

**Critical Environment Technologies  
Canada Inc.**

[www.critical-environment.com](http://www.critical-environment.com)

**Installation Manual for**

**AST-IS1 & AST-IS2**

**Infrared CO<sub>2</sub> Transmitter for Wall (Office) Mount**



**MANUAL REVISION-A, August 2017**

**#145, 7391 VANTAGE WAY  
DELTA, BC CANADA V4G 1M3  
PH: 604-940-8741 TOLL FREE: 877-940-8741**



**IMPORTANT NOTE**

Read and understand this manual prior to using this instrument. Carefully read the warranty policy, service policy, notices, disclaimers and revisions on the following pages.

This product must be installed by a qualified electrician or factory trained technician and according to instructions indicated in this manual. This instrument should be inspected and calibrated regularly by a qualified and trained technician.

This instrument has not been designed to be intrinsically safe. For your safety, **do not** use it in classified hazardous areas (explosion-rated environments).

INSTRUMENT SERIAL NUMBER:

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PURCHASE DATE:

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PURCHASED FROM:

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**WARRANTY POLICY**

Critical Environment Technologies Canada Inc. (CETCI), also referred to as the manufacturer, warrants this instrument, (excluding sensors, battery packs, batteries, pumps and filters) to be free from defects in materials and workmanship for a period of **two years from the date of purchase from our facility**. The sensors have a warranty period of **one year on a pro-rated basis from the date of purchase from our facility**. If the product should become defective within this warranty period, we will repair or replace it at our discretion.

The warranty status may be affected if the instrument has not been used and maintained as per the instructions in this manual or has been abused, damaged, or modified in any way. This instrument is only to be used for purposes stated herein. The manufacturer is not liable for auxiliary interfaced equipment or consequential damage.

Due to ongoing research, development, and product testing, the manufacturer reserves the right to change specifications without notice. The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data.

All goods must be shipped to the manufacturer by prepaid freight. All returned goods must be pre-authorized by obtaining a Returned Merchandise Authorization (RMA) number. Contact the manufacturer for a number and procedures required for product transport.

## **SERVICE POLICY**

CETCI maintains an instrument service facility at the factory. Some CETCI distributors / agents may also have repair facilities; however, CETCI assumes no liability for service performed by anyone other than CETCI personnel.

Repairs are warranted for 90 days after date of shipment (sensors have individual warranties).

Should your instrument require non-warranty repair, you may contact the distributor from whom it was purchased or you may contact CETCI directly.

Prior to shipping equipment to CETCI, contact our office for an Returned Merchandise Authorization (RMA) number. All returned goods must be accompanied with an RMA number.

If CETCI is to do the repair work, you may send the instrument, prepaid, to:

**Attention: Service Department  
Critical Environment Technologies Canada Inc.  
Unit 145, 7391 Vantage Way  
Delta, BC, V4G 1M3**

Always include your RMA number, address, telephone number, contact name, shipping / billing information, and a description of the defect as you perceive it. You will be contacted with a cost estimate for expected repairs, prior to the performance of any service work.

For liability reasons, CETCI has a policy of performing all needed repairs to restore the instrument to full operating condition.

Pack the equipment well (in its original packing if possible), as we cannot be held responsible for any damage incurred during shipping to our facility.

## **COPYRIGHTS**

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## **DISCLAIMER**

Under no circumstances will CETCI be liable for any claims, losses or damages resulting from or arising out of the repair or modification of this equipment by a party other than CETCI service technicians, or by operation or use of the equipment other than in

accordance with the printed instructions contained within this manual or if the equipment has been improperly maintained or subjected to neglect or accident. Any of the foregoing will void the warranty.

Under most local electrical codes, low voltage wires cannot be run within the same conduit as line voltage wires. It is CETCI policy that all wiring of our products meet this requirement.

It is CETCI policy that all wiring be within properly grounded (earth or safety) conduit.

**REVISIONS**

This manual was written and published by CETCI. The manufacturer makes no warranty or representation, expressed or implied including any warranty of merchantability or fitness for purpose, with respect to this manual.

All information contained in this manual is believed to be true and accurate at the time of printing. However, as part of its continuing efforts to improve its products and their documentation, the manufacturer reserves the right to make changes at any time without notice. Revised copies of this manual can be obtained by contacting CETCI or visiting [www.critical-environment.com](http://www.critical-environment.com)

Should you detect any error or omission in this manual, please contact CETCI at the following address:

**Critical Environment Technologies Canada Inc.**  
Unit 145, 7391 Vantage Way, Delta, BC, V4G 1M3, Canada  
Toll Free: +1.877.940.8741  
Telephone: +1.604.940.8741  
Fax: +1.604.940.8745  
Email: [marketing@cetci.com](mailto:marketing@cetci.com)  
Website: [www.critical-environment.com](http://www.critical-environment.com)

In no event will CETCI, its officers or employees be liable for any direct, special, incidental or consequential damages resulting from any defect in any manual, even if advised of the possibility of such damages.

# AST-IS1 (no display) & AST-IS2 (display)

The IAQ-sensor products **AST-IS1** and **AST-IS2** (sensor/transmitter for wall mounting) are designed to measure carbon dioxide (CO<sub>2</sub>) in rooms. The model AST-IS2 incorporates an LCD digital display indicating the measured CO<sub>2</sub> value in ppm (parts-per-million) real time.

These units are designed for connecting to a control system with 0-10V or 2-10V signal inputs. The two parallel signal outputs OUT1 (0-10V) and OUT2 (2-10V or 4-20 mA) give linear signal voltages or currents corresponding to the measuring range. The output OUT2 also indicates the *status* by setting the output voltage to 1V or the output current to 2 mA when the sensor self diagnostics detects any error.



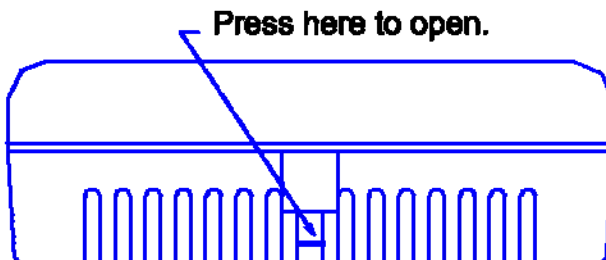
AST-IS1



AST-IS2

## To open the wall mounted housing

Closed housing seen from above. The housing is opened by pressing a screw driver on the locking hook. The locking hook is then released.



## SPECIFICATIONS

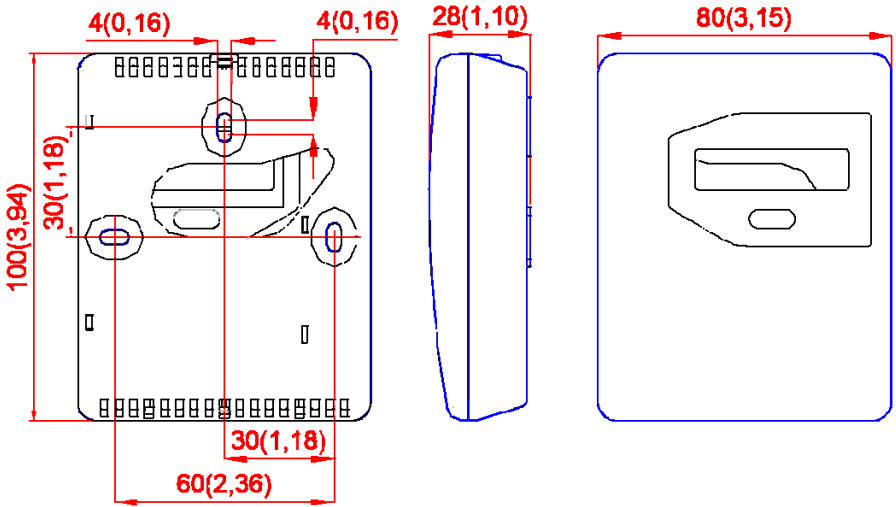
	AST-IS1	AST-IS2
Measurement Range	0 - 2000 ppm	0 - 2000 ppm
Power Supply	24 VDC or VAC, 50/60 Hz (half-wave rectifier input)	24 VDC or VAC, 50/60 Hz (half-wave rectifier input)
Power Consumption	<1 W average	<1 W average
Linear Output	0-10 VDC 2-10 VDC or 4-20 mA	0-10 VDC 2-10 VDC or 4-20 mA
Temperature Sensor Range	No temperature sensor	No temperature sensor
Accuracy	na	na
Operating Temperature	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)
Operating Humidity	0—95% RH non-condensing	0—95% RH non-condensing
Display	No	Yes
Dimensions	100 x 80 x 28 mm	100 x 80 x 28 mm
	3.94 x 3.15 x 1.10 inches	3.94 x 3.15 x 1.10 inches
Alarm	No	No
Mute button	No	No
Relay Output	No	No
Mounting Type	Wall mount	Wall mount
Probe length	na	na
Communication	Analog	Analog
Certifications	CE and EMC	CE and EMC

This product is in accordance with the EMC 2004/108/EC, 92/31/EEG including amendments by the CE-marking Directive 93/68/EEC

The product fulfils the following demands: EN 61000-4-2 level 2, EN 61000-4-3 level 2, EN 61000-4-4 level 4, EN 61000-4-6, EN 61000-4-8 level 4, EN 55022 class B



**DIMENSIONS & HOLES**





*The dimensions of the sensor in mm and (inches)*

**Mounting of the sensor onto the wall**

Please use screws with screw head diameter less than 7,5 mm (0,295 inches) and screw head height less than 2,4 mm (0,094 inches)

**ELECTRICAL CONNECTIONS**

The power supply has to be connected to +~ and  .  is considered as system ground.



**PLEASE NOTE!**

The same ground reference has to be used for the **AST-IS1** and **AST-IS2** transmitters and for the control system!



# ELECTRICAL CONNECTIONS


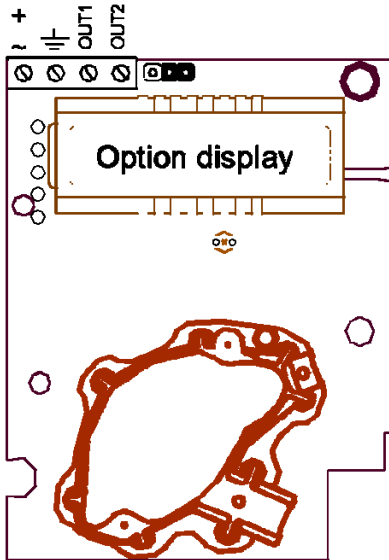
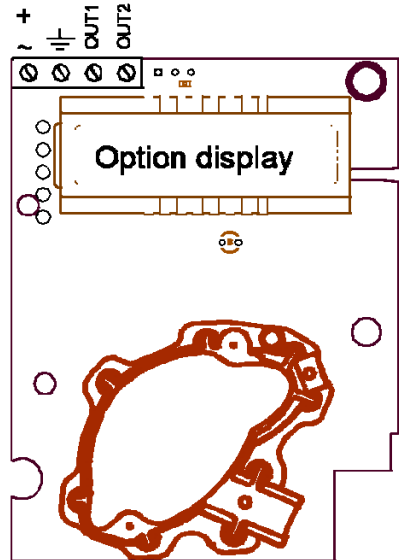
Terminal	Function	Electrical Data	Remarks, Standard Settings
+~ 	Power (+)	24VAC/DC+ (+/- 20%), 2W	System voltage reference
	Power ground (-)	24VAC/DC-	
OUT-1	Analog output-1 (+)	0-10 VDC	0-2000 ppm CO2
OUT-2	Analog output-2 (+)	0-10 or 2-10 VDC or 0-20 mA or 4-20 mA  0,9-1, 6 VDC or 1.5-2,5 mA  0 VDC or 0 mA	0-2000 ppm CO2  Status = Error  Status = Not Ready

Table-1: Connections of the main wiring terminal

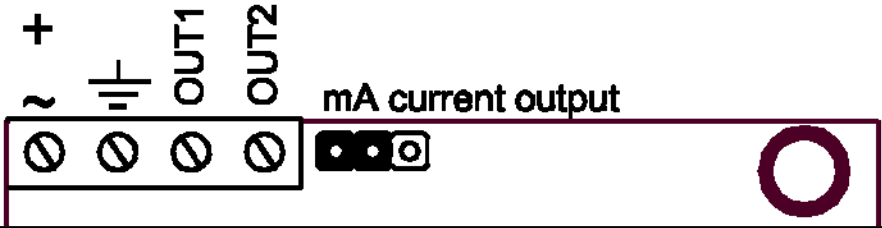


PCB with jumper to configure OUT-2 for current output 4-20 mA or voltage

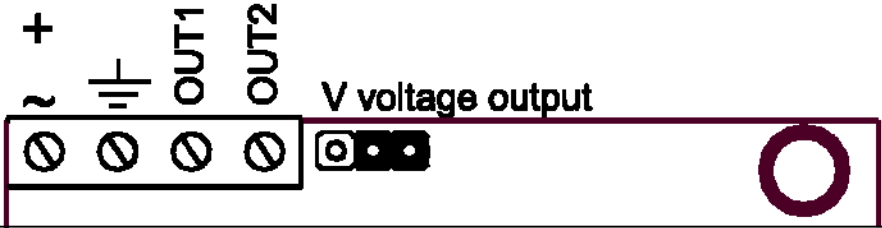


PCB with mounted resistor OUT-2 is then configured for voltage output 2-10

## WIRING CONNECTION TERMINALS



Enlarged picture of the PCB with the jumper set to current output (left position)



Enlarged picture of the PCB with the jumper set to voltage output (right position)

## MOUNTING SENSOR ONTO WALL

Please use screws with **screw head diameter less than 7,5 mm** (0,295 inches) and **screw head height less than 2,4 mm** (0,094 inches)

## SELF DIAGNOSTICS

The circuit contains complete self diagnostic procedures that are executed automatically when the sensor is in operation. The yellow LED is lit if an error is found. Sensors with display show a *wrench* if an error is found. The wrench is shown and the yellow LED is lit during the first seconds after power up and if the measuring range is exceeded. They are automatically turned off when the sensor returns to normal operation. The output OUT2 indicates the same information by setting the output voltage to 1V or 2 mA.

## MAINTENANCE

The infrared sensor is basically maintenance free in normal environments thanks to the built-in self-correcting ABC algorithm. Discuss your application with CETCI in order to get advice for a proper calibration strategy.

### **PLEASE NOTE!**

The sensor accuracy is defined at continuous operation (at least 3 weeks after installation)

**PLEASE NOTE!** Electronic products should be disposed of via a suitable recycling centre.



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