

## Electrical connections

 The power supply must be connected to  $\sim$  and  $\perp$ .  $\perp$  is considered as system ground. *The same ground reference has to be used for the MCS-CO2-OA unit and for the DDC/signal receiver.*

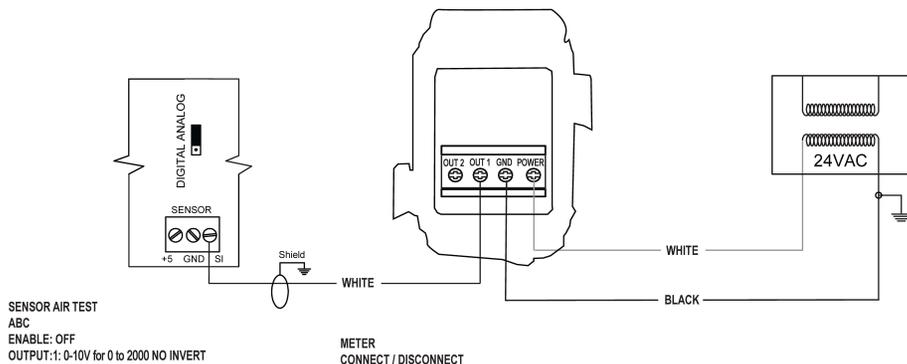
**PLEASE NOTE** The same ground reference has to be used for the MCS-CO2-OA unit and for the control system

Connection Terminal	Function	Electrical Data	Remarks
$\sim$ +	Power (+)	24 VAC/DC+ (+-20%), 2W	
	Power ground (-)	24 VAC/DC-	
Out(1)	Analogue Output 1 (+)	0-10 VDC	0-2000 ppm CO <sub>2</sub> Extended CO <sub>2</sub> up 10,000 (factory set or SADK Kit required)
Out(2)	Analogue Output 2 (+)	2,0-10,0 VDC or 4,0-20,0 mA	0-2000 ppm CO <sub>2</sub> Extended CO <sub>2</sub> up 10,000 (factory set or SADK Kit required)
		0,9-1,6 VDC or 1,5-2,5 mA	Status = ERROR
		0 VDC or 0mA	Status = NOT READY

Table 1. Electrical terminal connections for MCS-CO2-OA

## Wiring to MCS-MAGNUM or MCS-SI-BASE/EXT or MCS-IO-BASE/EXT Sensor input

### MCS-CO2-OA Sensor



## Gas and Air Sensors

### Installation Manual

## MCS-CO2-OA

CO<sub>2</sub> transmitter with heater and inline thermostat mounted in IP65 housing



The **MCS-CO2-OA** PCB is housed in an IP65 housing with breathers to support the flow of outdoor air. If for some reason the PCB must be removed care must be taken to protect from electrostatic discharge. Normally, removing the PCB is NOT required.

The **MCS-CO2-OA** includes an in-line thermostat in order that heating of the housing only takes place when the outdoor temperature warrants the use of the energy to maintain an above freezing temperature in the housing. Maintaining an

above freezing temperature prevents the accumulation of ice crystals inside the Optical Bench Assembly, which could cause inaccurate CO2 measurements.

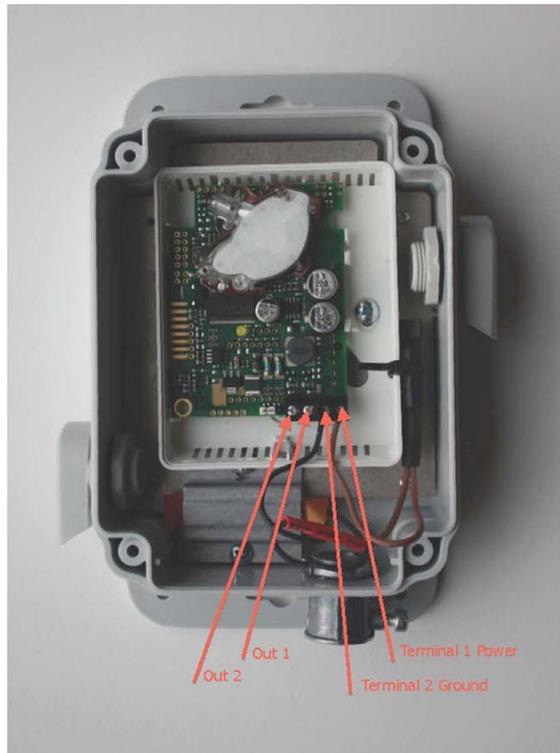
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**!** **The power supply** must be connected to + and is  $\perp$  considered as system ground. If the analogue output is connected to a controller *the same ground reference has to be used for the MCS-CO2-OA unit and for the control system!* Unless different transformers are used, special precautions need to be taken. **PLEASE NOTE** The MCS-CO2-OA signal ground is *not* galvanically separated from the MCS-CO2-OA power supply

**!** **Please NOTE**  
The same ground reference has to be used for the MCS-CO2-OA unit and for the control system

The MCS-CO2-OA Outdoor can be mounted to a wall or other supporting structure using the four corner mounting holes or the top and bottom mounting holes.

Connection of Power to Terminal 1 and Ground to Terminal 2 must maintain the 2 connections associated with the heater. The MCS-CO2-OA Outdoor is shipped with the heater connections already in place for ease of installation.



## Connect the power after mounting. MCS-CO2-OA™ carbon dioxide transmitter Technical Specification

### General Performance

Compliance with .....	EMC directive 89/336/EEC. RoHS directive 2002/95/EG Operating
Temperature Range .....	-22 to +115 °F
Storage Temperature Range .....	-4 to +122 °F <sup>1</sup>
Operating Humidity Range .....	0 to 95% RH (non-condensing)
Operating Environment .....	Outdoor
Warm-up Time .....	< 1 min. (@ full specs < 15 minutes) Sensor Life
Expectancy .....	> 15 years
Maintenance Interval .....	no maintenance required
Self Diagnostics .....	complete function-check

### Electrical

Power Input .....	24 VAC/VDC ±20%, 50 Hz (half-wave rectifier input)
Power Consumption .....	< 1 Watt average (Heater Off)
Connection screw terminal A .....	4 x 1,5 mm <sup>2</sup> for power input (G+, G0) and voltage outputs (OUT1, OUT2)

### CO<sub>2</sub> Measurement

Sensing method .....	Infrared (NDIR) waveguide technology with Automatic Baseline Correction (ABC) and passive gas diffusion (no moving parts)
Response Time (T <sub>90</sub> ) .....	< 30 sec. @ 30 cc/min. flow rate, < 3 min. diffusion time
Repeatability .....	± 20 ppm ± 1 % of reading
Accuracy <sup>2</sup> .....	± 30 ppm ± 3 % of reading
Annual Zero Drift <sup>3</sup> .....	< ± 10 ppm
Pressure Dependence .....	+1.6% of reading per kPa deviation from normal pressure 101.3kPa <sup>4</sup>

### Outputs

#### Output signal terminal CO<sub>2</sub><sup>5</sup>

OUT1 linear conversion range.....	0 - 10 VDC for 0 - 2 000 ppm. (Extended CO <sub>2</sub> up 10,000 factory set or SADK Kit required)
OUT2 linear conversion range .....	4 - 20 mA or 2 - 10VDC for 0 - 2 000 ppm. (Extended CO <sub>2</sub> up 10,000 factory set or SADK Kit required)
.....	D/A resolution 10 bits, 10 mV
D/A conversion accuracy.....	± 2 % of reading ± 50 mV
Electrical characteristics .....	R <sub>OUT</sub> < 100 Ohm, R <sub>LOAD</sub> > 5 kOhm (Heater Off)

Note 1: After long-term storage a zero calibration is recommended. Note 2: All corrosive environments are excluded.  
Note 3: Accuracy is defined after zero calibration or after minimum 23 days of continuous operation. The tolerance of the span gas (2% unless otherwise requested) and test gas adds to the total uncertainty.  
Note 4: For reference see TN-025 on pressure sensitivity .  
Note 5: The specifications are valid for the output load connected to Ground G0.

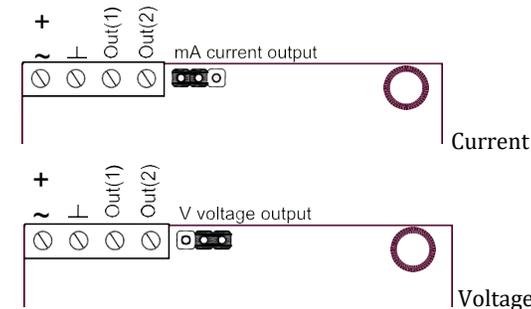


Figure 1 Picture of the PCB with the jumper for setting Out(2) to current output (left position) or voltage output (right position)

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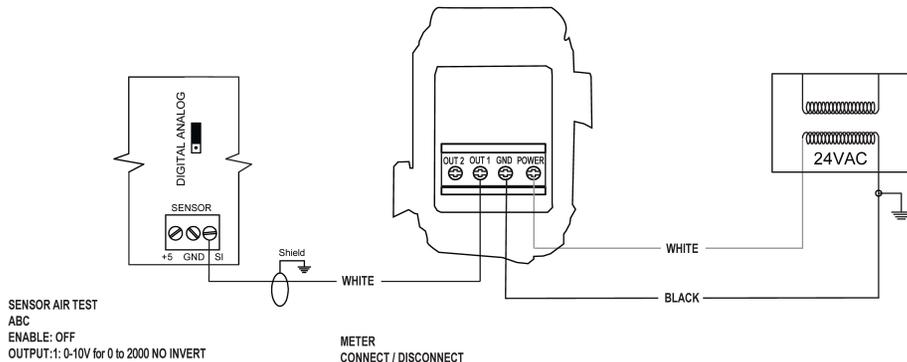
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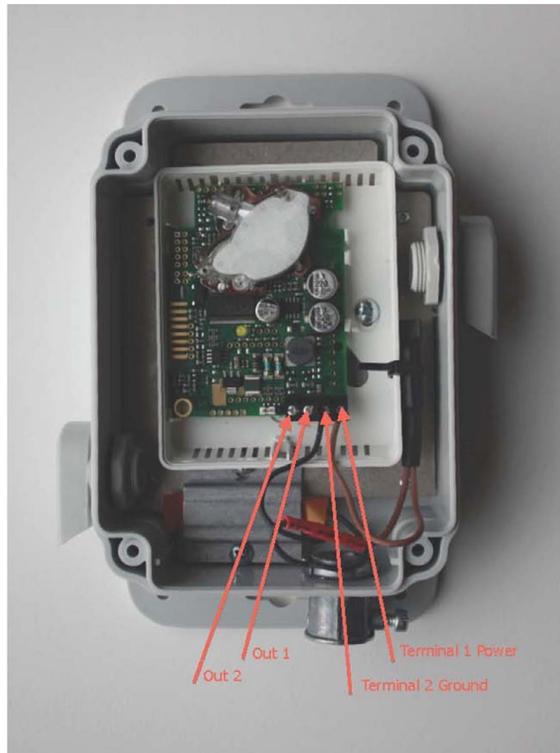
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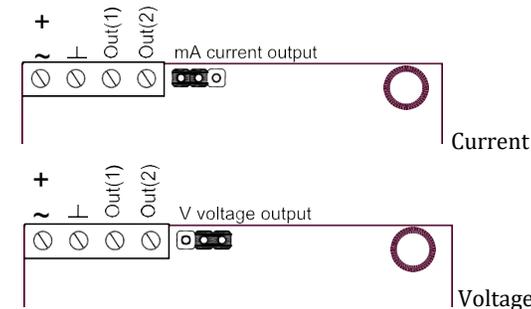


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