

***Critical Environment Technologies  
Canada Inc.***

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**Installation Manual for  
*AST-IS18***

**Infrared CO2 transmitter (0-4% volume range)  
Water tight, industrial enclosure & relays**



**MANUAL REVISION-B, SEPTEMBER 17, 2010**

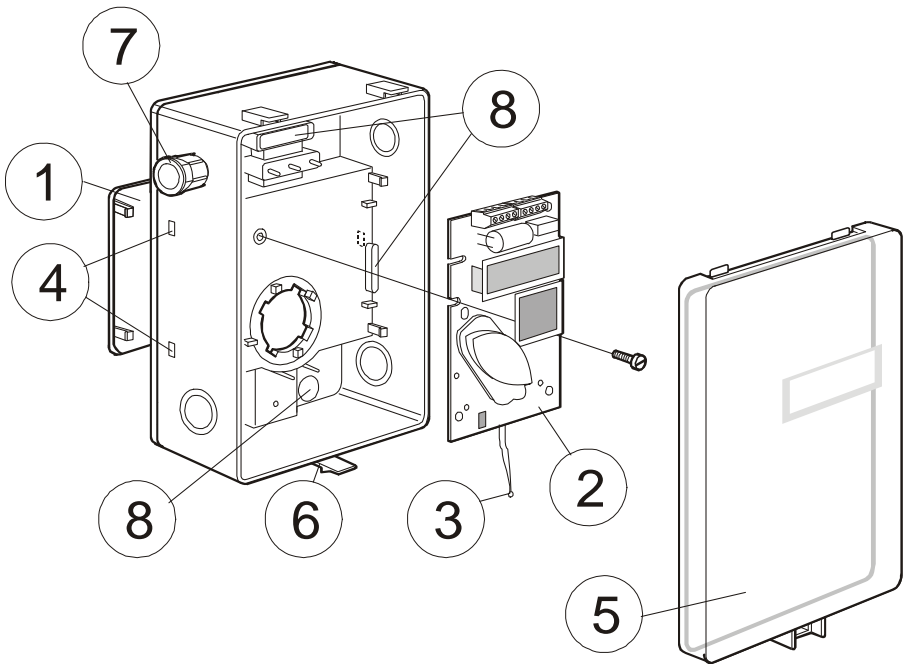
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# AST-IS18

Are infrared Carbon Dioxide (CO<sub>2</sub>) sensor/transmitters with two on-board relays, all mounted in an industrial, IP54 rated, water tight, wall mount enclosure. The enclosure cover has a built-in rubber gasket and all other connections must be tight and sealed to prevent water intrusion.

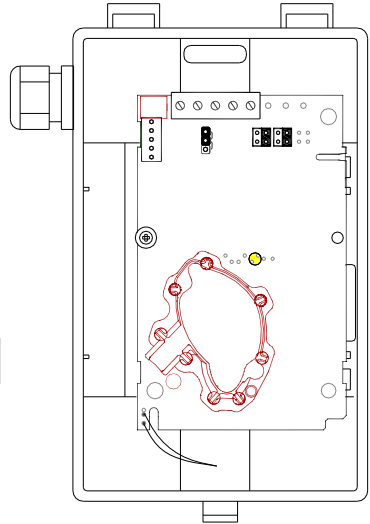
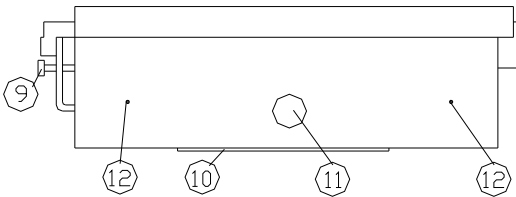


## ITEM LOCATORS

- |   |                                       |   |                                      |
|---|---------------------------------------|---|--------------------------------------|
| 1 | Wall plate                            | 5 | Snap-in lid                          |
| 2 | PCB (Factory supplied mounted in box) | 6 | Locking screw of the lid (not shown) |
| 3 | Temperature sensor                    | 7 | PG9 cable entry bushing              |
| 4 | Hole for wall plate hooks             | 8 | Air holes                            |

## ITEM LOCATORS, CONT'D.....

- 9 Lid locking screw
- 10 Wall plate
- 11 Screw to hold the wall plate
- 12 Drill marks for cable entry bushings
- 13 Drill marks for cable entry bushings



## MOUNTING THE TRANSMITTER

The sensor is delivered with the wall plate mounted. The wall plate has to be removed before the sensor is mounted onto the wall. Unthread the large screw on the side of the box to unlock the wall plate. See item "11" in drawing above.

If cover must be removed for any reason, loosen single securing screw on bottom of enclosure, press tab to release cover and hinge upward to remove.

Normally the PCB should not be removed from the housing. If for some reason the PCB must be removed it must be handled carefully and protected from electrostatic discharge.

**Electrical cable entry:** The enclosure is supplied with two cable entry bushings, one of which fits into location PG9. Never feed more than one cable through each cable entry bushing, or else gas may leak through!

**Screw the wall plate onto the wall:** The wall plate has holes for three screws. Drill holes for 3,5mm screws and put dowel (wall anchors) into them. Dowels and screws 3,5 x 25mm are included in a plastic bag in the white cardboard box.

**Attaching the sensor box** to the wall plate is accomplished by a snap-in fitting. The wall plate has three hooks that fit in holes in the sensor box. Replace the large screw on the side of the box once mounted to lock the enclosure to the wall plate.

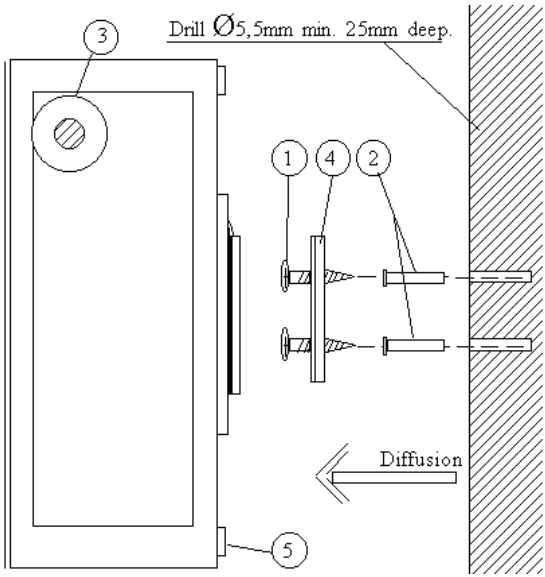
**Note:** Reference drawing on page-6.

**The lid can be locked** in place with the screw at the bottom of the sensor box.

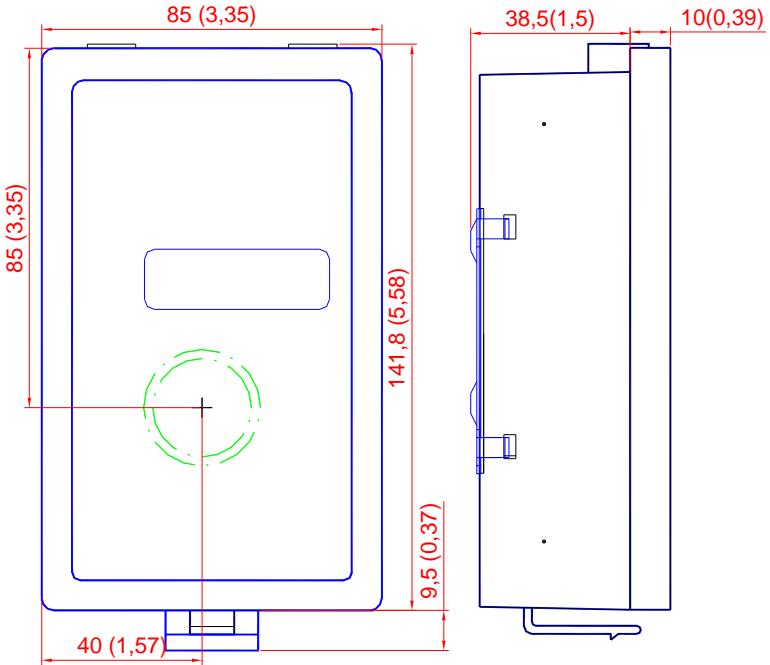


If for some reason the PCB must be removed it must be handled carefully and protected from electrostatic discharge! Normally, removing the PCB is not required.

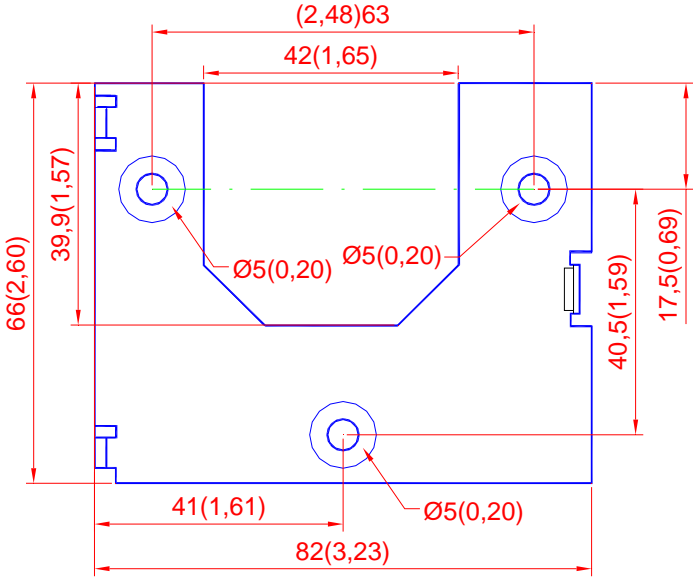
# MOUNTING THE TRANSMITTER, CONT'D....



# DIMENSIONS



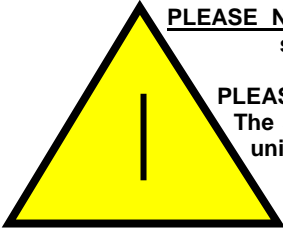
**DIMENSIONS, CONT'D.....**



**DIMENSIONS OF TRANSMITTER IN mm AND INCHES**

## ELECTRICAL CONNECTIONS

The power supply has to be connected to G+ and G0. G0 is considered as system ground. If the analogue output is connected to a controller *the same ground reference has to be used for the **AST-IS18** unit and for the control system!* Unless different transformers are used, special precautions need to be taken.



**PLEASE NOTE!** The **AST-IS18** signal ground **is not** galvanically separated from the **AST-IS18** power supply!

**PLEASE NOTE!**

The same ground reference has to be used for the **AST-IS18** unit and for the control system!

**Note:** If possible, keep the sensor powered up after mounting. Connect analog output before measuring.

No.	Connection Terminal	Function	Electrical Data	Remarks
1	G+	Power (+)	24VDC/DC+ (+20%), 3W	2W without output load. See note-1
2	G0	Power ground (-)	24VAC/DC-	
3	Out-1	Analog Output-1 (+)	0-10 mA,	According to positions of Out-1 & start point jumpers See note-2
4	Out-2	Analog output-2 (+)	4-20 mA	According to positions of Out-2 & start point jumpers See note-2
5	M	Signal ground (-)	Connected to G0 via PTC fuse	See note-1
6	NO-1	Relay-1 Normally Open	Contact free relay, minimum load	Standard Open <1.4% CO2
7	COM-1	Relay-1 Common	1mA/5V rated load	Closed <1.5% CO2
8	NC-1	Relay-1 Normally Closed (OUT-3)	0.5A/125VAC; 1A/24VDC	The relay output is potential free
9	NO-2	Relay-2 Normally Open	Contact free relay, minimum load	Standard Open <2.9% CO2
10	COM-2	Relay-2 Common	1mA/5V rated load	Closed <3.0% CO2
11	NC-2	Relay-2 Normally Closed (OUT-4)	0.5A/125VAC; 1A/24VDC	The relay output is potential free
	Communication Jumper	Used to set communication protocol	Upper  Lower	Modbus communication protocol SenseAir communication protocol

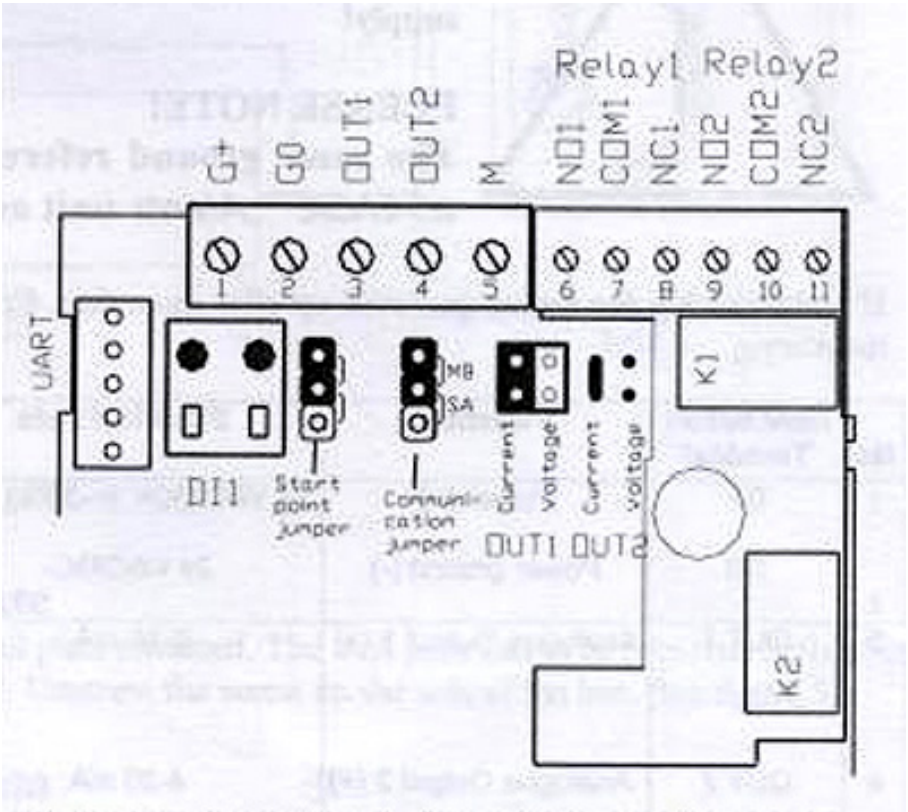
Table I. Terminal connections for **AST-IS13** & **IS14**

## ELECTRICAL CONNECTIONS, CONT'D.....

**Note 1:** The ground terminal is used as negative power supply DC input or AC phase ground G0 (half wave rectifier). The signal ground M, protected by a PTC resistor, is the same as power ground G0 (permitting a "3-wire" configuration). A single transformer may be used for the entire system.

**Note 2:** AST-IS18 can deliver a voltage or a current loop for OUT1/OUT2. To change between voltage and current output mode the hardware jumpers are used. There is one jumper for OUT1 and one for OUT2, so that one output can be a voltage output and the other a current output. Both, voltage output and current output, can have start points 0 % (0-10 VDC or 0-20mA) or 20% (2-10 VDC or 4-20mA). The same start point is used for both outputs. See the function manual.

## WIRING TERMINAL STRIPS



## WIRING TO PERIPHERAL ALARM DEVICES

