

factair

SAFEGUARD OPERATING INSTRUCTIONS



CE Denotes that
(where appropriate)
equipment conforms to
EEC Directives



FAC QAM 232 Issue C 05/23

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1 INTRODUCTION

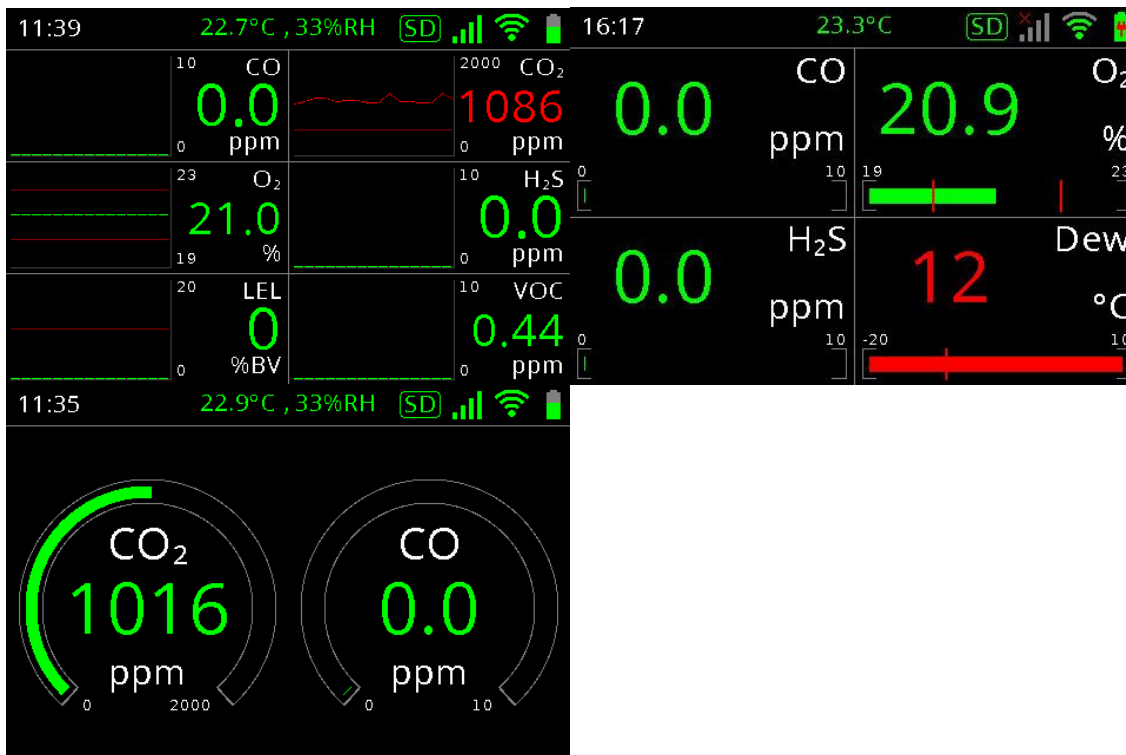
The SafeGuard is a configurable gas monitoring instrument which can accommodate up to 7 sensors. There are 2 models in the range, the Safeguard-A with an integral pump for monitoring atmospheric contaminants and the Safeguard-C with integral pressure regulator for monitoring compressed-air supplied between 1.5 and 10 barg.

The unit has a volt free contact to allow it to be used for a range of scenarios such as sounding an external alarm or shutting down equipment.

The instrument's alarm settings and its datalog file can be configured by the user over a wireless interface. The Safeguard has been designed for operation in challenging ambient light conditions, the large 3.5" LCD display shows live sensor readings. If any of these exceed the configurable alarms levels they automatically change colour to indicate which of them are now in alarm. At the same time a 360° edge light will show users who cannot directly see the screen that the unit is in alarm.

The instrument can be powered directly from a 110/230V mains supply via an adaptor (or 12/24V DC) and also incorporates rechargeable batteries as a back-up providing up to 8 hours of run time.

Depending on the number of sensors fitted the user can display the sensor readings in a variety of formats.



The SafeGuard can be configured using a local WiFi connection which is available from a smart phone/tablet device; this allows alarm readings and datalogging interval to be set. The datalog can also be downloaded as a CSV file and includes the minimum, maximum and average sensor reading during the user selected datalogging interval.

Future options includes the ability for multiple units to have mesh connectivity, so that if any SafeGuard goes into alarm it automatically triggers every other instrument in the group. With fully featured cloud based data logging over WiFi or a GSM connection and a remote alarm beacon.

Calibration and Warranty

Safeguards leave our factory with a 12-month warranty and calibration certificate. Our standard turnaround on annual calibration is 10-15 working days providing there is no major damage that requires an extensive rebuild. *Note:- Please download all stored data before returning the Tester to Factair.*

Factair also offer an exchange program where units reaching the end of their calibration period can be swapped with a replacement pre-calibrated unit. Please contact Factair for further details on this service.

Temperature Parameters

Storage: -10/+50°C

Operating Range: -5/+40°C

IMPORTANT – IT IS RECOMMENDED THAT YOUR SAFEGUARD IS RETURNED FOR RECALIBRATION AND SERVICING WITHIN 12 MONTHS FROM THE ISSUE DATE OF ITS CALIBRATION CERTIFICATE

2 EQUIPMENT LIST & KEY FEATURES



EDGE LIGHTING

The Safeguard has edge lighting which provides an easy notification on the current operating status.

Blue – A blue light running around the edge of the Safeguard shows that the unit is starting up and the sensors are still stabilising



Green – All sensor values are within the alarm parameters. This will pulse steadily whilst the unit is operational.



Red – A red light running around the edge of the Safeguard shows that the unit is in alarm. This can be because there is insufficient flow to the sensors and/or one or multiple alarms are outside alarm parameters



Orange – An orange light running around the edge of the Safeguard shows that the unit is in alarm but it has been muted.



EQUIPMENT LIST

Safeguard –A Atmospheric Model
Safeguard-A Instrument
230V Mains Power Supply Adaptor
2 x Particulate Inlet Filters
Operating Manual

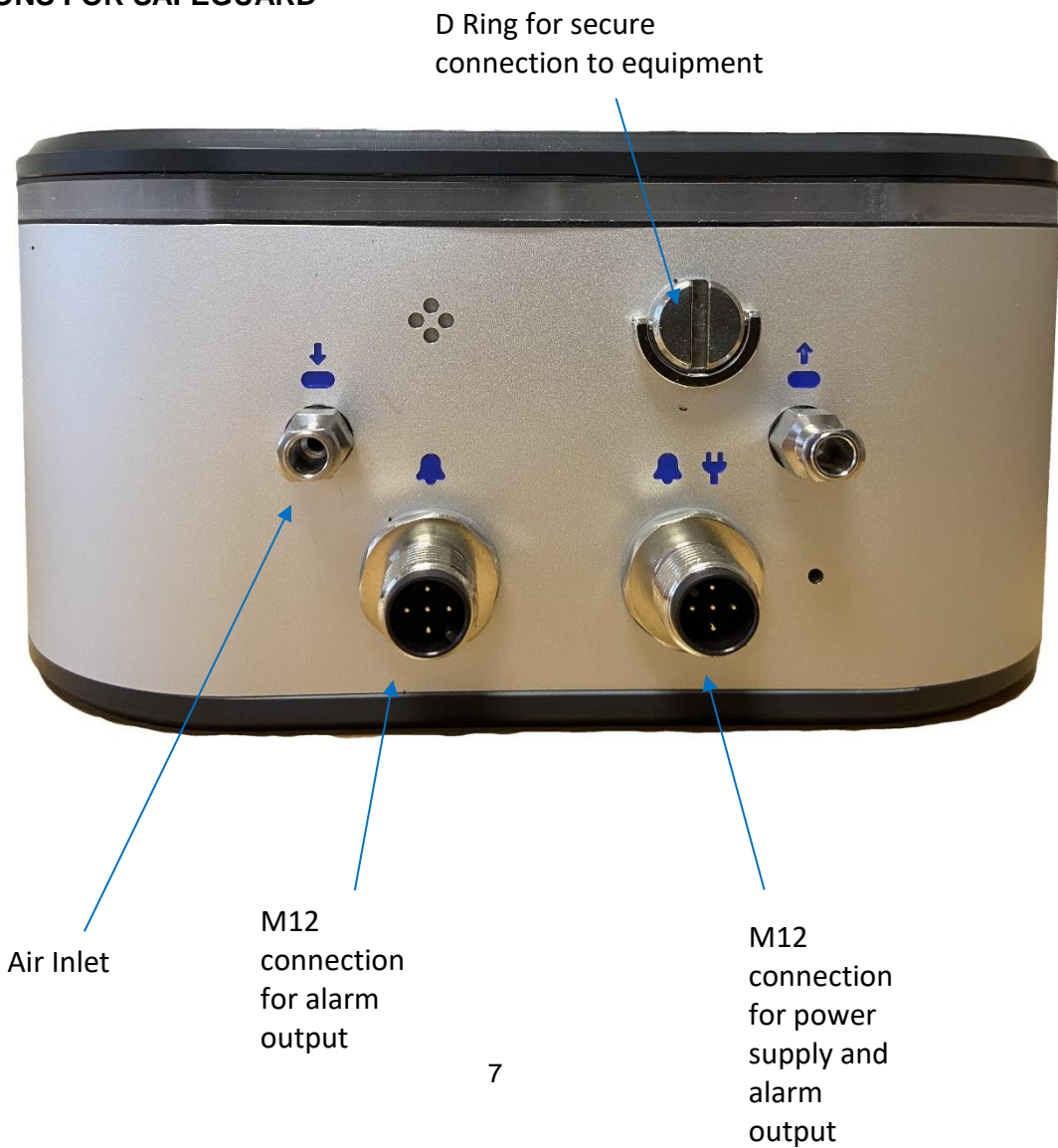
Safeguard-C Compressed-Air Model
Safeguard-C Instrument
230V Mains Power Supply Adaptor
Rectus 20KA socket to 6/4 nylon adaptor
Operating Manual

OPTIONAL ACCESSORIES

ASSY0013 – Safeguard to 6 way Amphenol mil spec plug

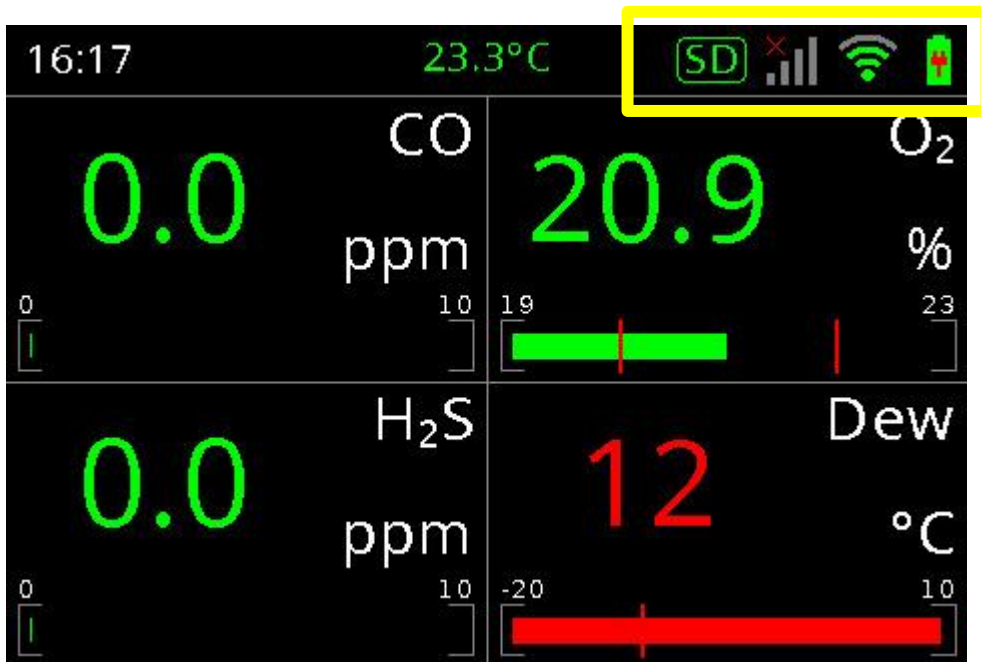


CONNECTIONS FOR SAFEGUARD

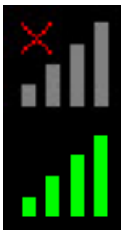


CONNECTIVITY

The SafeGuard main screen has the following connectivity symbols



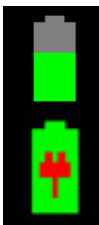
This symbol, as shown, confirms the internal micro SD card memory is functioning and datalogging the test results



The SafeGuard has an optional SIM card which can be used to send SMS text alerts when sensor readings enter an alarm condition. It can also be used to download remote firmware updates.



The SafeGuard can be joined as a station to your WLAN. This symbol displays current connectivity status and WiFi reception strength. Please refer to section 4.2.4 for further details.



The symbol displays current status of the rechargeable battery and if the SafeGuard is connected to a mains power supply.

3. TECHNICAL DATA

	Safeguard-A Atmospheric Monitoring Instrument	Safeguard-C Compressed Air Instrument
Pressure	50 metre draw 500 ml/min minimum flow requirement	Pressure: 1.5-10 barg
Connection	Luer Lock	Rectus 20KA
Dimensions	160mm long x 80mm high x 85mm deep	
Weight	0.5 Kg	
Fittings	Rear mounted magnets and D ring for secure attachment	
Power	12-24V DC	
Battery	8 hours capacity when fully charged	
Connections	2 x M12 connectors, one for alarm and power and one for alarm only	
Alarm volt free contact	12-48V AC/DC 2A Max	
Alarm sounder	≥ 85dB @ 10CM	
Datalogging	Up to 5 years capacity	

AVAILABLE GAS SENSORS

Sensors	Range	Sensor type
O ₂	0-25%	Electrochemical
CO	0-20 PPM	Electrochemical
CO ₂	0-5000 PPM	Non-Dispersive Infrared
VOCs	0-40 PPM	Photoionisation Detector (PID)
LEL	0-100%	Non-Dispersive Infrared
H ₂ S	0-10 PPM	Electrochemical
Relative Humidity (fitted as standard in SafeGuard-A)	0-100% RH	Capacitive polymer
Pressure Dewpoint (fitted as standard in SafeGuard-C)	-20 to +10°C	Capacitive polymer
Temperature Sensor (fitted as standard in both models)	-10 to +40°C	PTAT
If you require an alternative sensor please contact Factair		

4 CONFIGURING THE DEVICE

4.1 CONNECTING TO THE SAFEGUARD

The Safeguard is configured using a web interface which can be accessed via a smart phone, tablet or PC with WiFi connectivity.

Each Safeguard is provided with a password which can be found inside the case.

To connect to the Safeguard locate it through your WiFi as shown:

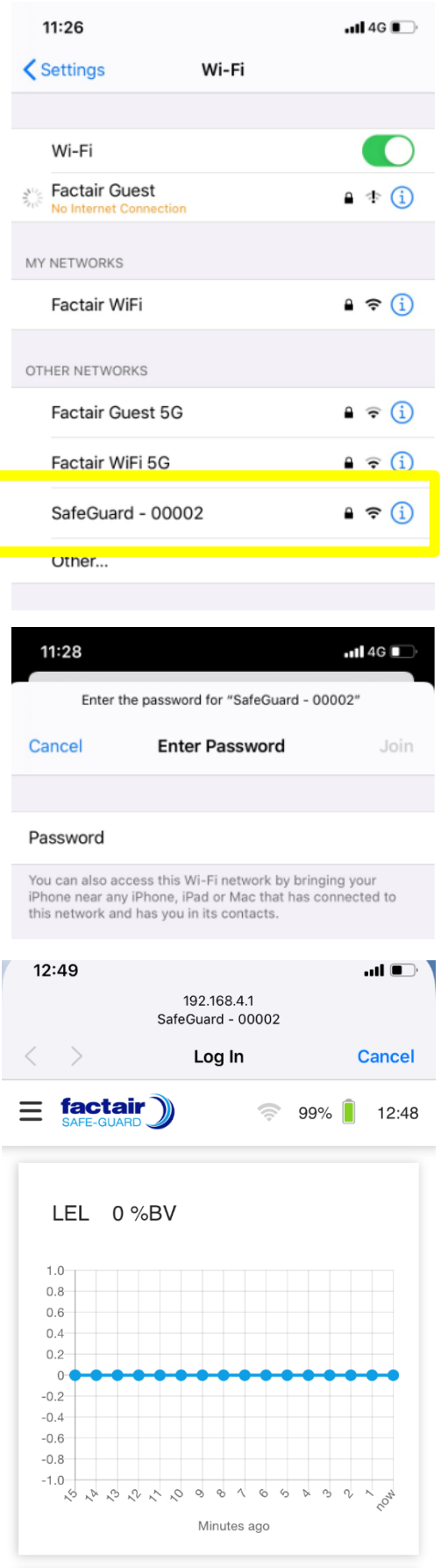
Then connect to the device and enter the password provided

Typically, a pop up will appear, either bringing you directly to the safeguard interface, or requesting you to “sign in to network”.

It may take a few moments to connect.

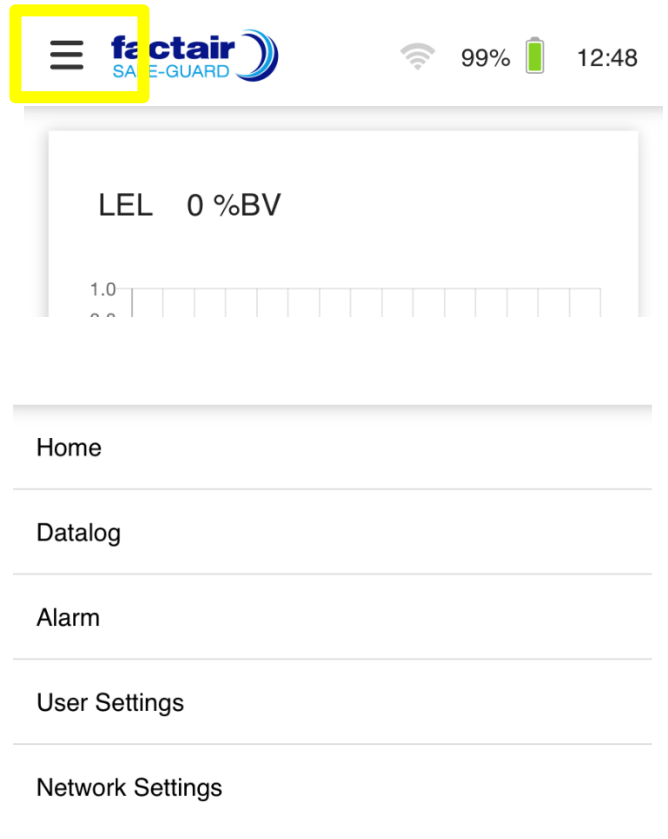
If this does not happen, you may need to disable mobile data, and open a browser. Visit the following address: “safeguard/”

This will then load the user interface which will display current sensor values together with readings over the last 15 minutes, scroll down to view all the sensors:



4.2 SETUP

To access the set up options press the following icon



This will then allow you to access the datalog, alarm, user settings and network settings sub menus.

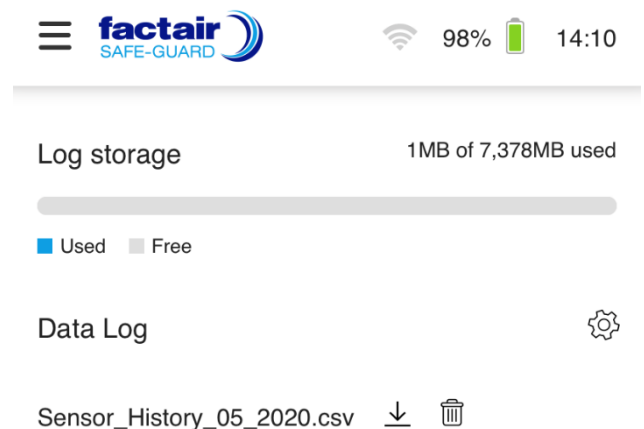
4.2.1 DATALOG

In this menu you can download datalog readings in a CSV format.

You can also delete datalog files.

The Safeguard can store up to 5 years of results. A new log is created monthly, allowing easy selection of data to be retrieved.

When downloading the datalog, to prevent a slow response, the easiest option is to complete the process when the device is connected to a WiFi network.



4.2.2 ALARM

In the alarm menu you can set upper and lower values and choose for which sensors the alarm is enabled.

In this submenu there are then a number of configuration options available including the option for an audible warn to sound when the alarm is activated.

It is possible to configure the mesh settings here, as outlined later on in this manual.

When you have finished configuring the settings select "Save Settings"

factair
SAFE-GUARD

98% 14:10

Alarm levels

Set the minimum and maximum levels for the sensor to trigger the alarm.

LEL

Low alarm	High alarm
The lowest sensor value available is 0	The highest sensor value available is 100
0	10
Enable <input type="checkbox"/>	Enable <input checked="" type="checkbox"/>

Alarm Settings

Alarm Group:

Username

Password

Switch external relay

Invert external relay

Activate sounder

Allow alarm to be muted

Activate nearby SafeGuards

Save settings

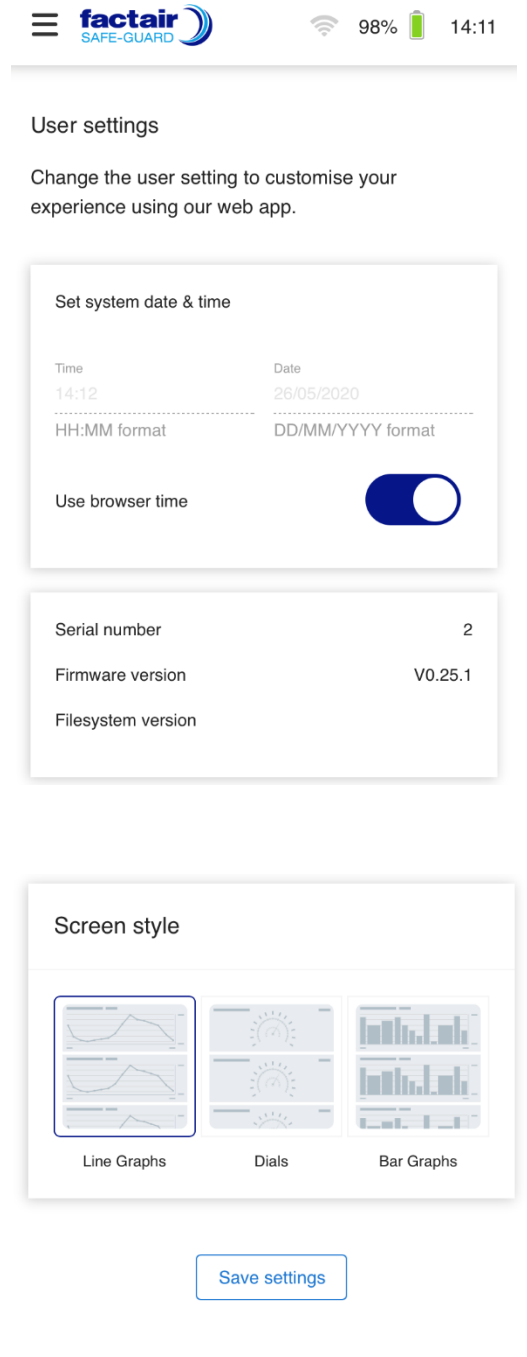
4.2.3 USER SETTINGS

User settings allows you to set the date time format and choose if you want the time to synchronise with your browser.

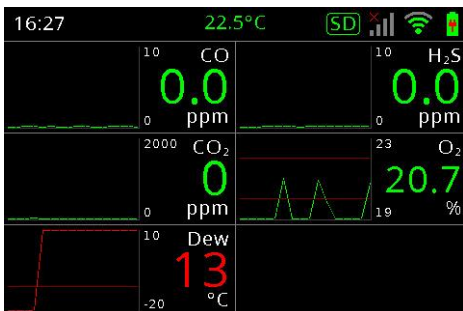
The instruments serial number and firmware version will be displayed.

In the menu you can select the screen style, and which sensors you wish to display. Please note, the “line graph” style displays all sensors configured inside the unit.

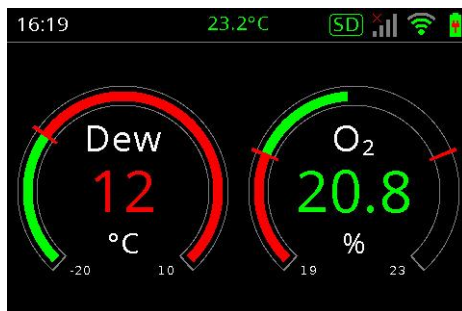
When you have finished configuring the settings select “Save Settings”.



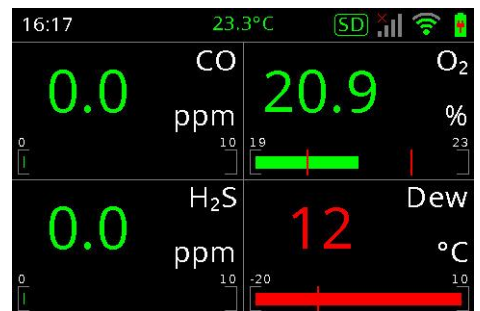
Line Graph



Dial



Bar Graph



4.2.4 NETWORK SETTINGS

The SafeGuard can be added as a station to your WLAN, this will then enable you to remotely connect to the instrument through other devices on the network. Before undertaking this, please check with your IT department to ensure this is permitted within your cyber security procedures.

To join the SafeGuard to your network first, using your SmartPhone, connect to the instrument, then enter the Network Settings menu.

Choose the network you wish to connect to and enter your security password.

The SafeGuard will then be join to your network and an IP address will automatically be assigned.

This IP address can then be used, by any other device on the network with a web browser to connect to the device.

The screenshot shows the Factair Safe-Guard network settings interface. At the top, there is a header with the Factair logo and 'SAFE-GUARD' text, a battery level of 84%, and a time of 14:17. Below the header, the 'Wireless network' section is displayed, with the instruction: 'Connect your safeguard to a wireless network automatically or manually.' Underneath, there is a 'Select a network' section with three network options: 'BTB-R9CHN9' (locked), 'BTWi-fi', and 'Factair WiFi' (locked). Below this, there is another header with the Factair logo and 'SAFE-GUARD' text, a Wi-Fi signal icon, a battery level of 94%, and a time of 13:08. The 'Wireless network' section is repeated with the same instruction. Below that, the 'Wifi connection' section is shown, displaying the network name 'IWS-Factair' with a Wi-Fi signal icon. A table shows the connection state and IP address:

Connection State	Wifi Connected
IP Address	10.0.5.99

Below the table, there is a link: [Forget this network](#).

5 OPERATING INSTRUCTIONS

5.1 INSTALLATION

The SafeGuard is provided with a D ring and also magnets mounted on the rear of the instrument.

The magnets are strong enough to secure the instrument on any metallic surface, allowing it to be easily located on equipment and repositioned as required.

5.2 OPERATING THE INSTRUMENT - SAFEGUARD-A ATMOSPHERIC MONITORING

Prior to use connect the particulate inlet filter as shown below -



The SafeGuard-A can either directly sample the atmospheric in its surrounding area or, for remote sampling, a hose can be connected to the particulate inlet filter and extended up to 50 metres.

The SafeGuard can operate for up to 8 hours on its internal rechargeable batteries but for extended use, connect the power supply provided to this M12 connection:



This connection can be used as a combined power and alarm connection.

Alternatively if you require a separate alarm output this secondary M12 connection should be used.



The SafeGuard has a simple one button operation. To turn on or off the instrument press and hold the button. The unit will initially display its serial number and firmware version:



It will then display the sensors fitted and when they were last calibrated. If the sensors are within their recommended calibration period the date will be in green, any sensors outside their calibration period will have a date in red.



The instrument will then enter a start-up mode for 2 minutes. During this period the sensor readings will be adjusting and then stabilising to the measured supply. During the start-up period sensor readings and the edge lighting will be in blue.



Press once to clear a notification or mute the alarm. Once the start up period has been completed the sensors will then display and datalog the live readings.

5.3 OPERATING THE INSTRUMENT - SAFEGUARD-C COMPRESSED-AIR MONITORING

The SafeGuard-C is suitable for monitoring compressed-air / breathing-air supplies up to a maximum of 10 barg.

Prior to use connect the compressed-air supply to the Rectus 20KA socket.



The SafeGuard can operate for up to 8 hours on its internal rechargeable batteries but for extended use, connect the power supply provided to this M12 connection:



This connection can be used as a combined power and alarm connection.

Alternatively if you require a separate alarm output this secondary M12 connection should be used.



The SafeGuard has a simple one button operation. To turn on or off the instrument press and hold the button. The unit will initially display its serial number and firmware version:



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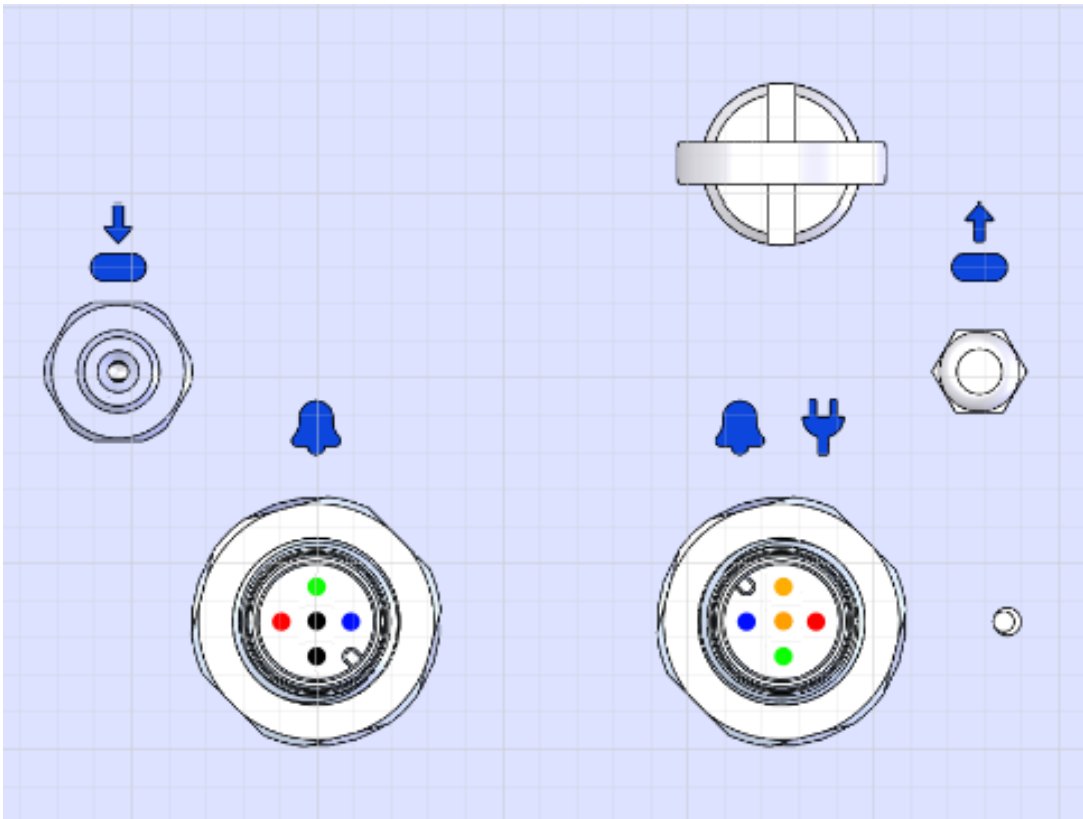


The instrument will then enter a start-up mode for 2 minutes. During this period the sensor readings will be adjusting and then stabilising to the measured supply. During the start-up period sensor readings and the edge lighting will be in blue.



Press once to clear a notification or mute the alarm. Once the start up period has been completed the sensors will then display and datalog the live readings.

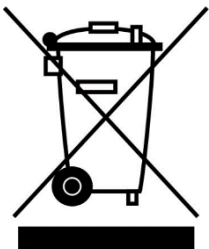
5.4 EXTERNAL M12 CONNECTIONS



- NOT CONNECTED
- **ALARM NORMALLY OPEN**
- **ALARM NORMALLY CLOSED**
- **ALARM COMMON**
- **12/24 VDC POWER INPUT (UN-POLARISED)**

Appendix

Disposal



This product must not be disposed of as household waste as indicated by the adjacent symbol.

You can return this product to Factair free of charge. For information please contact your distributor or Factair.

factair

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