

# GOYEN IS/ISP SERIES

## INTEGRATO SEQUENCER

### DESCRIPTION

The Integrato Sequencer (IS & ISP) features integrated controls intended for use with larger reverse pulse jet filter cleaning systems. The IS & ISP have been designed to operate across a wide range of environmental conditions. It is suitable for use with all types of filters, including bags, cartridges, sintered metal or ceramic filters.

The IS sequencer operates in continuous mode, whereas the ISP has a built-in differential pressure sensor, allowing this sequencer to be demand driven.

IS & ISP may be ordered as the sequencer only or in an enclosure (polycarbonate).

### TECHNICAL CHARACTERISTICS & PERFORMANCE

dP Support	0 to 4.5 kPa
Input Voltage	AC: 85–275 V @ 50/60 Hz
Output Voltage	AC: 85–275 V @ 50/60 Hz (same as input) DC: 24 V
Maximum Input Power	AC IN, AC OUT Model: 225 W AC IN, DC OUT Model: 65 W
Discrete Solenoid Outputs	12, 20 or 40 outputs
Enclosure	Polycarbonate or no enclosure
Protection Rating	Polycarbonate: NEMA 1, 3, 3S, 4, 4X, 6, 6P & 12, IP65
Operating Temperature	<u>Non-ATEX approved products:</u> –40°C to +70°C (–40°F to +158°F) <u>Non-ATEX approved products with 3 DC pilot valves in parallel:</u> –20°C to +70°C (–4°F to +158°F) <u>ATEX approved enclosure products:</u> –20°C to +50°C (–4°F to +122°F)
ON & OFF Time	ON: 30 ms to 1000 ms, OFF: 1 s to 1000 s
Inputs	Voltage Free: Fan Stop, Low Header Alarm
Outputs	Voltage Free: Coil Error. Analogue Output: 4–20 mA dP signal on the ISP  Controls up to 40 individual outputs. AC outputs can have up to 10 pilot valves connected in parallel. DC outputs can have up to 3 pilot valves connected in parallel. See Operating Temperature for more details.

IS/ISP units inside a polycarbonate enclosure have ATEX approval:

II 3 D    tc IIIC T52°C Dc    Tamb: –20°C to +50°C

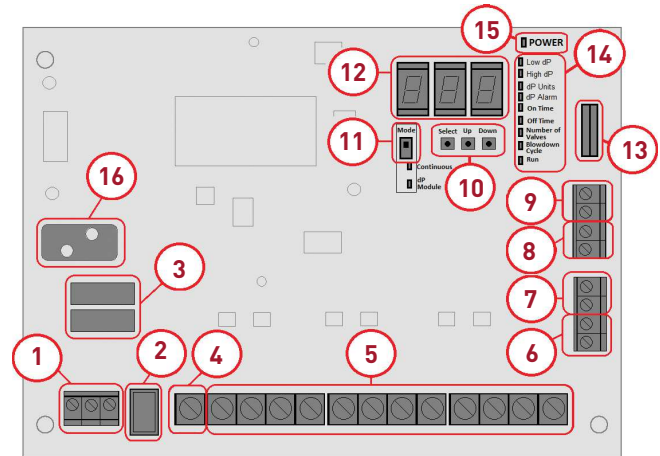
**WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD. CLEAN ONLY WITH A DAMP CLOTH.**

**WARNING: FOR BARE BOARD PRODUCTS, USE AN APPROPRIATE ENCLOSURE.**

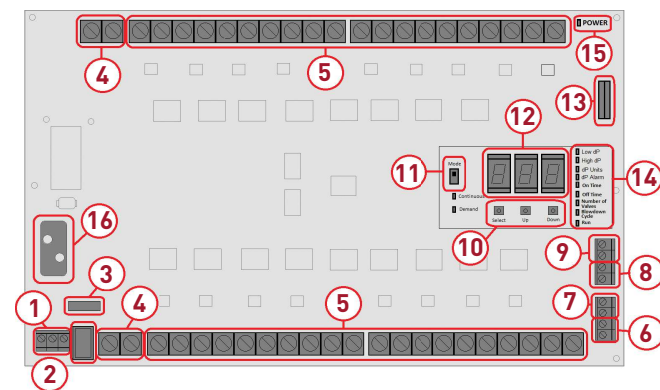
**WARNING: FOR ATEX APPLICATION DO NOT OPEN WHEN ENERGISED OR WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.**

### CIRCUIT BOARD LAYOUT

#### ISP12



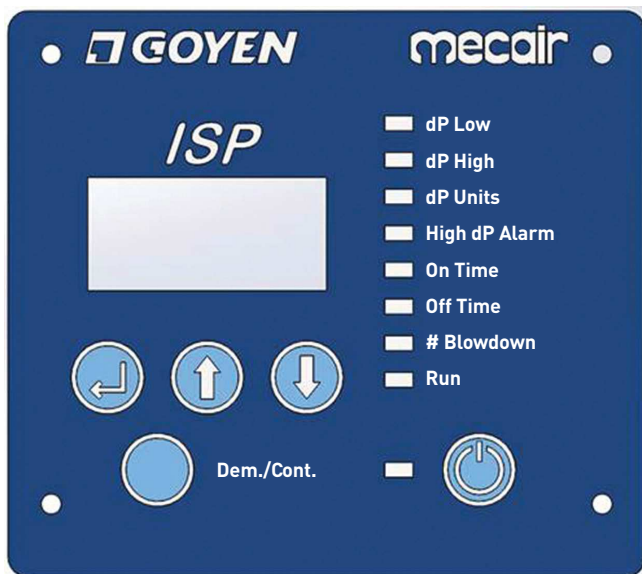
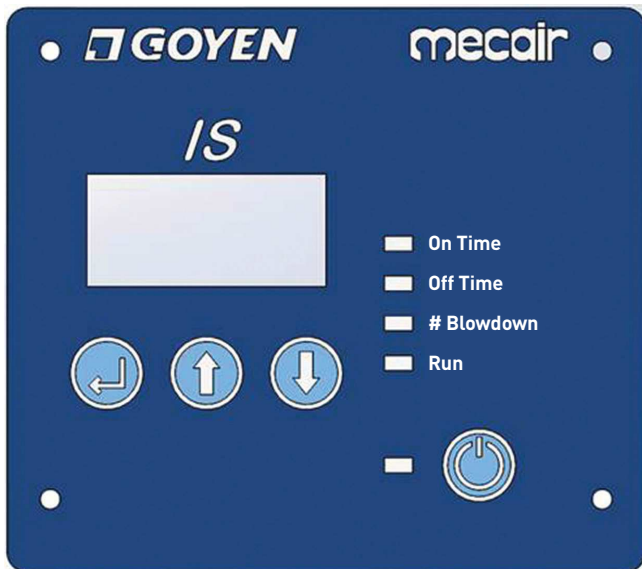
#### ISP40



- 1 AC Input Voltage:** Electrical connection to the board. Active, Earth and Neutral connections. Cable size 14–20 AWG for the phase conductors, with the earth wire being greater or equal to the phase conductors.
- 2 ON/OFF Power Switch:** Switch power the board ON and OFF.
- 3 Fuse (Over Current Protection):** Replacement fuse T2.5 A 250 V (slow blow).
- 4 Outputs Common Terminal:** This is the common terminal for all the 12 solenoid outputs. Cable size 12–20 AWG.
- 5 Discrete Solenoid Output Terminals:** Connect each solenoid wire to a separate output terminal. Cable size 12–20 AWG.
- 6 Coil Alarm Output (Voltage Free):** This output triggers when the coil fails to pulse correctly. It may indicate a fault with the coil or wiring to that coil. Normally Open. A closed contact will indicate a coil error. Cable size 14–26 AWG.
- 7 4–20 mA dP Output:** This output mirrors the output of the built in dP sensor in the form of a 4–20 mA signal. **(ISP only)**
- 8 Low Header Alarm Input (Voltage Free):** This input allows for the connection of a sensor to monitor the header tank pressure. In the event the pressure drops below the preset level, the pulsing cycle is paused. Normally Open. A closed contact will pause the cleaning cycle, displaying LoH. Cable size 14–26 AWG.
- 9 Fan Stop Input (Voltage Free):** This input is used to stop the controller remotely. It may be connected to the blower fan control so the cleaning cycle automatically pauses in the event the fan stops. Normally Open. A closed contact will stop the cleaning cycle, displaying FSP. Cable size 14–26 AWG.

- 10 Input Buttons: These buttons are used to control the menu and program the controller.
- 11 Mode Switch: Use to change the controller between Continuous Mode and dP Mode. **(ISP only)**
- 12 7-Segment LED: Display the menu and controller operation.
- 13 Interface Screen Socket (Optional): Ribbon cable socket for the optional interface screen. Carefully insert the ribbon cable securely into the socket and test the interface screen to confirm it is functioning correctly.
- 14 Menu Interface LEDs: These show the status of the controller and are used to indicate the setting during programming mode.
- 15 Power LED: When lit, it indicates the controller is powered ON.
- 16 dP Sensor: Connect the clean and dirty air lines to the sensor as shown. **(ISP only)**

**INTERFACE MODULE FUNCTIONS**



The Interface module comes standard with the enclosure and can be ordered separately with the base board.



**Power/Reset Button:** This is used to turn the controller ON and OFF and to conduct a Soft Reset. Once powered ON using this button, the controller will relearn the cleaning system. This button can be used to turn the controller ON; however, the main power switch on the base board must be in the ON position.



Press to scroll up through the menu.



Press to scroll down through the menu.



Press to enter settings.



Press to change between Demand or Continuous modes **(ISP only)**.

**PROGRAMMING INSTRUCTIONS**

**To enter Programming Mode:**

Press **Select** (left arrow), **Up** (up arrow), **Down** (down arrow), **Up** (up arrow), **Select** (left arrow).  
The 'dP Low' LED should now be lit.

Press **Down** (down arrow) to scroll down the list.  
The LED indicates the function to be programmed.

Press **Up** (up arrow) to scroll up the list.

Press **Select** (left arrow) to change the settings for that function.

**dP Low \***

Press **Select** (left arrow) when the 'dP Low' LED is lit.  
This LED should start to flash indicating it is in programming mode.  
Use the **Up** (up arrow) and **Down** (down arrow) buttons to select a low dP limit. When in demand mode, the cleaning cycle will stop at this setting. (Min. 00.0–Max. 03.8)

Press **Select** (left arrow) to confirm the setting. The 'dP Low' LED should now be lit.

Press **Down** (down arrow) to scroll down the list.

**dP High \***

Press **Select** (left arrow) when the 'dP High' LED is lit.  
This LED should start to flash indicating it is in programming mode.  
Use the **Up** (up arrow) and **Down** (down arrow) buttons to select a high dP limit. When in demand mode, the cleaning cycle will start at this setting. (Min. 02.2–Max. 18.0)

Press **Select** (left arrow) to confirm the setting. The 'dP High' LED should now be lit.

Press **Down** (down arrow) to scroll down the list.

\* ISP only

**dP Units \***

Press **Select** when the 'dP Units' LED is lit.  
This LED should start to flash indicating it is in programming mode.

Use the **Up** and **Down** buttons to select a the dP Units in either kPa or InWG.

Press **Select** to confirm the setting. The 'dP Units' LED should now be lit.

Press **Down** to scroll down the list.

**High dP Alarm \***

Press **Select** when the 'dP Units' LED is lit.  
This LED should start to flash indicating it is in programming mode.

Use the **Up** and **Down** buttons to set the value that will trigger the High dP Alarm in the event the dP rises above this setting. (Min. 00.0–Max. 18.0)

Press **Select** to confirm the setting. The 'High dP Alarm' LED should now be lit.

Press **Down** to scroll down the list.

**On Time**

Press **Select** when the 'On Time' LED is lit.  
This LED should start to flash, indicating it is in programming mode.

Use the **Up** and **Down** buttons to select an On Time in milliseconds between 30 ms and 990 ms, in increments of 10 ms.

Press **Select** to confirm the setting.

**Note:** A standard setting is 150–250 ms.

**Note:** The Off Time must allow each solenoid to have a 60-second rest between pulses.

**Off Time**

Press **Select** when the 'Off Time' LED is lit.  
This LED should start to flash, indicating it is in programming mode.

Use the **Up** and **Down** buttons to select an Off Time in seconds between 1 s and 999 s.

Press **Select** to confirm the setting.

**Note:** The Off Time must allow each solenoid to have a 60-second rest between pulses.

\* ISP only

**Blowdown Cycles**

Press **Select** when the 'Blowdown Cycles' LED is lit.  
This LED should start to flash, indicating it is in programming mode.

Use the **Up** and **Down** buttons to select the number of blowdown cycles you require, between 0 and 10.

Press **Select** to confirm the setting.

**Note:** Blowdown cycles can only be triggered by the Fan Stop Input.

**Run**

Press **Select** when the 'Run' LED is lit.  
This will automatically exit Programming Mode and save your settings.

**WARNING:** This installation must be performed by a technically competent person. To prevent injury, damage or malfunction, read the following instructions carefully. If in doubt, contact your representative for further advice.

**OPERATION OF THE CONTROLLER**

On power up, the controller will automatically detect how many pilot valves are connected and display FXX, where XX will be the number of pilot valves found.

When the controller is running in continuous mode the screen will display the next valve that will be pulsed.

When the controller is running in demand mode the screen will display the dP reading and briefly flash the next valve that will be pulsed.

**OUTPUTS AND ALARMS**

The screen will display "FSP" when a fan stop event is triggered, i.e. when this input is closed circuit. It will automatically clear when this event has cleared, i.e. when this input is open circuit.

The screen will display "LoH" when a low header event is triggered, i.e. when this input is closed circuit. It will automatically clear when this even has cleared, i.e. when this input is open circuit.

The screen will display "-|XX" when there is a short circuit event on a pilot valve and "oXX" when there is an open circuit event on a pilot valve, where XX is the output number of the pilot valve effected. It will automatically clear once either fault has been fixed.

**REPLACEMENT FUSE INFORMATION**

MANUFACTURER	PART NUMBER	IS/ISP-ACXX-XX	IS/ISP-DCXX-XX
Bel Fuse	5MF 3-R	1	
Bel Fuse	5ET 1-R	1	
Bel Fuse	5ET 2.5-R		1

**INSTALLATION INSTRUCTIONS**

- WARNING:** This installation must be performed by a technically competent person. To prevent injury, damage or malfunction, read the following instructions carefully. If in doubt, contact your representative for further advice.

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- WARNING:** Make sure electrical power is isolated from the system before installing or opening the product.

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- WARNING:** Consider system requirements and earth the enclosure to prevent electrostatic charge build up.

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- WARNING:** Modifications not described in these instructions will void product certifications.

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- WARNING:** The equipment is to be installed only in areas where there is a low risk of impact.

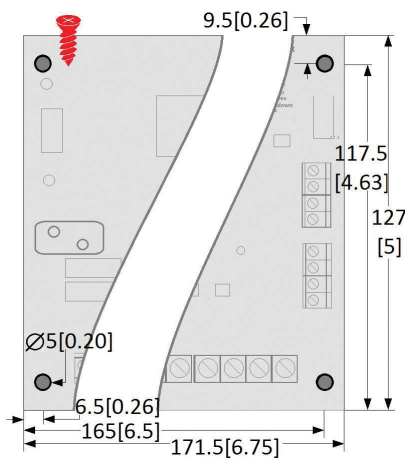
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- WARNING:** Suitably pre-certified blanking plugs or cable glands must be used with an ingress protection rating of IP65.  
For ATEX applications, suitable pre-certified M20 and M25 blanking elements and cable glands are to be selected by either the manufacturer or end-user for use with the enclosure ensuring the COT is within the permitted range and the ingress protection rating (IP65) of the enclosure is to be maintained and that these blanking elements and cable glands shall be certified to the same standards editions to which the enclosure is certified. Refer to the Declaration of Conformity.

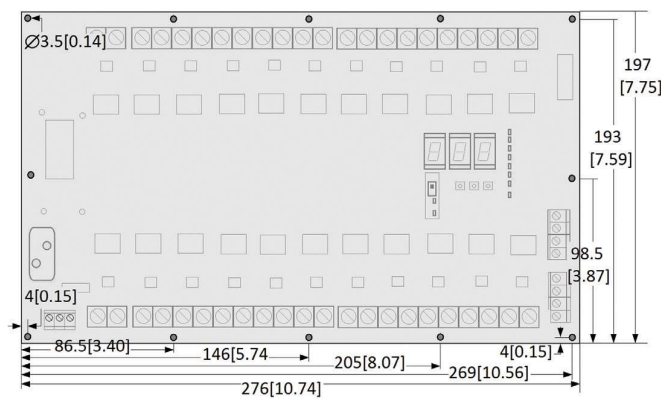
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- WARNING:** The hose together with its associated connection arrangement used to connect between each DP bulkhead connector on the exterior of the equipment and the system with which it is associated, shall be selected by the end user.  
For ATEX applications, the hose and its selected connection arrangement shall be made from a suitable material to ensure that there is not an electrostatic risk or other risk introduced. The permitted medium into the enclosure via each DP bulkhead connector shall be clean, dry, dust-free air or inert gas, with a maximum pressure of 45 mbar [4.5 kPa] and a maximum temperature of 50°C. The hose, and its associated connection arrangement, shall be suitable for the conditions of use to which it will be subjected in service and ensure that a degree of ingress protection IP65 is maintained at all times.

**STEP 1**



**ISP12**

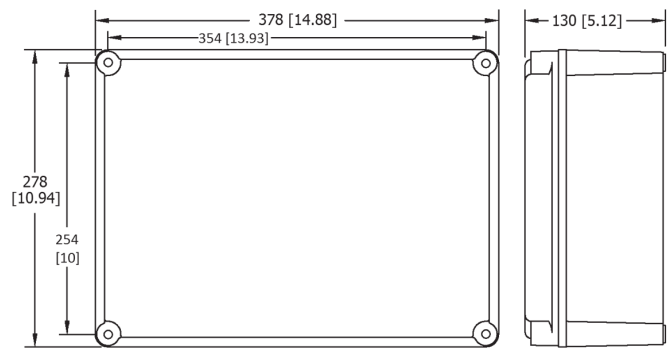


**ISP20/40**

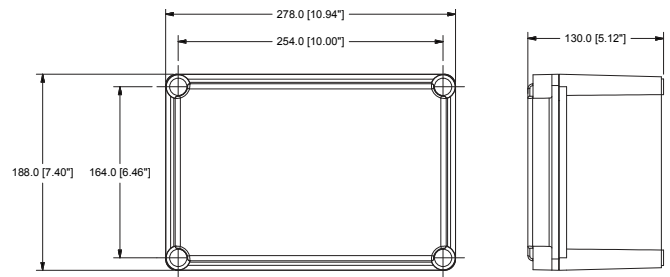
Carefully mount board

For boards supplied in a polycarbonate enclosure, mount the enclosure securely using mounting points on the enclosure. Mount either horizontally (cover faces up) or vertically (so writing on the board is the correct way up).

For boards supplied in a polycarbonate enclosure



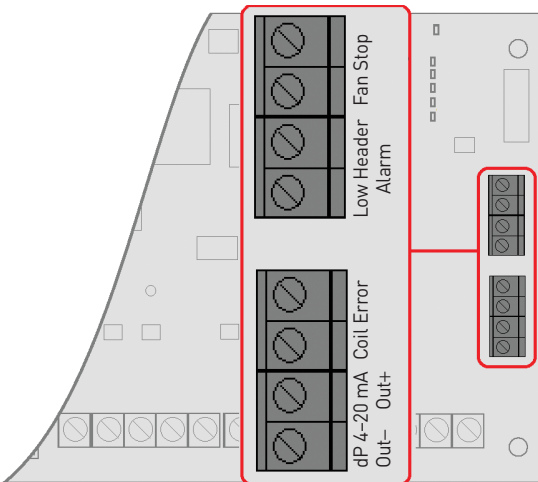
**IS/ISP20/40**



**IS/ISP12**

Mount the enclosure securely using mounting points on the enclosure. Mount either horizontally (cover faces up) or vertically (so writing on the board is the correct way up).

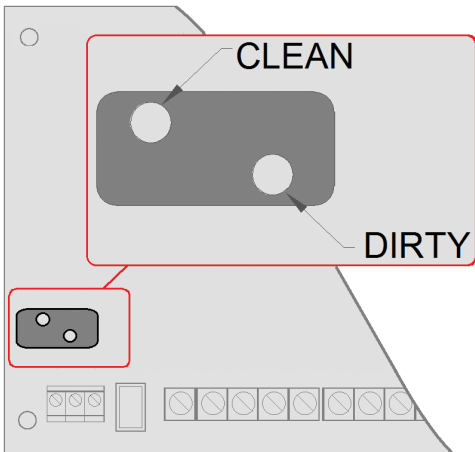
**STEP 2 (Optional)**



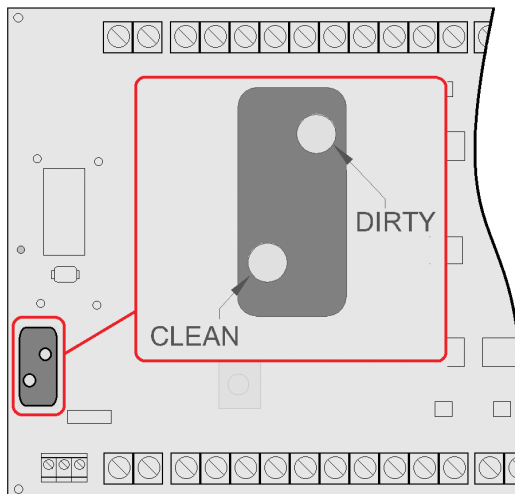
Connect inputs and outputs (if required)

For products in enclosures, connections must be made through appropriately rated ATEX, NEMA or IP cable glands., tightened to the manufacturer's specified torque. Un-used openings must retain the Ex blanking plug supplied with the enclosure.

**STEP 3**



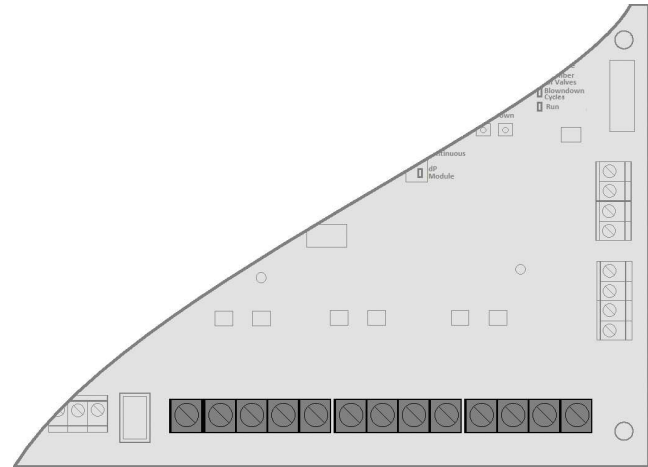
ISP12



ISP20/40

Connect dP Air Lines (ISP only)

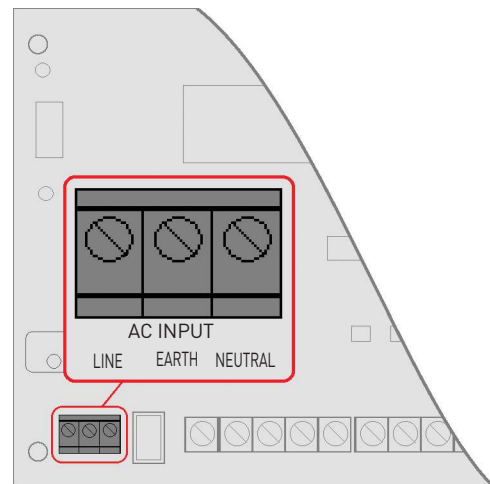
**STEP 4**



Connect discrete solenoid outputs

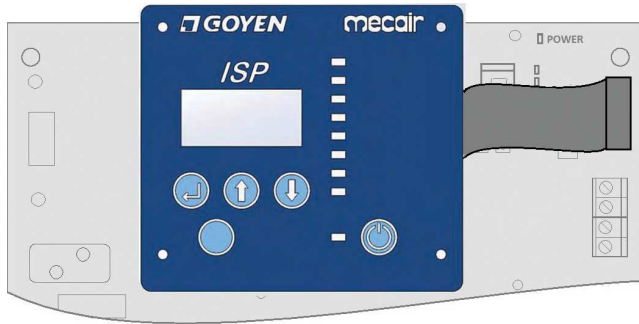
For products in enclosures, connections must be made through appropriately rated ATEX, NEMA or IP cable glands, tightened to the manufacturer's specified torque. Un-used openings must retain the Ex blanking plug supplied with the enclosure.

**STEP 5**

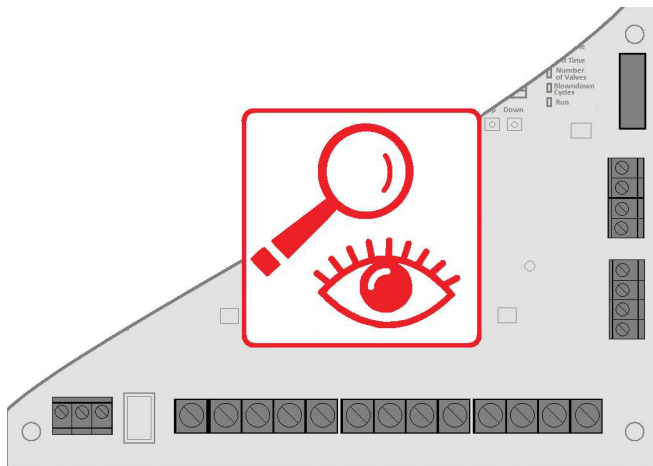


Connect input voltage

For products in enclosures, connections must be made through appropriately rated ATEX, NEMA or IP cable glands, tightened to the manufacturer's specified torque. Un-used openings must retain the Ex blanking plug supplied with the enclosure.

**STEP 6**


Connect Interface Module

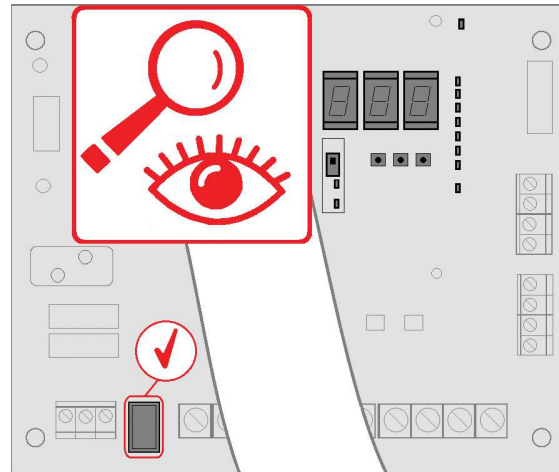
**STEP 7**


Inspect all connections

Replace covers before applying power. For the ATEX approved enclosures, tighten cover screws at 1.5 N.m.

 When replacing existing Ex blanking plugs, tighten at:  
 M20 – 1.7 N.m  
 M25 – 2.3 N.m

 When replacing the existing dP fitting, tighten at:  
 dP fitting – 5 N.m  
 Tube fastening nut – 0.5–0.75 N.m

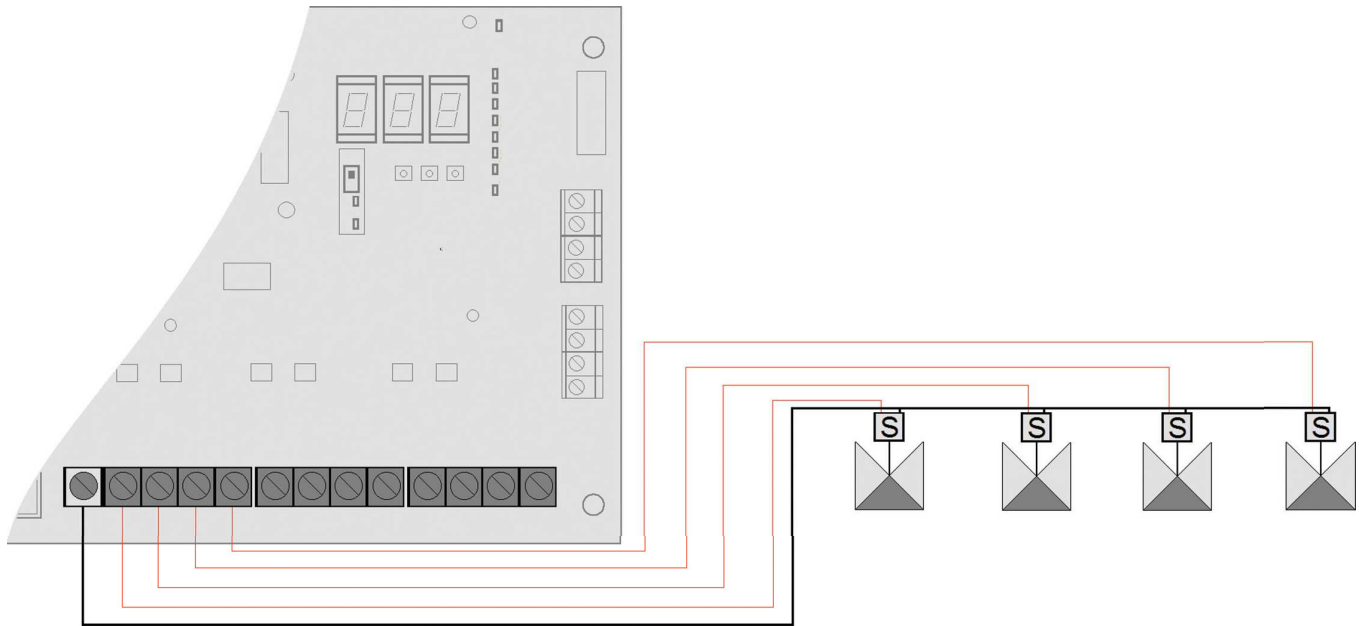
**STEP 8**


Power up and check settings

**STEP 9**

Test performance – Run cycle



**WIRING DIAGRAM**

**MAINTENANCE**
**Cleaning**

Make sure electrical power is isolated from the system before installing or opening the product. To prevent electrostatic charging, clean the enclosure exterior with a damp cloth only.

**Changing a fuse**

Make sure electrical power is isolated from the system before installing or opening the product.



## EU Declaration of Conformity

Goyen Controls Company Pty Ltd declares product conformity under our sole responsibility as the manufacturer

with

Product with enclosure

**IS-AC20-PCA, IS-AC40-PCA,  
IS-DC20-PCA, IS-DC40-PCA,  
ISP-AC20-PCA, ISP-AC40-PCA,  
ISP-DC20-PCA, ISP-DC40-PCA**

**Directive 2014/34/EU – Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)**

Product without enclosure

**IS-AC20, IS-AC40,  
IS-DC20, IS-DC40,  
ISP-AC20, ISP-AC40,  
ISP-DC20, ISP-DC40**

**Directive 2014/35/EU – Electrical equipment designed for use within certain voltage limits (LVD)**

**Directive 2014/30/EU – Electromagnetic compatibility (EMC)**

**Directive 2011/65/EU – Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS)**

Having undergone EU type examination on the pilot valve enclosure for ATEX with the Notified Body Sira Certification Service (0518), it is approved to the following levels on certificate [Sira 17ATEX9151X-](#)

**CE Ex II 3D  
Ex tc IIIC T52°C Dc  
Ta: -20°C to +50°C**

Relevant harmonised standards applied:

<u>Document Number</u>	<u>Title</u>	<u>Document Number</u>	<u>Title</u>
EN 60079-0:2012/A11:2013	Explosive atmospheres. Equipment – General requirements.	IEC 61010-1 Ed 3 2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
EN 60079-31:2014	Explosive atmospheres – Equipment dust ignition protection by enclosure “t”	IEC 61010-2-201 Ed 1 2013	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-201: Particular requirements for control equipment
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General requirements		
CISPR 11:2015	Industrial, scientific and medical (ISM) radio frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurements.		
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.		

EMC Test Report 102273182DEN-001

  
Matthew Southam  
Engineering Manager  
Goyen Controls Company Pty Ltd

at Milperra, NSW, Australia

20/4/2017  
Date

Pentair trading as **Goyen Controls Company Pty Ltd.**  
**268 Milperra Road Milperra NSW 2214 Australia**  
DoC 013/2017a (EN)