-2000 ppm)
Temperature Operating Range: 0...50°C / 32...122°F
Response Time: $t_{63} < 120 \text{ sec}$ (@ 3 m/s)
Warm Up Time: < 1 minute (@ full specs < 15 minutes)
Sensing Technology: Dual beam infrared sensing technology (NDIR)

VOC Sensor:

Measurement Range: 0...100%
Sensor Range: 0.3...30ppm
Accuracy: 15% m.v.
Repeatability: $< \pm 5 \text{ m.v.}$

Relative Humidity Sensor:

Range: 10...90%RH (non-condensing)
Accuracy: typical $\pm 2\%$ 30...70%RH, otherwise $\pm 5\%$
Response Time: $t_{63} < 180 \text{ sec}$ (@ 3 m/s)
Long Term Stability: Less than 0.25% per year
Repeatability: 0.8% RH @ average temp. 25°C / 77°F
Sensitivity: 0.1% RH
Sensor Type: Capacitive, non-condensing

Temperature Sensor Active:

Range: -40...+70°C / -40...158°F
Accuracy: $\pm 0.3^\circ\text{C}$ / $\pm 0.54^\circ\text{F}$
Response Time: $t_{63} < 120 \text{ sec}$ (3 m/s)
Resolution: 0.1°C

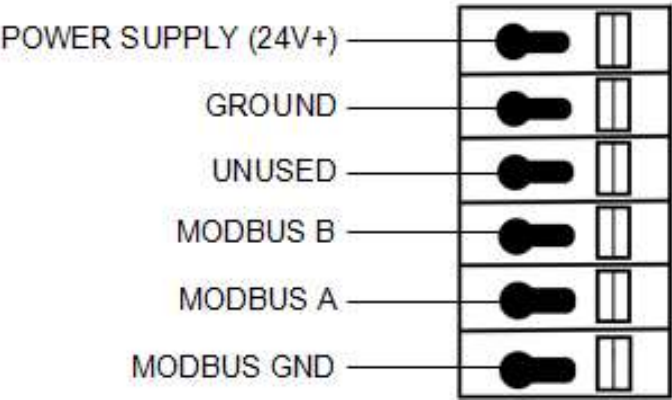
Approval:

Warranty:

Accessories:

CE & RoHS compliant
5 year limited warranty
1/2" NPT Conduit Adapter
M16 Cable Gland
Adjustable Depth Mounting Flange (not included)

WIRING:



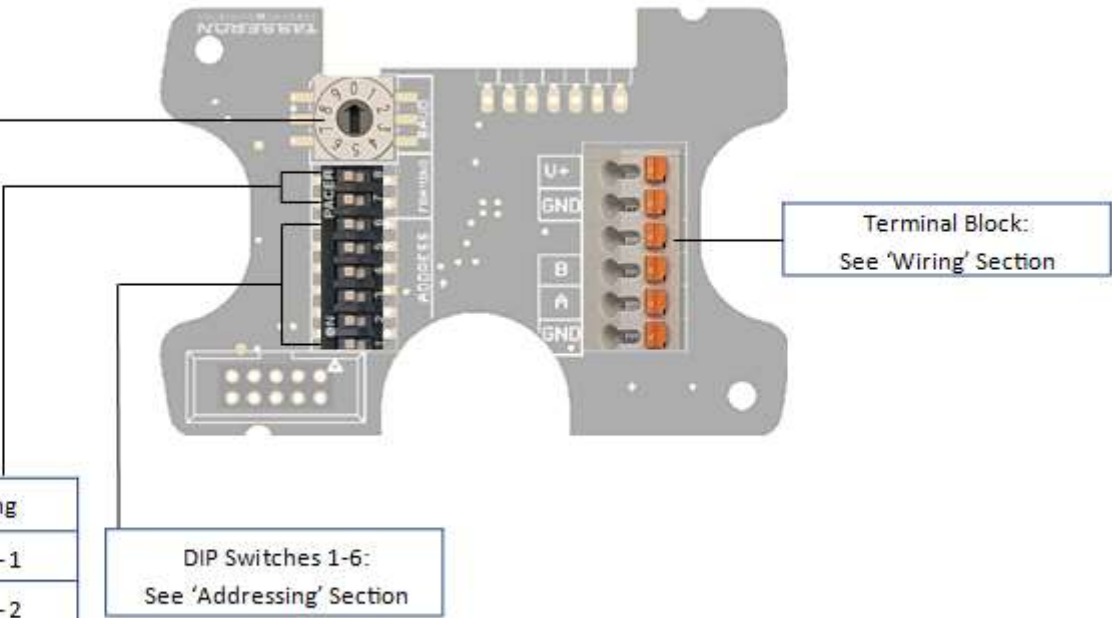
CONFIGURATION:

Rotary DIP - Baud Rate

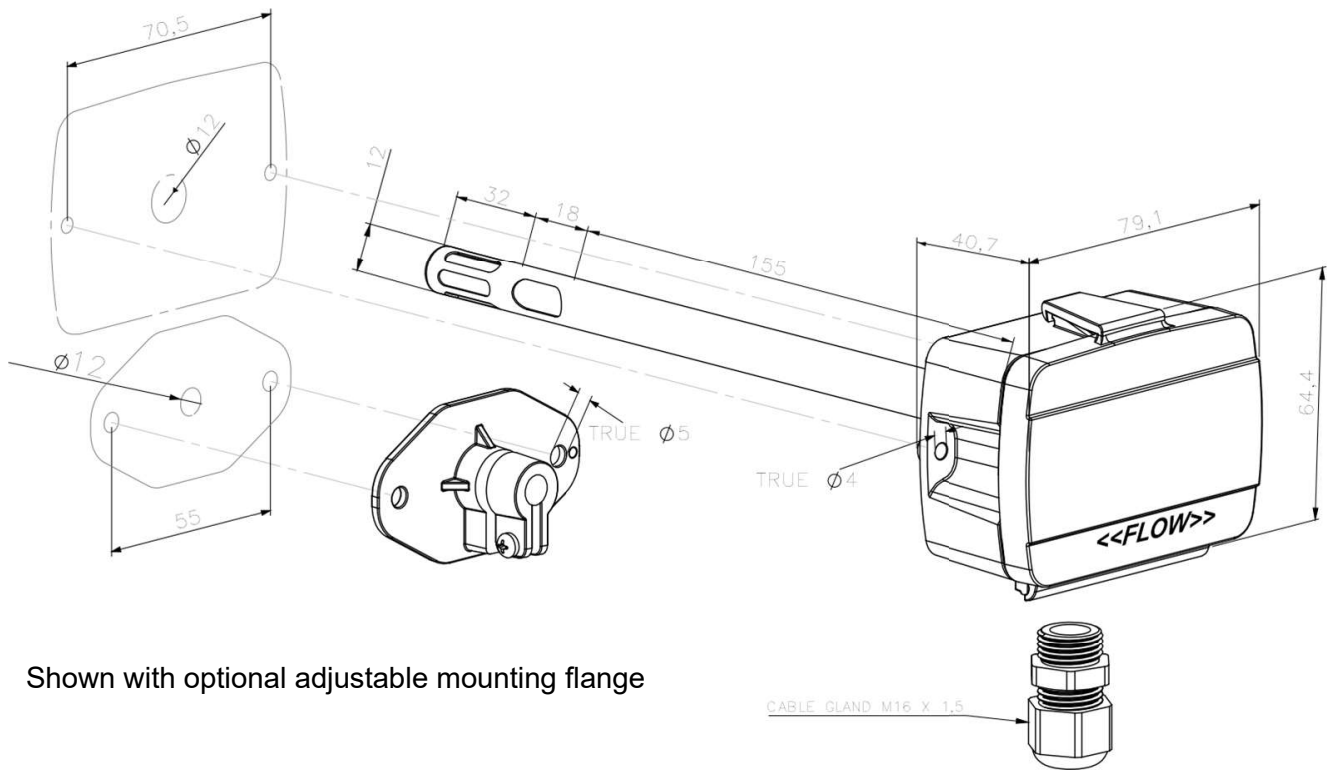
0	Disabled
1	9600
2	19200
3	38400
4	57600
5	76800
6	115200
7	Disabled
8	Disabled
9	Disabled

7	8	Framing
Off	Off	8—N—1
Off	On	8—N—2
On	Off	8—E—1
On	On	8—O—1

(Data bits—Even/Odd/No Parity—Stop Bits)



MOUNTING AND DIMENSIONS (dimensions in mm)



Shown with optional adjustable mounting flange

HOW TO BUILD A TASSERON HVAC AIR QUALITY PART NUMBER

Sample Part Number (THADBY2D) - Air Quality Combo CO2 & VOC Duct Sensor in 0-5000ppm, Digital Temperature with 2% Accuracy RH and Modbus Output

T	H	A	D	B	Y	2	D
TASSERON	HVAC	SENSOR TYPE	APPLICATION	RANGE	TEMP	RH ACCURACY	OUTPPUT
		A - AIR QUALITY COMBO CO2 & VOC	D - DUCT	B - 0-5000 PPM	Y - DIGITAL	2 - 2%	D - Modbus