

**Critical Environment Technologies
Canada Inc.**

www.critical-environment.com

**Installation Manual for
AST-IS1 & AST-IS2**

Infrared CO2 wall (office) mount sensor / transmitters



MANUAL REVISION-A, February 24, 2015

**#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 trained technician and according to instructions indicated in this manual. This instrument should be inspected and calibrated regularly by a qualified and trained technician. For more information, refer to sections *10 Maintenance* and *8 Calibration* of this manual.

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:

PURCHASE DATE:

PURCHASED FROM:

WARRANTY POLICY

- Disconnect power before servicing

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 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 RMA #. 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 Returned Merchandise Authorization (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

This manual is subject to copyright protection; all rights are reserved. Under

international and domestic copyright laws, this manual may not be copied or translated, in whole or in part, in any manner or format, without the written permission of CETCI.

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 forgoing 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.

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

Critical Environment Technologies Canada Inc.

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Fax: +1.604.940.8745

Email: marketing@cetci.com

Website: 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)

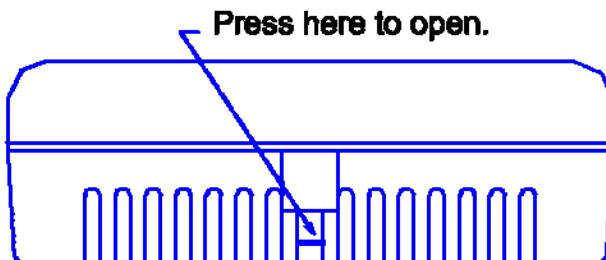
The IAQ-sensor product **AST-IS1** (sensor/transmitter for wall mounting) is designed to measure carbon dioxide (CO₂) in rooms.. The model AST-IS2 incorporates an LCD digital display indicating the measured CO₂ value in ppm (parts-per-million) real time.

These units are designed for connecting to Direct Digital Control (DDC) 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.

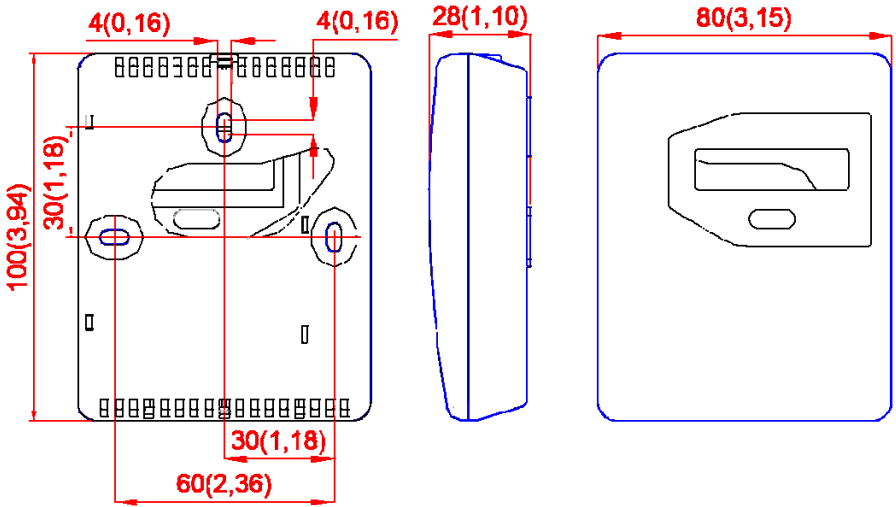


To open the wall mounted housing

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



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


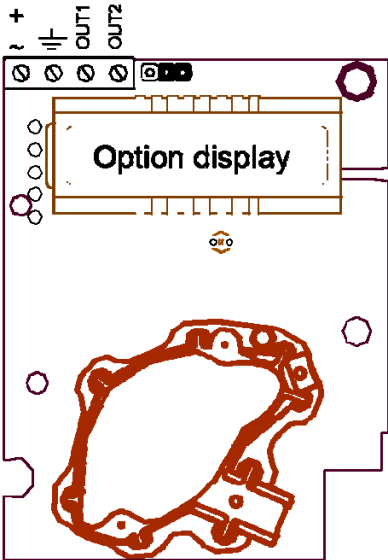
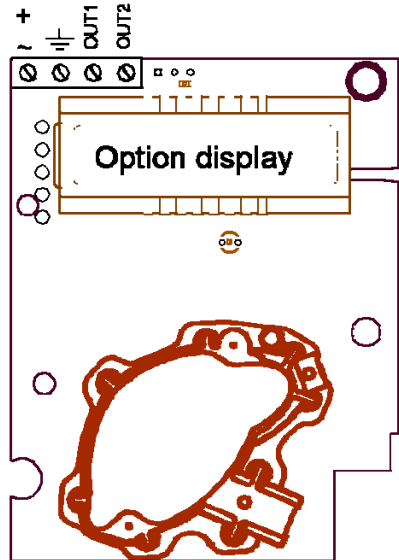
Terminal	Function	Electrical Data	Remarks, Standard Settings
+~ 	Power (+)	24VAC/DC+ (+/- 20%), 2W	System voltage reference
	Power ground (-)	24VAC/DC-	
OUT-1	Analog output-1 (+)	0-10 VDC	0-2000 ppm CO2
OUT-2	Analog output-2 (+)	2, 0-10 VDC or 4, 0-20 mA 0,9-1, 6 VDC or 1.5-2,5 mA 0 VDC or 0 ma	0-2000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

Table-1: Connections of the main wiring terminal

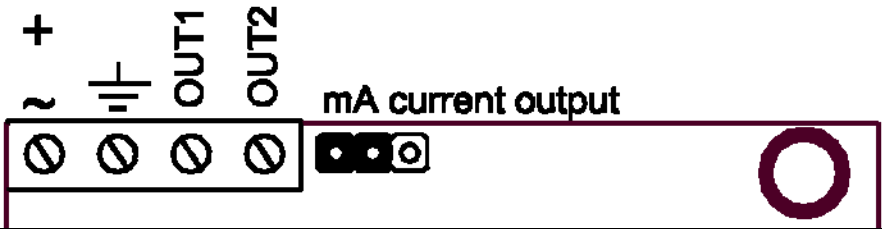


PCB with jumper to configure OUT-2 for current output 4-20 mA or voltage

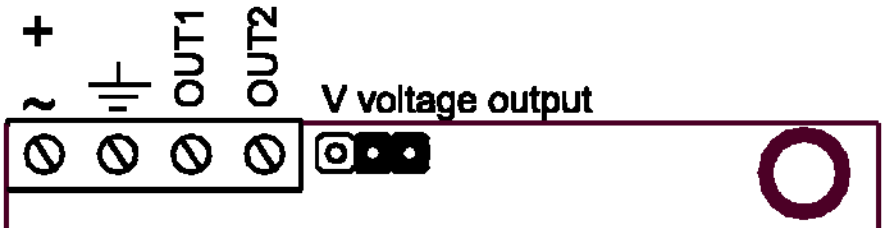


PCB with mounted resistor OUT-2 is then configured for voltage output 2-10

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)

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.

WARRANTY & LIMITATION OF LIABILITY

1. CETCI warrants that for a period of twenty-four (24) months following receipt by Buyer, the Product supplied by CETCI to the Buyer will be, under normal use and care, free from defects in workmanship or material and to be in material conformity with CETCI's specifications. Units returned to CETCI for warranty repairs shall be shipped to CETCI, at Buyer's expense, according to CETCI's instruction. Within ninety (90) days of the receipt of product, CETCI shall replace or repair such units and shall ship them to Buyer's designated return destination freight pre paid.

2. Warranty Limitations. This warranty does not extend to any unit that has been subject to misuse, neglect or accident; that has been damaged by causes external to the unit; that has been used in violation of CETCI's instructions; that has been affixed to any non-standard Accessory attachment; or that has been modified, disassembled, or reassembled by anyone other than CETCI.

3. The retailer is not responsible for any consequential loss or damages, which may occur by reason of purchase and use of this product. The warranty is, in any event, strictly limited to the replacement/repair of the product

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



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