SensoIRIS MIO22M IP65

Intelligent analogue addressable fire alarm module with 2 inputs, 2 monitored outputs with built-in isolator module

CE 23
1293
DoP No: 124
Tested by EVPU

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ATTENTION: Read carefully this installation Instructions before installing the device! This manual is subject to change without notice! The addressable module SensoIRIS MIO22M IP65 must be connected only to fire panels supporting TTE communication protocol!

SensoIRIS MIO22M IP65 is an addressable input-output module. The module monitors 2 analogue input signals and controls 2 relay outputs.
The outputs can be set to be monitored or non-monitored via jumpers on the module's PCB. The active state of the monitored outputs can be programmed for operation in Normal or Inverted Mode via the panel programming menus. The module is powered on from the fire panel and can be controlled via the communication protocol. The module has a built-in isolator module which when used allows continuous operation of the loop in case of module's failure and without need of using additional isolator modules.

TECHNICAL SPECIFICATIONS

Operating voltage . . . . 16 ÷ 32VDC
Outputs, electrical characteristics (max) . . . . DC 30V/2A; AC 125V/0.5A
Consumption - two non-monitored outputs:
- Nom. current consumption . . . . < 0.87mA@27VDC
- Current consumption with 1 LED on 3.9mA
- Current consumption with 2 LEDs on . . . 7.2mA
Consumption - two monitored outputs:
- Nom. current consumption . . . . < 1.03mA@27VDC
- Current consumption with 1 LED on 4.15mA
- Current consumption with 2 LEDs on . . . 7.2mA
Communication protocol. . . . . TTE
Material - cover/enclosure . . . . PC/ABS
Color - cover/enclosure . . . . black transparent/white

TECHNICAL SPECIFICATIONS OF A MONITORED OUTPUT

External power supply (U_{ext}) . . . . 18 ÷ 30VDC
Monitored (potential) output voltage . . . . U_{ext} - 0.5V
Max. current consumption at activation 2A
Max. switching power 60W, 62.5VA

ISOLATOR MODULE TECHNICAL SPECIFICATIONS

Maximum line voltage - Vmax 32V
Nominal line voltage - Vnom 28V
Minimum line voltage - Vmin 16V
Maximum voltage at which the device isolates - Vso max* 7.5V
Minimum voltage at which the device isolates - Vso min* 5.9V
Maximum voltage at which the device reconnects - Vsc max** 6.7V
Minimum voltage at which the device reconnects - Vsc min** 5V
Maximum rated continuous current with the switch - Ic max 0.7A
Maximum rated switching current (e.g. under short circuit) - Is max 1.8A
Maximum leakage current with the switch open (isolated state) - Il max . . 16mA
Maximum series impedance with the switch closed - Zc max . . . . 0.12Ω@28VDC; 0.15Ω@16VDC

* Note: Switches from closed to open
** Note: Switches from open to closed

! Dimensions

125mm | 191mm | 61mm | ~222mm | max. 100°

Maximum angle of cover opening (left side hinge mounted).
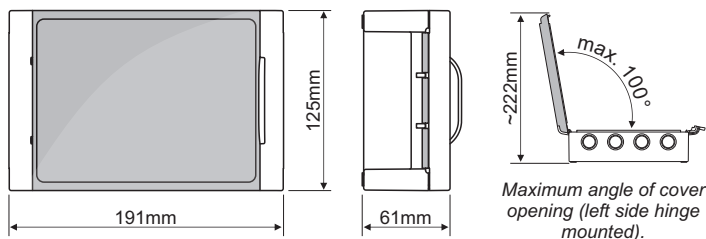
! Included spare parts

x 8 Plastic caps Ø20mm, see section 3.

x 4 Securing screws 2.9x13 DIN 6954, see section 6.

x 7 Resistors 56k ±5% 0.25W, see section 8.

2(↓) 2(↑)M **x 1** Sticker (transparent base and white symbols), 70x15mm, with description of the module's type: MIO22M - "2" Inputs / "2" Monitored Outputs

x 1 Rubber sealant, round cross section Ø2.5mm, length ~580mm, factory mounted on the back side of the front cover - see section 5


! Installation

IP65*

* The declared IP65 protection is achieved when using the rubber gasket sealant (factory mounted on the back side of the front cover - see section 5) and IP65 or higher rated cable glands for cable running (not included).
After ending the installation, the unused openings for cable running must be closed with the provided plastic caps for IP65 complete protection of the box.

-10°C ÷ +60°C
(93±3)%@+40°C

~191g

0.4-2.0mm²

Indoor and Outdoor use

### 1 Opening of the box
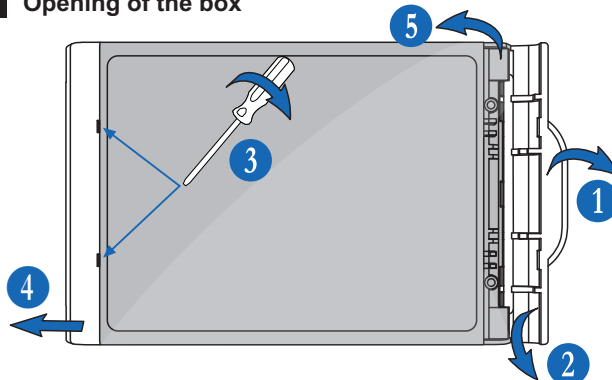
1. Press the handle of the right side hinge and open it.
2. Press lightly downwards to dismantle the hinge from the box bottom.
3. Use a flat screwdriver to open the left side hinge - put it in the openings and rotate.
4. Pull aside the left hinge to dismantle it from the box bottom.
5. Open the front cover and dismantle it from the box bottom.

2 PCB location

Jmp 1   Jmp 2
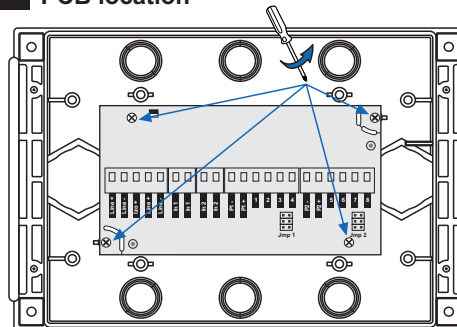
It is recommended to dismantle the PCB from the box bottom during installation of the module. Use a suitable crossed-slot screwdriver to undo the fixing screws. Keep the PCB in a safe place to avoid any damages, away from dust and dirt during the installation.

3 Cable openings and wall mounting
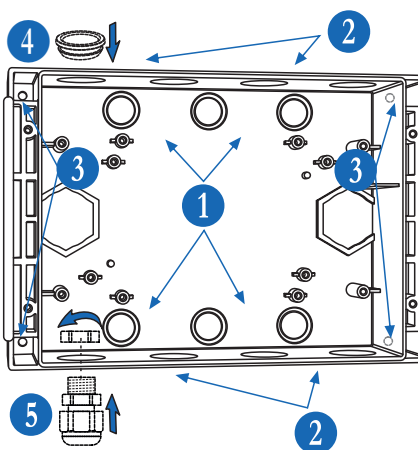
1. 6 x M16 knockout openings for running cables (for built-in wiring installation systems). To remove the plastic caps use a suitable drilling or breaking tool. Remove the knockouts just for the openings you are going to use.

2. 8 x M20 openings for running cables (for surface wiring installation systems). The unused openings must be closed with the provided plastic caps. For outdoor installations or mounting in aggressive environments use IP65 or higher rated cable glands for cable running.

3. 4 x Ø3.5mm openings for surface mounting of the box bottom. Use suitable fixing elements according the mounting surface.

4. Plastic caps for protection of the unused M20 openings*.

5. Optional mounting of IP65 or higher rated cable glands for running cables (not included in the supplied equipment)*.

* The picture is illustrative. The number and position of the mounted elements may differ according the type, size and organization of the installation system.

4 Address programming

Set the module address using SensoIRIS Programmer (use the cable with 5-pin terminal) or directly from the addressable fire panel. The address must be in the range from 1 to 250.
The set address is one for the entire module.

Programmer SensoIRIS
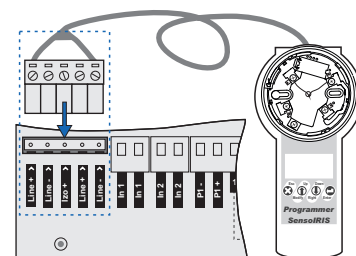
5 Closing the box

1. Mount the PCB back to the box bottom.

2. Power off the loop circuit! Run the cables to the module's loop, inputs and outputs terminals. Connect the cables to the loop, inputs and outputs terminals of the module according the shown Connection diagrams.

3. Take the front cover and turn it to the back side as shown.

4. Check the rubber sealant for IP65 protection - it must be placed along the whole channel on the back side without any damages or cutting.

5. Attach the front cover to the left side of the box bottom (left hinge junction).

6. Close the front cover to the right and press until a click is heard (right hinge junction).
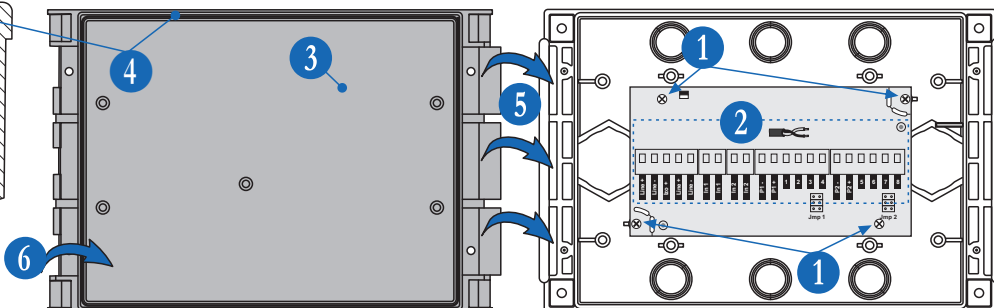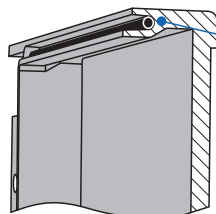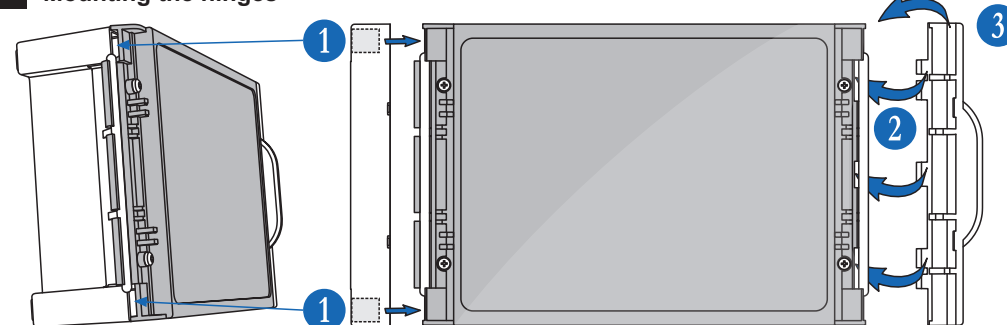
6 Security screws
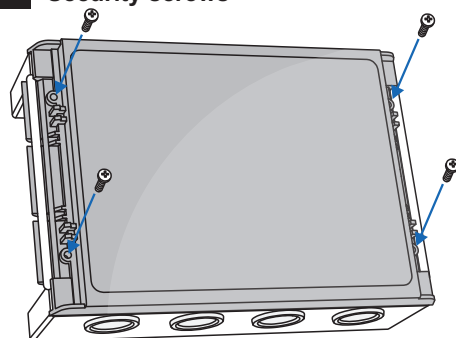
Use the supplied with the module screws for fixing the front cover to the box bottom.

7 Mounting the hinges

1. Match the ribs on the back side of the left hinge with the cavities formed between the front cover and the bottom. Press the left hinge towards until a click is heard.
2. Attach the spherical ribs of the right hinge to the box bottom as shown.
3. Rotate the right hinge to close and press until a click is heard.
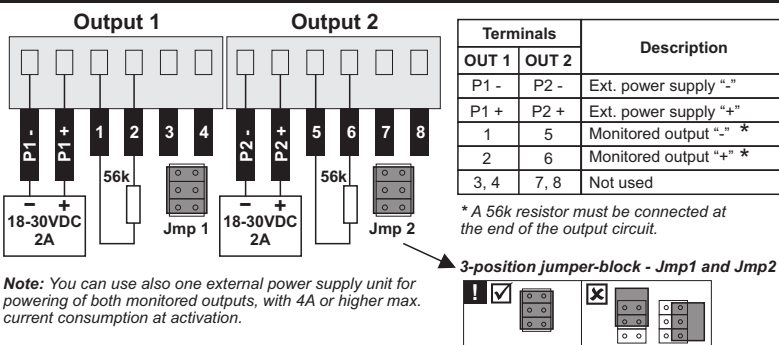
8 Connection diagrams

Attention: The connection of the module to the loop line must be done with switched off main and back-up power supply of the fire alarm panel!
SensoIRIS MIO22M IP65 is connected and powered directly from the loop line. The module is equipped with a built-in isolator module, which can be used or not, according the requirements of the fire alarm installation. The module is equipped with one 5-position plug terminal for easy connection to the loop line, two 6-position plug terminals for outputs and two 2-pin plug terminals for inputs connection. To connect the wires just pick up the plug terminal to dismantle it from the PCB terminal. Make the electrical connections observing the polarity. Then mount back the plug terminal to the PCB terminal.
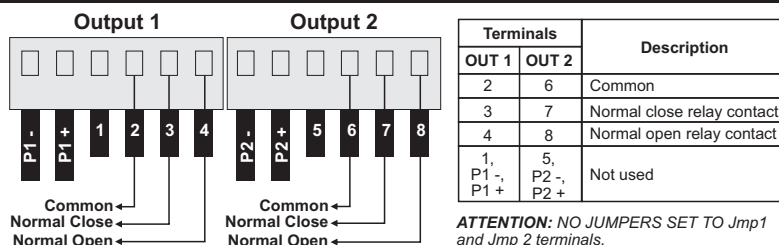
a) Outputs connection

ATTENTION: The monitored outputs mode is set by default - at terminals Jmp1 and Jmp2 are set jumpers. Every setting or removing of the jumpers must be provided with POWERING OFF the module from the loop line and external power supply.

MONITORED OUTPUTS MODE

Output 1   **Output 2**

Terminals		Description
OUT 1	OUT 2	
P1 -	P2 -	Ext. power supply "-"
P1 +	P2 +	Ext. power supply "+"
1	5	Monitored output "-" *
2	6	Monitored output "+" *
3, 4	7, 8	Not used

P1 - , P1 + , 1, 2, 3, 4
56k
− + 18-30VDC 2A Jmp 1

P2 - , P2 + , 5, 6, 7, 8
56k
− + 18-30VDC 2A Jmp 2

* A 56k resistor must be connected at the end of the output circuit.
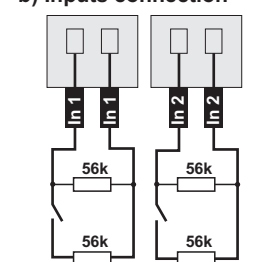
3-position jumper-block - Jmp1 and Jmp2

Note: You can use also one external power supply unit for powering of both monitored outputs, with 4A or higher max. current consumption at activation.
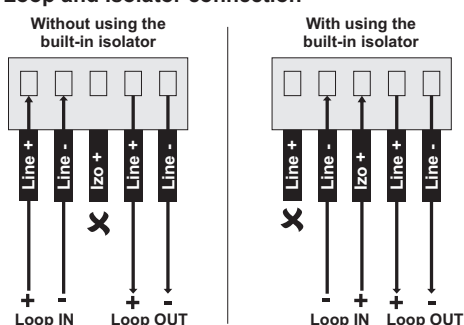
NON-MONITORED OUTPUTS MODE

Output 1   **Output 2**

Terminals		Description
OUT 1	OUT 2	
2	6	Common
3	7	Normal close relay contact
4	8	Normal open relay contact
1, P1 -, P1 +	5, P2 -, P2 +	Not used

P1 - , P1 + , 1, 2, 3, 4
Common ←
Normal Close ←
Normal Open ←

P2 - , P2 + , 5, 6, 7, 8
Common ←
Normal Close ←
Normal Open ←

ATTENTION: NO JUMPERS SET TO Jmp1 and Jmp 2 terminals.

b) Inputs connection

In 1 In 1   In 2 In 2
56k   56k
56k   56k

Use the 56k balancing resistors from the spare parts kit for realizing connection of control devices to the module inputs.

c) Loop and Isolator connection

Without using the built-in isolator

Line + , Line - , Izo + , Line + , Line -
+ − Loop IN   + − Loop OUT

With using the built-in isolator

Line + , Line - , Izo + , Line + , Line -
+ − Loop IN   + − Loop OUT

d) Outputs and Inputs Status

OUTPUTS Status

Status	Description	R
OPEN	Open circuit	>105k
NORMAL	Normal	4.7k < R < 105k
SHORT*	Short circuit	< 4.7k
Ext. power supply fault	Missing or low external power supply	-
Type error, Output x	Wrong output type	-

* Attention: In case of a short circuit at energized monitored output, the power of the output is off until the normal condition is restored.

INPUTS Status

Status	Description	R*	I**
SHORT	Short circuit	<13k	>54µA
ON	Activation	13k - 36k	38µA - 54µA
NORMAL	Stand-by mode	36k - 90k	23µA - 38µA
OPEN	Open circuit	>90k	<23µA

* R - resistance between the input and GND

** I - current at the input

e) Status LED Indication

1. OUTPUTS

The yellow LED is lighting on in case of output fault: Open, Short circuit, External power supply fault, Type error-Output x. **The red LED** is lighting on in case of output activation.

Attention: The monitored outputs could be programmed for operation in Normal or Inverted mode (from the panel menus). When the Inverted operation mode is set for a monitored output, the red LED indication will follow the output logical state. This means, that when the output is in Inverted mode and it is activated - no voltage presence on the terminals 1 and 2 (Output 1), and 5 and 6 (Output 2) - then the red LED will lights ON, because the logical function of the output is "TRUE" (activated).

Monitored output				
Polarity	Normal	Normal	Inverted	Inverted
State	OFF	ON	OFF	ON
Voltage at the output	No	Yes	Yes	No
Red LED	OFF	ON	OFF	ON

2. INPUTS

Inputs State		Red LED
IN 1	IN 2	
Normal	Normal	
Normal	ON	🔴
ON	Normal	🔴
ON	ON	🔴

Inputs Faults State		Yellow LED
IN 1	IN 2	
Normal/ON	Normal/ON	
Short/Open	Normal/ON	🟨
Normal/ON	Short/Open	🟨
Short/Open	Short/Open	🟨