

INSTALLATION & OPERATION

TR RANGE



TECHNICAL SPECIFICATION

Power Supply	24V AC/DC \pm 10%
Power Consumption	50Ma Max
Analogue Outputs	3x 0-10V
Thermistor Output	10K3A1
VFC Output	SPST – 100mA @ 24V Max
CO2 Range	0 - 10,000ppm
CO2 Output Scaling	0 - 2,000 / 5,000ppm
CO2 Accuracy	\pm 40 ppm +3% @ NTP
CO2 Display Resolution	1ppm
CO2 Sensing Method	Non-Dispersive Infra-red (NDIR)
CO2 Typical Sensor Life	10+ Year
Temp Range	0 - 50°C
Temp Accuracy	\pm 0.3°C @ 25°C
Temp Display Resolution	0.1°C
RH Range	0 - 100%
RH Accuracy	\pm 2% @ 20 - 80%
RH Display Resolution	0.1%
Operating Conditions	Temp 0 - 50°C Humidity 0 - 95% (NC)
Sampling Method	Diffusion
Warm-up Time	30 Seconds
Colour	Wall - Pure White (RAL9010) Duct – Black/Clear
Approval	CE, UKCA

IMPORTANT – Please read carefully:

1. This product must be installed by a competent/qualified person in accordance with all relevant regulations and legislations.
2. This product must be mounted flush to the wall (or similar) using secure fixings to prevent access to the rear.
3. The sensors must be continuously powered to allow the CO2 auto-calibration to take place (every 7 days).
4. The use of solvents, cleaning fluids or fine dusts near to the unit can damage the sensing elements.
5. If there is any question over the application, please contact to discuss.
6. If this equipment is used in a manner not specified by the manufacturer, protection provided may be impaired.
7. This product is designed for indoor use with standard atmospheric conditions.
8. When the sensor is used as part of a Gas Safety system, please ensure the correct program is used.

MOUNTING LOCATION

Application specific mounting positions should be considered, however the below guidance will be suitable for most installations.

Although CO2 is heavier than air, for most HVAC applications the sensors should be mounted at head height. For applications where there are stored concentrations of CO2 please refer to the Gas Detector/Sensor range.

Typical Mounting Heights:

Application	Mounting Height
General Areas	1500mm Above Finished Floor Level
Science Classrooms	1500mm Above Finished Floor Level
Food Tech Rooms	2000mm Above Finished Floor Level (not within 100mm of ceiling)
Kitchens	2000mm Above Finished Floor Level (not within 100mm of ceiling)

Important Notes:

- Do not install directly above any appliance or burner.
- Do not install in high velocity air streams (near an air Inlet/Outlet).
- Do not install next to doors or opening windows.
- Do not install in direct sunlight.

INSTALLATION

All installation details shown on the wiring diagram should be followed carefully, failure to do so could result in irreparable damage to the unit.

If there is any possibility of the connected cables running parallel to mains, screened cable should be used. Any voltage induction can result in irreparable damage to the sensor.

The connection details for the Wall and Duct mount units are the same, the only difference is the mounting.

Wall Mount Enclosure

The wall mount enclosure is designed to fit on a standard single gas junction box or conduit box. Please take care when tightening fixing screws as overtightening can distort the plastic.

To open/close:

1. Remove securing screw from the bottom of the enclosure.
2. Insert a flat screwdriver into the slot behind the screw and apply pressure until the bottom of the enclosure releases.
3. Pull the front of the enclosure outward from the bottom then up to release hooks securing the top.
4. When closing, hook the clips into place, then push the bottom until the securing clip fully engages.

Duct Mount Enclosure

The duct mount enclosure is IP66 external to the duct and although a foam gasket is provided, additional sealant may be required to maintain the integrity of the duct (the use of solvent based sealant may damage the sensing elements).

To open/close:

1. Remove securing screw from the lid of the enclosure.
2. Press on both securing clips simultaneously to release then simply open using the hinge mechanism.

OPERATION

On power up, the LCD will cycle through Green, Amber, Red then White with all segments lit to prove the correct operation of the display. During this warm-up, the volt free contact will be in the default position for the selected programme and the analogue outputs will provide 6V.

Once the warm-up is complete, the LCD will display the levels for any connected sensors, provide a traffic light indication based on live CO2 level, the relay output will change to the correct position for the programme and the voltage outputs will reflect relevant levels.

If no CO2 sensor is present, the relay will be in an alarm state.

MAINTENANCE

Due to the Automatic Background Calibration (ABC) algorithm, the sensor is effectively maintenance free. Some applications may require this to be disabled – please contact Flamefast for further details. To allow calibration to take place, the sensor must be exposed to atmospheric levels (400ppm) at least once every 7 days.

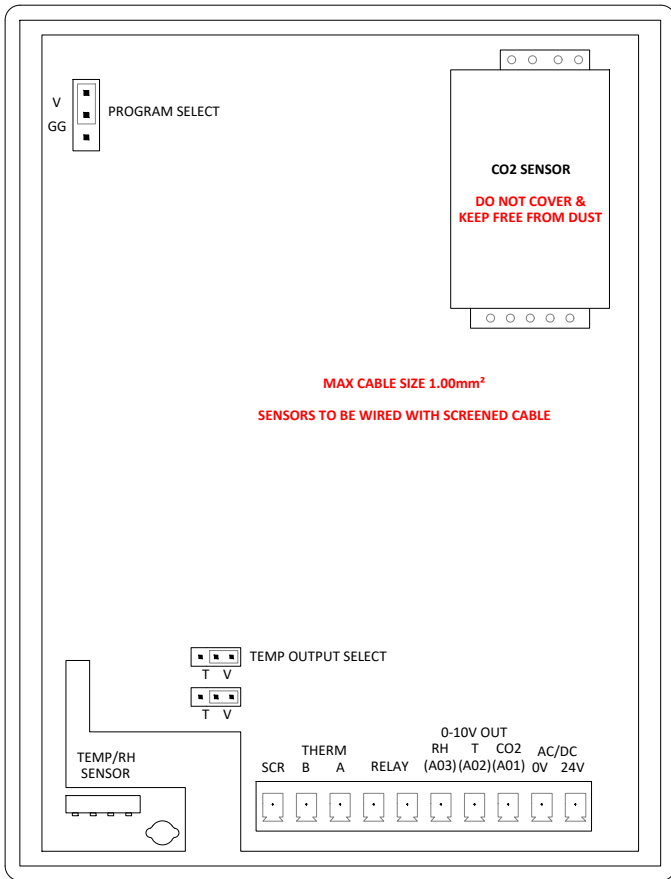
If the sensor is installed as part of a Gas Safety system, the sensor should be 'bump' tested by applying a CO2 test gas, although the same result can be achieved by breathing on the sensor.

TROUBLESHOOTING

If you are having any issues, please contact Flamefast to discuss.

CONNECTIONS & CONFIG

TR RANGE



PROGRAMMING JUMPER

	Ventilation (V)	Gas Safety (GG)
Green to Yellow	1,000ppm	1,500ppm
Yellow to Red	1,500ppm	2,800ppm
Relay Position	Normally Open	Normally Closed
Relay Setpoint	1,000ppm	4,500ppm

There is a 50ppm hysteresis on all downward status changes.

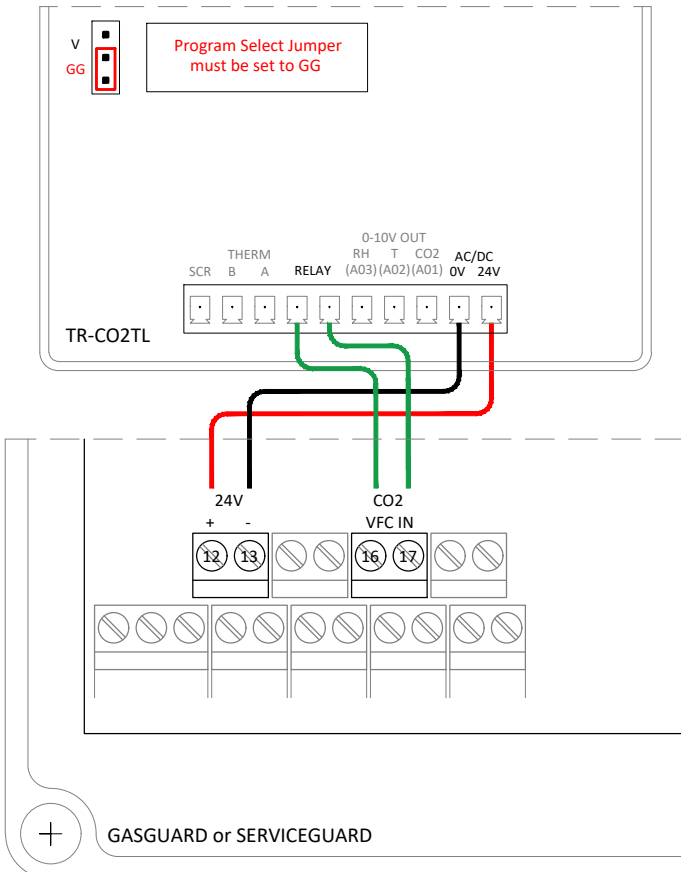
TEMPERATURE CONFIGURATION

WARNING – whilst the unit is able to operate on 24V +10%, anything over 24V may adversely affect the temperature reading due to the additional heat generated by the voltage regulators.

The TR range has an installer selectable 0-10V or 10K3A1 Thermistor output. This is done by moving the Output Select Jumpers between 'V' and 'T'. Please note that **both jumpers** must be on the corresponding positions and should only be moved with the unit powered down:

- T = Thermistor
- V = 0-10V

WIRING TO GG/SG



WIRING TO GG/SG & BMS

