

USER MANUAL
DISPLAY MODULE
MIR-V3



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Elaborated and approved in Revision 02 - 05/2023 by the Quality Department. Consists of 16 pages.

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WARNINGS



Read carefully the user manual before commissioning or operating.

- During the construction, installation or maintenance of the installations, remote sensors must be protected so as to prevent the sensor from damage resulting from work such as welding or paints and should be installed as late as possible, but always before there is a risk of the presence of gas or vapor. If remote sensors are already installed, during the works they must be protected by an airtight packaging and clearly pointed out as not in operation.
- Devices must be protected from vibration, against the risk of mechanical impact and direct exposure to sunlight.
- Do not submerge in water or other liquid under any circumstances.
- Note that the failure to observe these basic precautions can lead to equipment malfunction, the manufacturer is not liable.
- A bad connection can result in a failure both in the module and in the associated equipment.
- Do not handle the device while it is powered.

WARRANTY

- Warranty two (2) years is given by C.A.E., S.L., manufacturer of FIDEGAS®, against any manufacturing defect from the date of purchase and cease to be effective if this equipment is not installed, used and maintained according to the guidelines stated in the User Manual.
- This warranty becomes void in cases where it is found that:
 - a) The equipment has been repaired, tampered with or external accessories have been added, with the involvement of people outside our Authorized Service Center.
 - b) It has suffered any impact or damage.
 - c) The serial number has been altered or modified and does not match with our records.
- C.A.E., S.L., manufacturer of FIDEGAS®, is not liable for damages that may arise as result of misuse of the equipment.
- All the necessary efforts have been made to ensure the accuracy of the information provided in this document. However, C.A.E., S.L., manufacturer of FIDEGAS®, reserves the right to make improvements or modifications to this equipment without prior notice.
- Any failure to follow these instructions automatically voids the warranty and the expenses are responsibility of the user.

QUALITY CONTROL



This product is designed, manufactured and commercialised under the honesty of the after-sales service, controlled within a Quality Management System certified according to ISO 9001:2015 and audited by AENOR.

SUPPORTED PRODUCTOS

- S/3 and S/2 remote sensors
- S/3-2 remote sensors

1. GENERAL

The MIR V3 is an accessory for the remote sensors of the family Ref. S/3-2, S/3 or S/2 (T1, T2, IR, SERIES), which allows the gas concentration measured by the remote sensor to be shown on a display.

The way the information is represented changes according to the type of sensor connected (see Table 1).

Depending on the sensor connected, the display indicates the value of the 4-20 mA signal of the sensor or the value of the concentration read via serial communication. In both cases the module maintains the 4-20 mA output signal of the sensor, therefore, in addition to being able to operate autonomously, it can be connected to a Ref. CA Control Unit FIDEGAS® or to any other system that operates with 4-20 mA input.

In addition, depending on the model ordered, it is also available a potential-free output (LP) NC-NO or an acoustic buzzer.

The display module has three magnetic pushbuttons "P1", "P2" and "P3" accessible from the outside with the magnet supplied.

Both the display module and the associated sensor are supplied in the same flameproof enclosure and are therefore suitable for installation in ATEX zones.

2. OPERATION

At start-up, during the warm-up period the firmware version of the display module is displayed. This is followed by the firmware version of the connected sensor via serial, if applicable.



Display firmware version: 3.0



Sensor firmware version: 2.3

Once the warm-up time is over, the MIR V3 has 2 operating modes, the normal operating mode and the configuration mode.

2.1 NORMAL OPERATION MODE

Access to normal mode is automatic after the warm-up period, and the values obtained by the sensor are read and displayed.

The way the measurement information is represented varies according to the value of the full scale:

Full scale	Resolution	Example	Representation
< 10	Two decimals (X.XX)	IR CO ₂ sensor with 2 %v/v full scale Representation of the alarm at 0.4 %v/v	0.40
< 100	One decimal (XX.X)	S3-T2 O ₂ sensor with 25 %v/v full scale Representation of the alarm at 19.5 %v/v	19.5
< 1000	Integer (XXX)	S3-T1 CO with 300 ppm full scale Representation of the alarm at 60 ppm	60
>1000	Divided /10 (XXX)	S3-T1 NH ₃ with 5000 ppm full scale Representation of the alarm at 1000 ppm	100.

Table 1: concentration representation

Decimal in the indication

When representing types <10 and <100, it is possible to enable and disable the indication with decimal values. For this purpose, in normal operation and if there are no faults, keep P2 pressed until the decimal point appears or disappears.

Alarm

In case of alarm, the flashing indication "A" and the value of the concentration reading are displayed.

Alarm silence

It is possible to silence the alarm by pressing and holding P3 until the sound is deactivated. To restore the sound, press P3 again until the sound is activated.

Reset

The high level alarm can be configured to operate with latching (manual reset) or without latching (automatic reset). In the case of latching, once the detection level below the alarm level is restored, it is necessary to position the magnet on P3 to exit this state. The indication that the detection levels are lower than the alarm level is carried out by displaying the indication "A" in a fixed and non-flashing way.

Over range

When the detection level exceeds the full scale of the detection range, the over-range warning "A Our" is activated.

Fault indication

The MIR V3 has a fault detection system which is displayed with the indication A FAU. Only when the display module is connected to a remote sensor via serial communication, it is possible to display the fault code by pressing P2 or P3.

Code	Fault	Code	Fault
001	Communication failure of I2C bus	032	Sensor power supply failure
002	Sensor failure	064	Sensor program execution failure
004	Sensor Eeprom memory failure	128	Sensor CPU failure
008	Sensor program memory failure	254	Sensor communication failure
016	Sensor RAM memory failure	255	Remote indicator failure

Table 2: failure codes

2.2 CONFIGURATION MODE

In case the display module is not configured, it enters directly into Configuration Mode (Page 0). To enter Configuration Mode from normal operating mode, press and hold P1 until the first configuration page is displayed (Page 0).

Page 0: Communication Type Selection: the display module can be connected to the remote sensor via serial communication or via 4-20 mA signal. The type of communication between the remote display and the sensor must be selected.

- P2 selects 4-20 mA signal. The display indicates "4.20 "
- P3 selects Serial communication. The display indicates "Ser"
- P1 confirms selection

Page 1: Sensor type selection: on this page you select whether the current signal reading is rising (0-FE) or falling (21-0).

- P2 selects sensor type 21-0. The display indicates "21.0"
- P3 selects sensor type 0-FE. The display indicates "0.FE"
- P1 confirms selection

Page 2: Enter sensor full scale (FE) value: the value is entered by sequentially setting the hundreds, tens and units values. The selected digit is displayed with the decimal point corresponding to that digit.

- The P2 and P3 pushbuttons raise and lower the value of the selected digit respectively.
- P1 confirms the value and goes to the next digit.

For sensors with full scale > 1000, a multiplier of 10 must be activated. Once the value of the units is confirmed, the point is shown in the digit of the page number and pressing P3 activates the multiplier. Activation of the multiplier is indicated by the decimal point.

Example: assignment of the value **1500** as full scale:

1. Set the value of hundreds (1) and press P1.

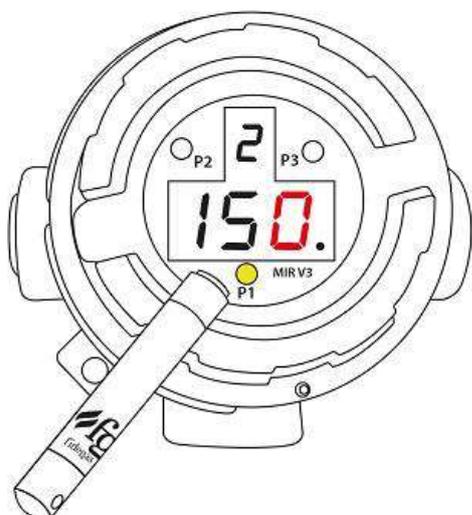


2. Set the tens value (5) and press P1.



4. Set the value of the units (0) and press P1.

5. Activate the multiplier (dot) and press P1.



Page 3: Set the alarm value of the sensor (low level alarm, only if the sensor is connected via serial communication): the value read by the sensor is displayed as the alarm value

- P2 decreases the value
- 3 increases the value up to a maximum of the full scale value
- P1 confirms selection

Page 4: Remote sensor LP output configuration (only if the sensor is connected via serial communication)

- P2 selects Normally Open (NO) output
- P3 selects Normally Closed (NC) output
- P1 confirms selection

Page 5: Configuration of high level alarm, rising or falling edge

- P2 selects falling edge, the alarm is triggered below the selected alarm value: “sub”
- P3 selects rising edge, the alarm is triggered above the selected alarm value: “up”
- P1 confirms selection

Page 6: Alarm value of the display module (high level alarm): it is possible to set an alarm value to the display module.

- P2 decreases the value to a minimum equal to the alarm value of the sensor
- P3 increases the value up to a maximum of the full scale value
- P1 confirms selection

Page 7: Selection version with LP output or with buzzer: depending on the version required, the display module can have an LP output or a buzzer and the associated alarm can be latched (manual reset) or not latched (automatic reset).

- se P2 or P3 to move between the 4 possible options:
 - 1) LP output not latched: indicates “lp”
 - 2) LP output latched: indicates “lp” and a dot in the number 7
 - 3) Buzzer not latched: indicates “bep”
 - 4) Latching buzzer: indicates “bep” and a dot in the number 7
- P1 confirms selection

Indication of serial communication errors

The MIR V3 can indicate failure of data transmission between the display module and the remote sensor connected via serial communication.

- E.r.U.: indicates that the value sent is wrong.
- E.r.C.: indicates communication error.

3. CALIBRATION PROCEDURE

It is possible to calibrate the remote sensor with the display module when it is connected to a sensor via serial communication. In configuration mode, access the corresponding pages (page 8 and page 9).

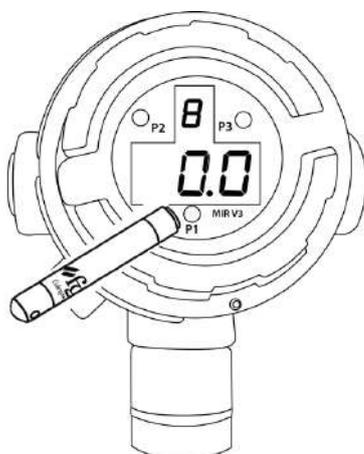
Página 8: air calibration



Press and hold P2 until P1 blinks
P2 remains on.



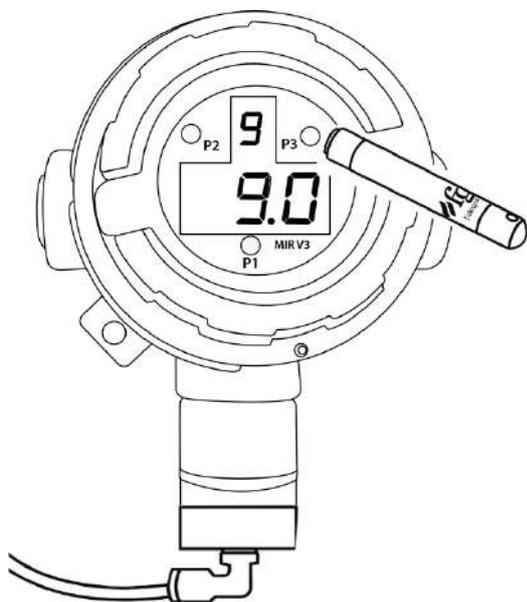
To correct the reading, press and hold P3 until P1
blinks and P2 is off.



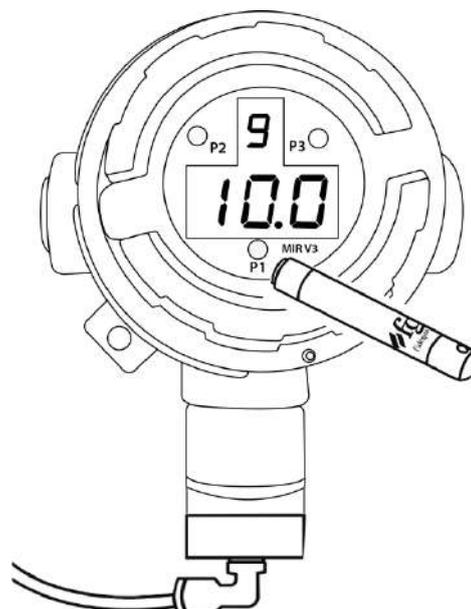
P1 confirms

Page 9: gas calibration

Apply gas according to P-SAT-02 procedure



P2 decreases the value of the reading
P3 increases the value of the reading



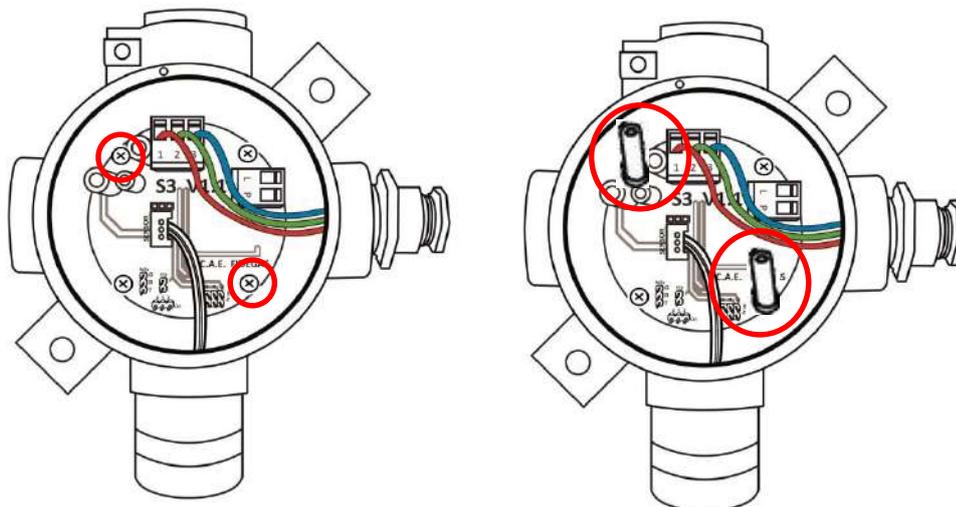
P1 confirms

Note that it may take several presses to see the change in value.

4. INSTALLATION

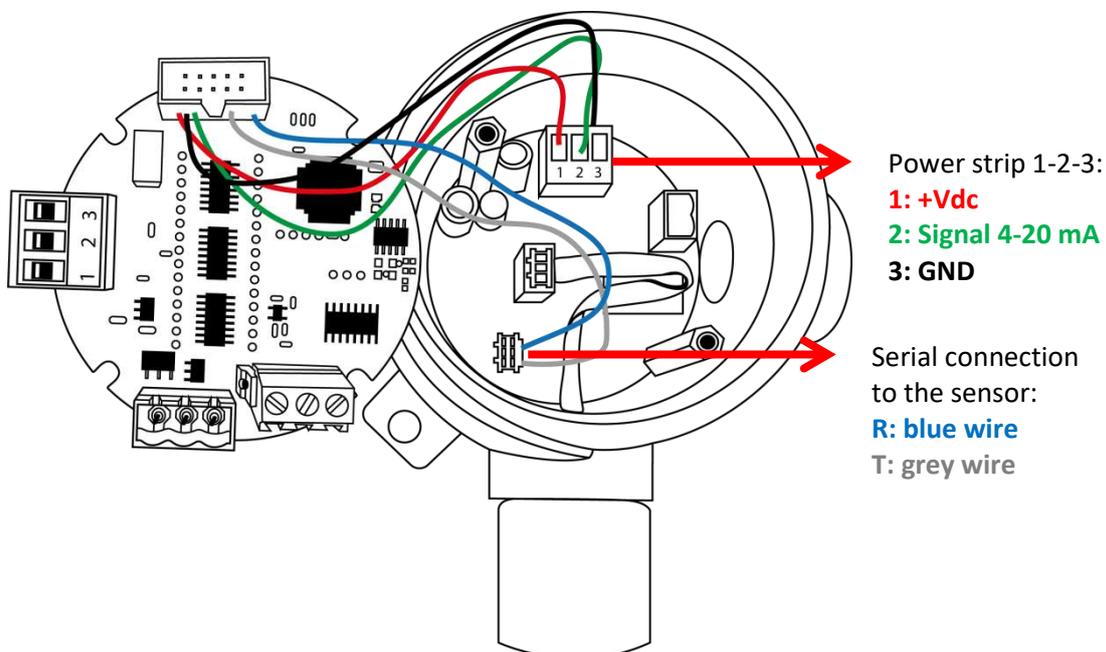
If you have acquired the display module as an accessory and want to connect it to a S/3 remote sensor, please follow the steps below:

1. Unscrew the cover.
2. Disconnect the connection cable to the control unit.
3. Unscrew the PCB, replacing the screws with the turrets supplied.



Replace screws by turrets

4. Connect the display module to the remote sensor, respecting the polarity of the terminals.



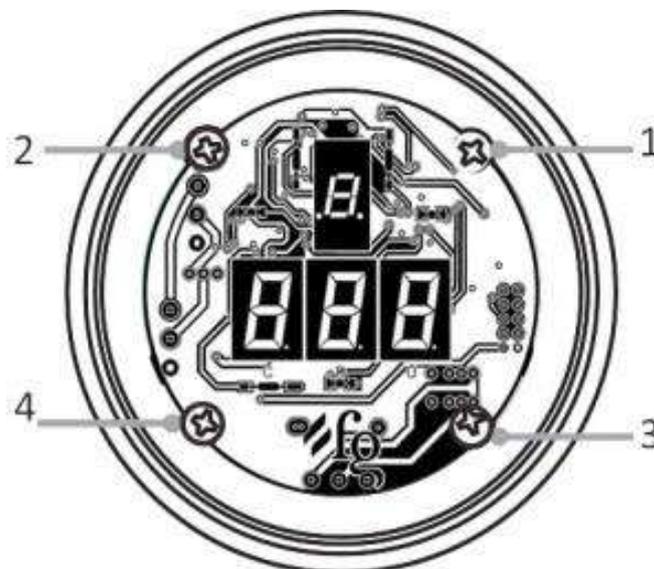
Connection of the display module to the remote sensor via serial connection

5. Make the electrical connections as explained in the following section CONNECTIONS.
6. Reassemble the assembly and power the equipment.

5. CONNECTIONS

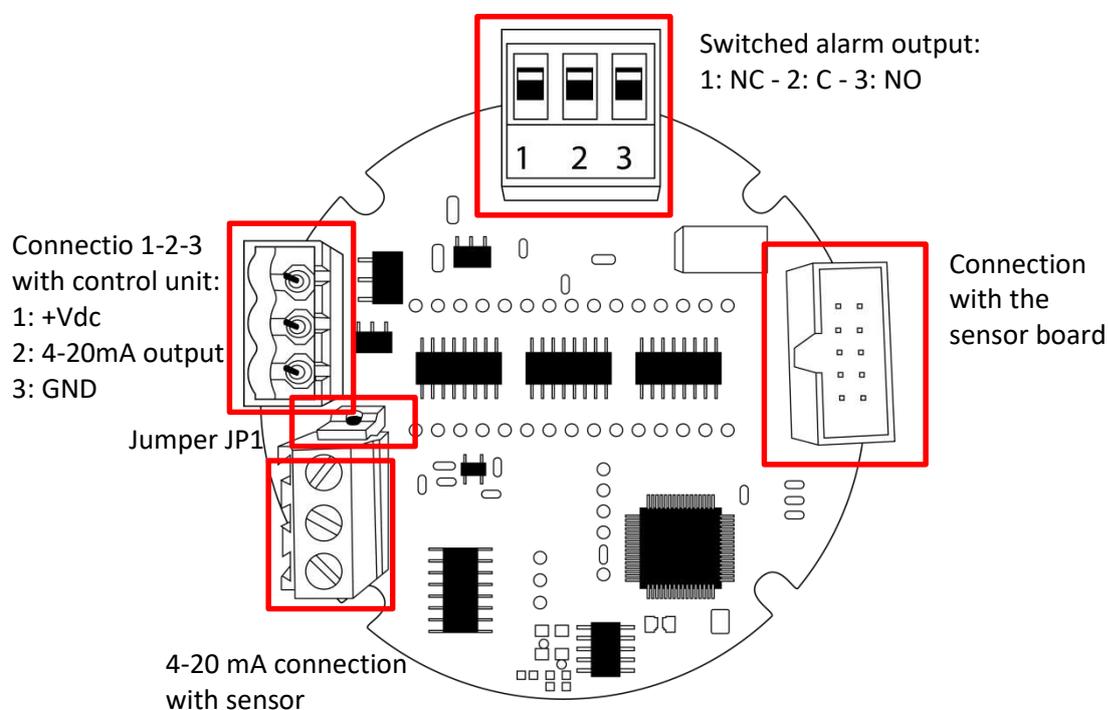
If you have acquired an S/3 remote sensor with integrated display module, you only need to make the electrical connections as shown below:

1. Remove the cover and the front cover.
2. Aflojar el tornillo 2 y quitar el tornillo 3.



Remove the display module

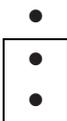
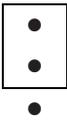
3. Remove the display module and make the electrical connections (no power supply).



Connections

Jumper JP1 positions

Depending on the function of the 4-20 mA signal and the connection mode of the display module, the jumper has 3 positions to choose from:

Position 1	Position 2	Position 3
4-20 mA output enabled MIR serial connectivity	4-20 mA output disabled 4-20 mA connectivity	4-20 mA output enabled 4-20 mA connectivity
JP1 	JP1 	JP1 

6. TECHNICAL CHARACTERISTICS

Operating modes	Normal and configuration
Supply voltage	(12 to 24) Vdc
Fault signal	0 mA in the output, remote sensor signal failure detection
Consumption	50 mA
Max values LP output	30 Vdc, 1 A
Temperature	Same as the remote sensor
Weight	50 gr
	Integrated in the explosion-proof enclosure of the remote sensor
	Suitable for installation in ATEX explosive atmospheres



EU DECLARATION OF CONFORMITY

MANUFACTURER: Comercial de Aplicaciones Electrónicas, S.L.

ADDRESS: Paseo Ubarburu 12 - 20014 San Sebastián - Spain.

PRODUCT DESCRIPTION:

Display Module MIR V3

The above mentioned product is declared, under our sole responsibility, to be in conformity with the provisions of the following directives:

1. **Directive 2014/35/EU** Electrical equipment designed for use within certain voltage limits (Low Voltage) and repealing Directive 2006/95/EC (OJEC 29/03/2014 - Series L, No 96/357).
2. **Directive 2014/30/EU** Electromagnetic compatibility and repealing Directive 2004/108/EC (OJEC 29/03/2014 - L series, No 96/379).

This conformity is assumed by reference to the following harmonised standards:

- **EN 60335-1:2012** Household and similar electrical appliances - Safety - Part 1: General requirements.
- **EN 61000-6-1:2007** Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:2005).
- **EN 61000-6-3:2007+A1:2011** Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006).

In San Sebastián,

JULIO BOUZAS FUENTETAJA
GENERAL MANAGER



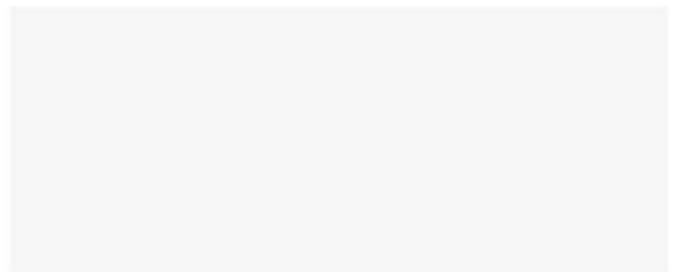
Respectful and Solidarity with the Environment

This product complies with the European Directive 2012/19/UE WEEE, transposed to the Spanish legislation through RD 110/2015 WEEE (Waste of Electrical and Electronic Equipment). The Directive provides the general framework valid throughout the field of the European Union for the removal and reuse of waste from electrical and electronic equipment. Do not throw this product in the trash at the end of its life, take it to your FIDEGAS® distributor or to the collection points authorized by the town halls.



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