

CO₂ Selective CO₂ measurement



ORBISPHERE 3658

- Accurate, repeatable measurements at line or in the laboratory
- Robust design for spot checks in the production plant
- Short analysis time; ideal for measurement in small packages
- No sample preparation; simple, safe measurements
- Low maintenance; annual membrane change and calibration
- Easily calibrated/validated with the High Precision Calibration Kit

Operation

Before each measurement the TC sensor is automatically flushed with ambient dried air supplied by the integrated pump and condenser.

After each purge, the gas to be measured diffuses from the liquid sample through the membrane, changing the thermal conductivity of the gas surrounding the detector. t is the rate of change of the thermal conductivity that allows the concentration of the gas to be calculated. As each gas has its own specific thermal conductivity the measurement is not affected by the presence of other gases unlike traditional total pressure/temperature methods.

The simple layout of the instrument face and the inclined key board make the ORBISPHERE 3658 simple and easy to use, both at line and in the laboratory.

The chassis is made from stainless steel making it strong and robust, critical features for an instrument used in harsh plant environments. It is waterproof and corrosion protected.

The ORBISPHERE 3658 inlet tube can be connected to a sample point or to a piercing device by a simple connector, making it quick and easy to install. The robust manufacturing allows the instrument to be hung from process pipes for long term diagnostic work.

Maintenance, calibration and validation

No moving parts in the sensor results in low maintenance, typically requiring a simple membrane change annually. In a standard application it is recommended that the instrument be calibrated once a year.

To directly mimic operating conditions a liquid calibration can be performed with the patented High Precision Calibration Kit. These kits may also be used for periodic validation of the ORBISPHERE 3658.

Communication and data management

The ORBISPHERE 3658 display is large, easy to read and can be lit up by pressing the light button on the key board. No conversion tables are needed as it directly indicates the gas concentration in the chosen unit.

Each instrument comes with a Windows software package, that enables a user to analyze the stored measurements and to configure the instrument.

Performance specifications

Sample	Temperature	-5 °C to 35 °C (23 °F to 95 °F)
	Maximum pressure	10 bars (145 psia)
	Recommended sample flow rate	100 ml/minute
Measurement	Range	0 –10 g/kg, 0 –4 V/V, 0 –6 bar
	Accuracy within ± 5 °C of calibration temperature	±1% of reading; ±0.025 g/kg or ±0.012 V/V or ±16 mbar (the greater of)
	Calibration	With High Precision Calibration Kit or CO 2 gas
	Response time (90%)	1 min
	Cycle time	20 s
Instrument	Power requirements	Batteries: two C-type , NiMH or alkaline, each 26 x 50 mm, 2.4 –3 volts total
	Batteries life time	15 hours continuous use, 3 weeks in "standby " mode (power OFF, standby purge ON)
	Digital interface	RS-232C: Baud rate=4800; Parity=None; Stop bit=1; Start bit=0; Flow control=None
	Data storage	500 data
	CE certification	EN 61326-1:1997 / A1:1998 / A2:2001 / A3:2003 Directive 89 / 336 / CE
	Mechanical connectors	Swagelock ¼ inch
	Enclosure	IP 65, stainless steel
	Temperature of use	0 °C to 40 °C (32 °F to 104 °F)
	Maximum conditions of humidity	95% for temperature lower than 30 °C 70% for temperature between 30 °C and 40 °C
	Dimensions (W x H x D)	130 mm x 210 mm x 220 mm
	Weight	3.5 kg (including flow chamber and sensor)
Accessories	High Precision Calibration kits	High level range between 3 g/kg to 8 g/kg of CO2 Low level range between 0 g/kg to 3 g/kg of CO2
	Flow meter	Graduation from 10% to 100%

