CO2-SS-20+ Analyser

CO2 + O2

User Manual

Table of Contents

1. Introduction

The CO2-SS-20+ is a handheld CO_2 and O_2 Analyser, which offers simple and highly accurate analysis with fast and intuitive touch screen interface.

The unit has been designed to measure, verify and validate CO_2 and O_2 levels in CO_2 Incubators, proving popular in medical departments, research and laboratories. This product is also used by field service engineers to repair, validate and calibrate CO2 incubators and equipment.

The unit offers the user an easy to use and accurate analysis tool, with the backup of after sales support and servicing packages directly from Euro-Gas.

Easy to use!
The design includes a fast and intuitive touch screen driven user interface. This advanced unit offers a host of advantages. It is user friendly for all personnel, extending the appeal of the CO2-SS-20+ into more traditional areas of measurement, including horticulture, air quality and safety.

It's fast!
Advanced sensor technology with extremely fast start and minimal warm-up time means the CO2-SS-20+ can complete its full check and measurement cycle before other analysers models on the market have even got their splash screen out of the way!

The CO2-SS-20+ CO_2 / O_2 Analyser is extremely easy to use but it is essential that these Operating Instructions are read prior to use.

Copyright

2. Getting Started

2.1 Case contents

1. CO2-SS-20+ CO_2 / O_2 Analyser
2. 1 metre of sample tubing with filter and 1 x Spare Filter
3. User Manual
4. Mains charger with UK AC head
5. USB A Male to Right Angle Mini USB
6. US, EU and AU Mains charger heads

Getting Started

2.2 Device Layout

1. On/Off Button
2. Gas Inlet Luer
3. Touch screen
4. USB/charging port
5. Tilt stand
6. Gas outlet

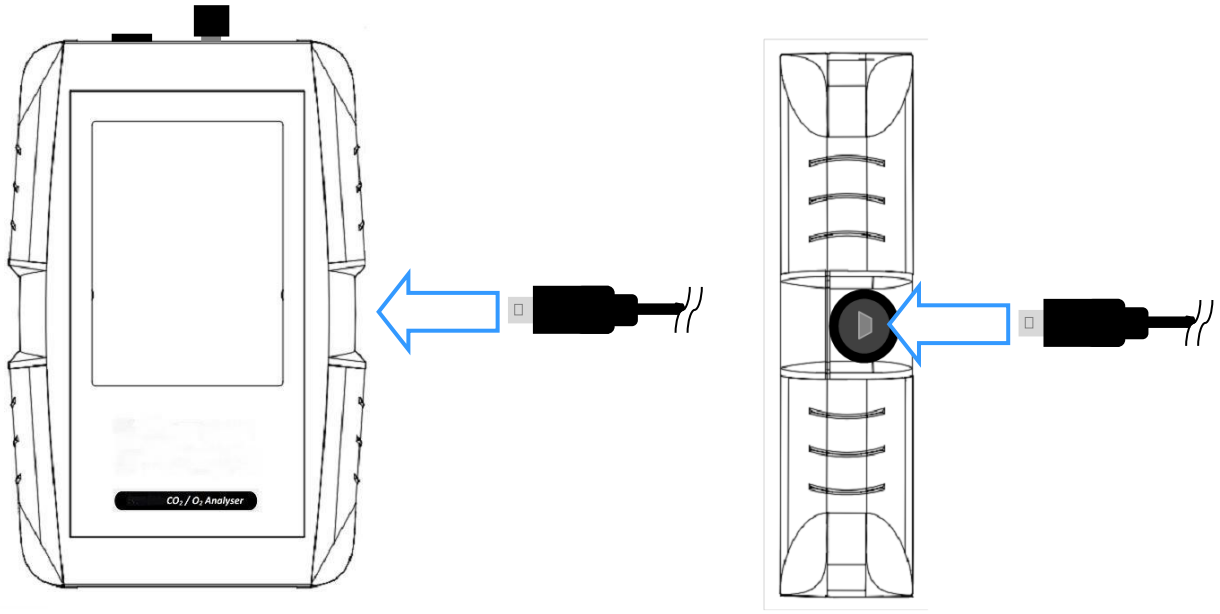
2.3 Charging the battery

Use the charger to charge the battery before using it for the first time.
A computer can also be used to charge the device by connecting via the USB cable.
NOTE: The device should always be switched **ON** whilst charging!
The device can be used whilst it is charging but it may take longer to fully charge the battery.

IMPORTANT NOTE: Use only Euro-Gas approved chargers, batteries, and cables. Unapproved chargers or cables can cause the battery to explode or damage the device.

Charging with the charger

Connect the USB cable to the USB power adaptor and then plug the end of the USB cable into the CO2-SS-20+ USB port.



IMPORTANT NOTE: Connecting the charger improperly may cause serious damage to the device. Any damage caused by misuse is not covered by the warranty.

Checking the battery charge status

When charging the device, the battery charge status icon will appear in the middle of the screen:

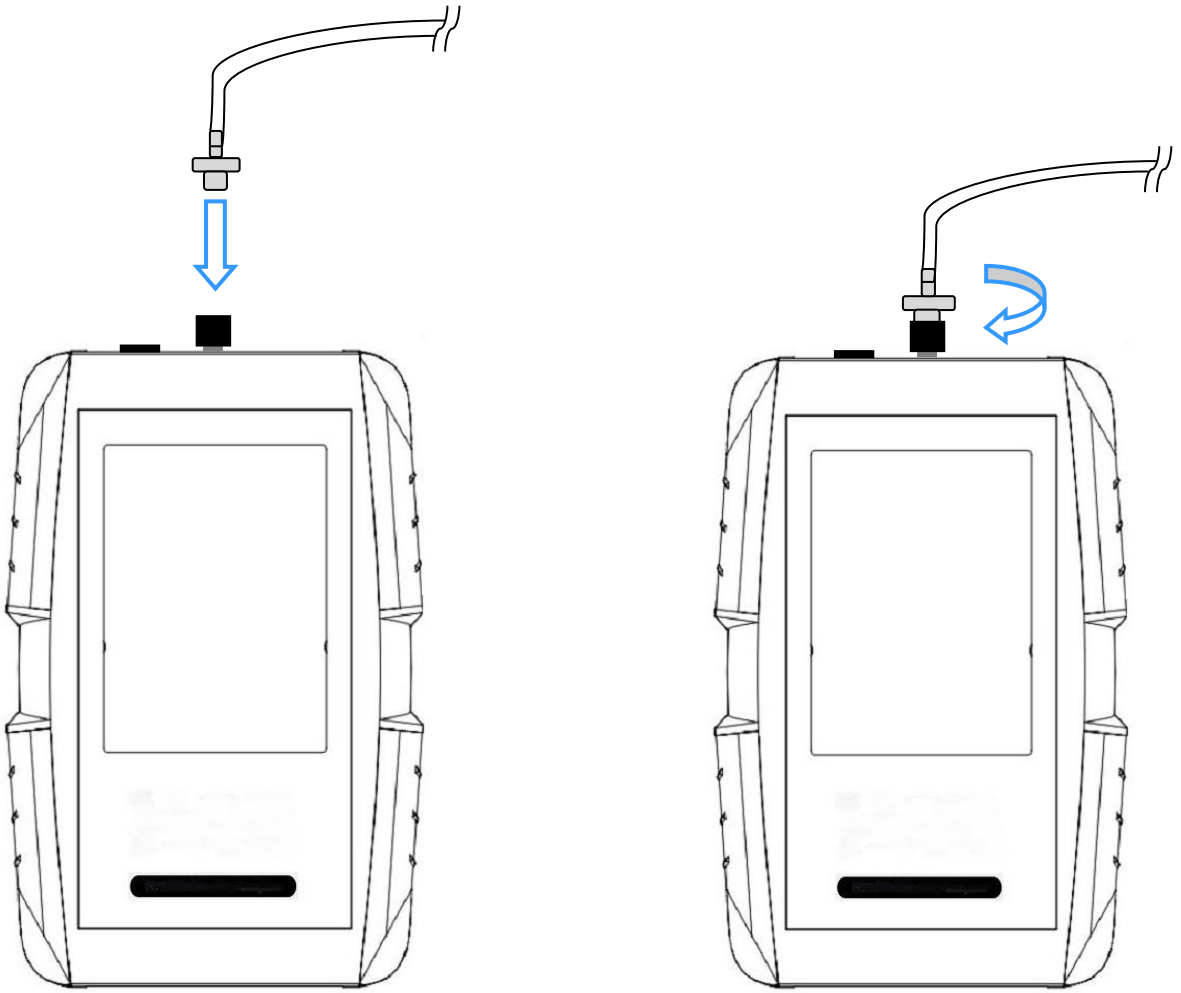
After fully charging, disconnect the device from the charger.

2.4 Connecting the tubing and filter

IMPORTANT NOTE: Always ensure that the filter provided is used when sampling.

Connect the filter and tube to the gas inlet luer connector as shown below by inserting the filter onto the luer and twisting the filter clockwise while turning the black luer lock anti-clockwise to lock.

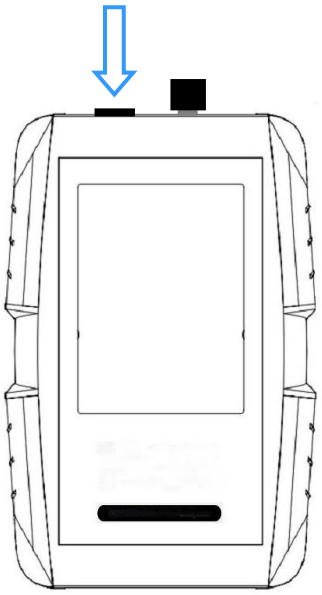
WARNING:
Take care to finger tighten only and never over-tighten the filter or use tools to tighten it in place.
A half turn is all that is required for the filter to lock and fix in position firmly and make a gas tight seal.



3. Operation

3.1 Switching the unit ON/OFF

Press the ⏻ button. The unit is now switched on.



After being turned on, the unit will start up within 3 seconds and the current CO_2 and O_2 measured values will be displayed.

To turn the Analyser off, press the ⏻ button again.

3.2 Indicator icons

The icons displayed on the screen provide information about the status of the device.

The icons listed in the table below are most common:

Icon	Meaning
	Battery power level
	Pump running
HOLD	Measurement ‘Hold’ enabled
	Battery level low connect charger

Operation

3.3 Home Screen layout

The Home screen of the Analyser is the starting point to access all of the device's features. It displays the currently measured "% CO2" level and "% O2" level, indicator icons, Hold, Menu and Pump buttons.

3.4 Using the touch screen

IMPORTANT NOTE: Use only fingers to use the touch screen.

- Do not allow the touch screen to come into contact with other electrical devices, as electrostatic discharges could cause the touch screen to malfunction.
- Do not allow the touch screen to come into contact with water. The touch screen may malfunction in humid conditions or when exposed to water.
- To avoid damaging the touch screen, do not tap it with anything sharp or apply excessive pressure to it with your fingertips.

To operate any of the on-screen buttons, tap it with a finger.

Operation

3.5 Sampling/Measuring Mode

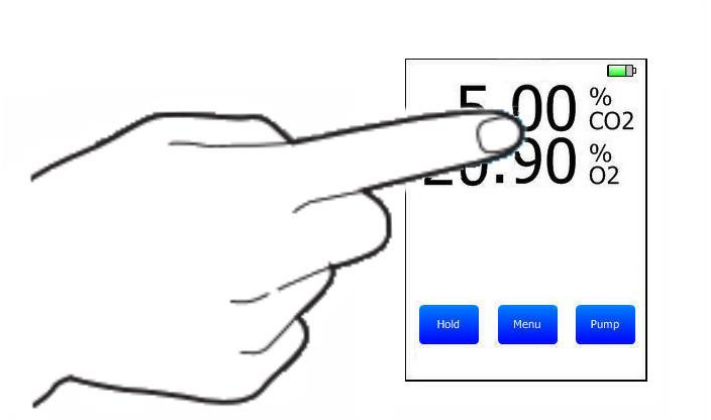
IMPORTANT NOTE: Always ensure that the filters provided are used and replaced regularly

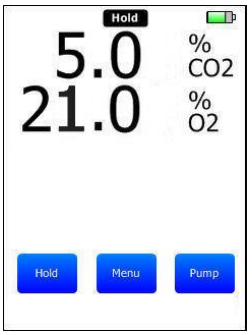
IMPORTANT NOTE: Before each day of use, we recommend that the CO2 and O2 are zeroed in air by following the "CO2 Calibrate in Air" and the "O2 Calibrate in Air" procedure in Section 4.1 and 4.4 on pages 11 and 13.

To turn on the integral gas pump, briefly press the Pump button.
To turn off the pump, again briefly press the Pump button.

3.6 Resolution adjustment

To adjust the measurement resolution from 1 decimal place to 2 decimal places, tap on the values displayed on screen.





3.7 Measurement procedure

When sampling the CO2/O2 level of a CO2 Incubator, connect the CO2-SS-20+ tubing to the sample port and press the Pump button to turn on the metering gas pump.
A sample of the atmosphere from the CO2 Incubator will then be drawn in through the tube and the CO2/O2 reading will start to change as the gas to be measured is drawn into the unit.
Monitor the reading until it stabilises. This will typically take around 90 seconds.
Take note of the reading and press the Pump button to turn off the metering gas pump.

IMPORTANT NOTE: As the atmosphere in an incubator is normally kept at a high humidity, we recommend that you DO NOT leave the analyser sampling on a humidified incubator for longer than 2 minutes. After sampling on a humidified Incubator for a long period, we recommend that you continue to run the analyser pump in air for 30 seconds to flush out any humidity which could have built up inside the sensor.

4. Calibration

IMPORTANT NOTE: Before each day of use, we recommend that the CO2 and O2 are zeroed in air by following the "CO2 Calibrate in Air" and the "O2 Calibrate in Air" procedure in Section 4.1 and 4.4 on pages 11 and 13.

NOTE: CO2 Zero Calibration
The CO2-SS-20+ can be calibrated in clean outside air or by using Nitrogen.

4.1 CO2 Calibrate in Air
IMPORTANT NOTE: It is essential to ensure that the unit is in clean air in an outdoor environment before attempting an air calibration and ensure that your exhaled breath does not affect the procedure. Failure to adhere to these guidelines could result in an incorrect calibration result.

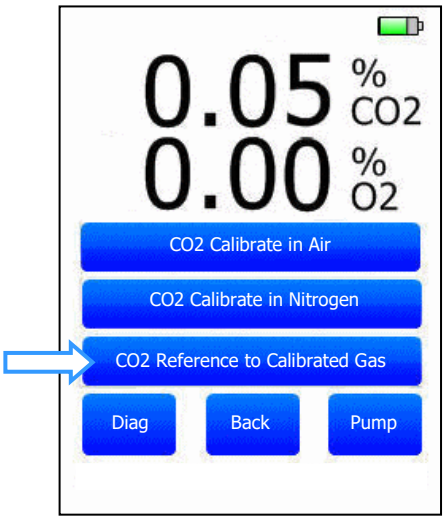
From the home screen press Menu
Press CO2 Menu.
Press CO2 Calibrate in Air and follow the on-screen instructions.
Press the Pump button and run the pump for 1 minute. When the reading has stabilised, press Calibrate and the CO2-SS-20+ will adjust the level to atmospheric CO2 0.04%.
Press the Pump button to switch off the pump.
Press the Back button two times to return to the home screen.

4.2 CO2 Calibrate in Nitrogen
From the home screen press Menu
Press CO2 Menu.
Press CO2 calibrate in Nitrogen and follow the on-screen instructions.
Connect a Nitrogen source with pressure set no higher than 0.3L/min and flow the gas for at least 90 seconds. When the reading has stabilised, press Calibrate and the unit will adjust the level to CO2 0.00%.
Press the Back button two times to return to the home screen.

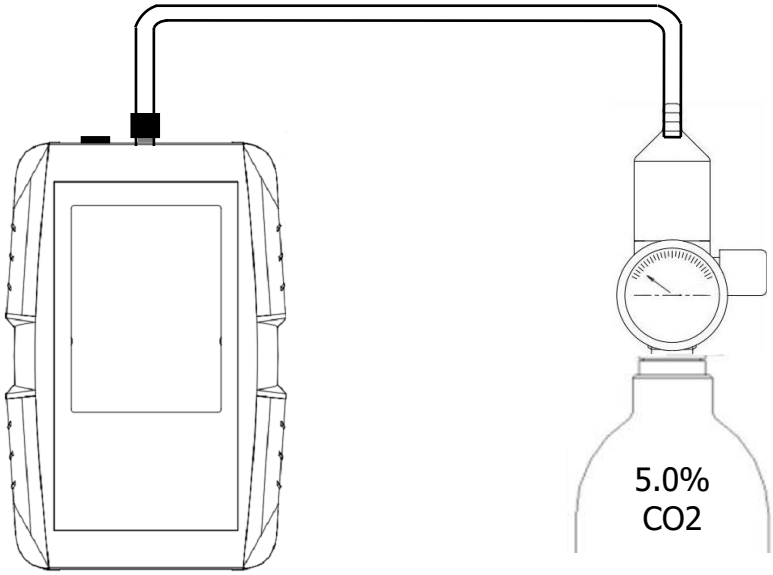
4.3 CO2 Reference to Calibrated Gas
NOTE: There should be no requirement to Reference the CO2-SS-20+ to a calibrated gas mixture between service intervals. Performing the "CO2 Calibrate in Air" option should keep the unit within specification. However, if you wish to verify the calibration using a calibrated gas mixture, it is essential to ensure that the unit is zeroed in clean air in an outdoor environment before referencing. Incorrect calibration of the CO2-SS-20+ could affect the measurement accuracy.

Follow the instructions below and refer to the diagrams on Page 12:
From the home screen press Menu
Press CO2 Menu.
Press CO2 Reference to Calibrated Gas and follow the on-screen instructions.
Connect a calibration gas supply with pressure set no higher than 0.3L/min and begin to flow the gas for at least 90 seconds.
The default calibration value in this screen is 5.00%.
NOTE: If you are using a gas mixture other than this value, then press Edit and use the numerical buttons to type in the cylinder value and press Enter to store.
When the reading has stabilised, press Calibrate and the CO2-SS-20+ will adjust the measured level to CO2 5.00%.
Press the Back button two times to return to the home screen.

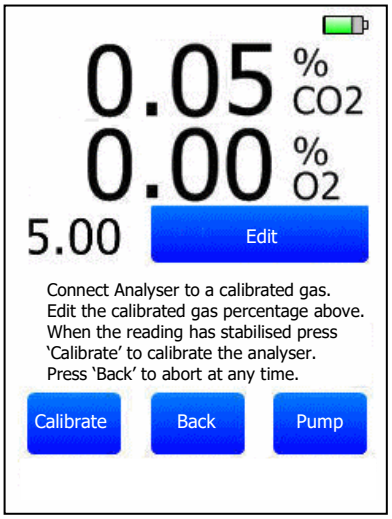
Press CO2 Reference to Calibrated Gas



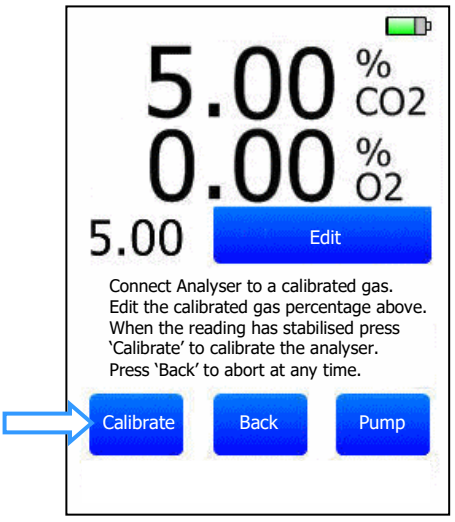
Connect a calibration gas supply, with pressure set no higher than 0.3L/min, and turn on the supply



Flow the gas for at least 90 seconds



When the reading has stabilised, press Calibrate and the Analyser will adjust the measured level to match the calibration gas value

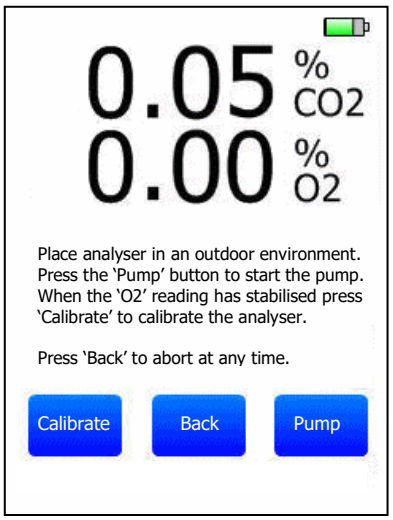


4.4 O2 Calibrate in Air

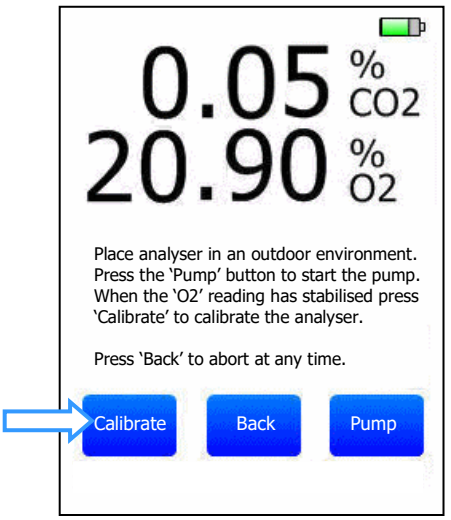
IMPORTANT NOTE: It is essential to ensure that the unit is in clean air in an outdoor environment before attempting an O2 air calibration.

From the home screen press Menu
Press O2 Menu.
Press O2 Calibrate in Air and follow the on-screen instructions.
Press the Pump button and run the pump for at least 90 seconds. When the reading has stabilised, press Calibrate and the CO2-SS-20+ will adjust the level to 20.9%.
Press the Pump button to switch off the pump.
Press the Back button two times to return to the home screen.

Run the pump for at least 90 seconds



When the reading has stabilised, press Calibrate and the Analyser will adjust the measured O2 level to 20.9%



5. Available Accessories

CO2/O2 Analysers & Accessories	Part Number
CO2-SS-20 CO2 Analyser kit supplied in hard carry case	2112B20-001
CO2-SS-20 CO2 Analyser kit supplied in basic cardboard box	2112B20-001B
CO2-SS-20+ CO2/O2 Analyser kit supplied in hard carry case	2112B20-003
CO2-SS-20+ CO2/O2 Analyser kit supplied in basic cardboard box	2112B20-003B
Spare Inlet filter pack (2 filters)	2112B20-005
Spare Inlet filter pack (5 filters)	2112B20-0055
Spare 1m length of sample tubing with filter	2112B20-006
Car charging adapter	2112B20-007
Spare mains charger kit	2112B20-008
Hard Carry Case	2112B20-CASE
0.3L/min Fixed Flow Regulator with Pressure Gauge. Suitable for use with test gas cylinders with 5/8" – 18 UNF (C10) outlets. For example, 110L non-refillable cylinders	2112B20-009
Annual Standard Calibration with Calibration Certificate. Includes standard functional check, stability testing and calibration. OR Annual Full Service and Calibration with Calibration Certificate. Includes thorough internal component testing and maintenance, service and stability testing, calibration, plus new replacement filter.	2112B20-SERV

6. Service, Factory Calibration, Technical Support & Warranty

Servicing

There are no user-serviceable parts inside the CO_2 / O_2 Analyser.
Unauthorised removal of the rear cover of the unit will invalidate the warranty.

Your CO2-SS-20+ CO_2 / O_2 Analyser should be regularly calibration checked. We recommend that the analyser is serviced at regular intervals, every twelve months.

The inline filter, connecting to the gas inlet port, must be replaced when the PTFE membrane becomes contaminated or saturated with moisture. New filters are available from Euro-Gas.

Technical Support

If you have questions about the use or features of your CO_2 / O_2 Analyser or have any issue, please email info@euro-gasman.com for technical support. Please include as much information as you can, along with the Serial Number of your unit. This will allow us to help you more quickly.

Warranty

Euro-Gas warrants this unit to be free of defects in materials and workmanship for a period of 12 months from date of manufacture.

If the unit malfunctions, it should be returned to the factory for evaluation. Upon examination by Euro-Gas, if the unit is found to be defective within the warranty period, it will be repaired or replaced at no charge. Our warranty does not apply to defects resulting from any action of the purchaser, including but not limited to: mishandling; improper interfacing; operation outside of design limits; improper repair; or unauthorised modification.

This WARRANTY is VOID if the unit shows any evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion, current, heat, moisture, vibration, improper specification, misapplication, misuse or other operating conditions outside of the manufacturer's control. The warranty excludes damages attributable to improper use, normal wear or defeats that have only a negligible influence on the device's value or suitability for use.

Liability for the functioning of the CO2-SS-20+ unit shall pass at all events to the owner or operator if the unit is improperly maintained or repaired or if it is used other than for its intended purpose. Euro-Gas accepts no liability for damage caused by failure to observe the above information. The warranty expires in the event that work is carried out by agents we have not authorised or if parts are used other than original spare parts.

Claims under the warranty may be made in all countries where this device is sold by authorised dealers.

In the event of any claim under the warranty, please return the device to us. The buyer shall bear the costs of transportation and the risk while the device is in transit. The execution of work under the warranty does not affect the warranty period in any way. The above information does not extend the conditions of warranty and liability contained in the Terms and Conditions of Sale and Delivery of Euro-Gas.

Packaging & Transportation

This unit is supplied together with these operating instructions. Please check the packaging for any damage when the product is delivered and report any damage immediately to the forwarding agency and dealer. Do not throw or drop, as the unit may be damaged or scratched. Protect against wet conditions, humidity, dirt and dust.

This device is a measuring instrument with sensitive electronic components. When returning it, please use the appropriate class of packaging according to the applicable regulations.

Disposal

Obsolete devices should be rendered unusable and disposed of according to the user's relevant local country regulations. Please contact your local authority for information about disposal.

EURO-GAS MANAGEMENT SERVICES LTD

CHURSTON HOUSE, BASCOMBE ROAD, CHURSTON FERRERS, DEVON, TQ5 0JJ, UK

☎: +44 (0)1803 844414
sales@euro-gasman.com www.euro-gasman.com