Critical Environment Technologies Canada Inc.
www.critical-environment.com

Installation Manual for
AST-IS6
Infrared CO$_2$ Transmitter with LCD Display and Industrial Enclosure for mounting on walls

MANUAL REVISION-D, August 2017

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:
_____

PURCHASE DATE:
_____

PURCHASED FROM:
_____

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

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.

All software which CETCI utilizes and / or distributes holds a proprietary interest and is also subject to copyright protection and all rights are reserved. No party may use or copy such software in any manner or format, except to the extent that CETCI grants them a license to do so. **IF SOFTWARE IS BEING LOADED ONTO MORE THAN ONE COMPUTER, EXTRA SOFTWARE LICENSES MUST BE PURCHASED.**

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

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
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-IS6

The AST-IS6 is a reliable, long life infrared Carbon Dioxide (CO_2) sensor/ transmitter with an LCD display. The enclosure cover has a built-in rubber gasket and all other connections must be tight and sealed to prevent water intrusion. Improper installation resulting in damage is not covered under warranty. The AST-IS6 can transmit data to a BAS system or controller and the standard CO_2 measurement range is 0—2,000 ppm.

Linear output functions are pre-programmed as CO_2 with jumper selected outputs 0 - 10V / 2 - 10V / 0 - 20mA / 4 - 20mA.
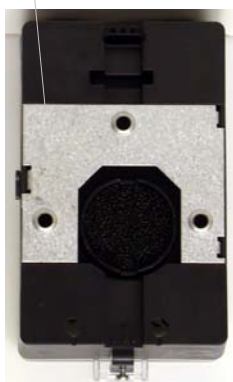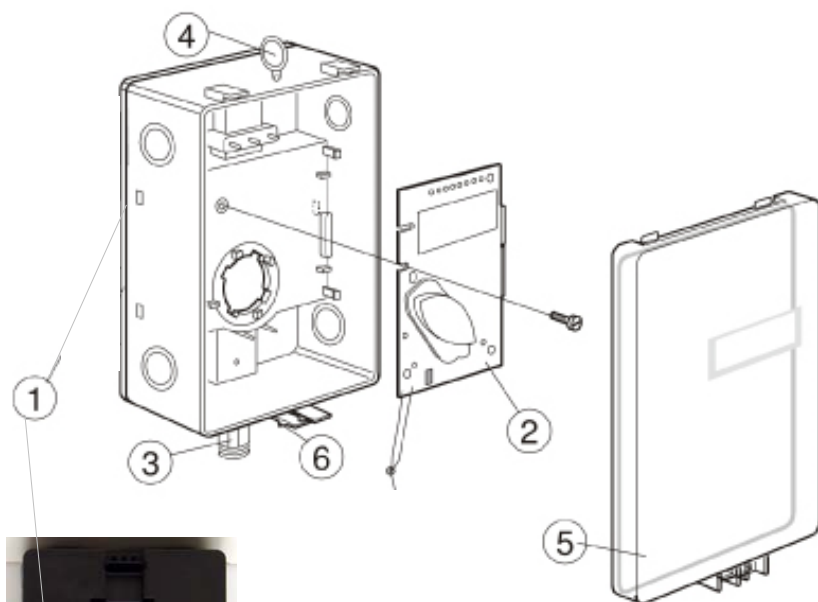
ITEM LOCATORS

1 Wall plate
2 PCB (Factory supplied mounted in box)
3 PG7 cable entry bushing
4 Attachment loop
5 Snap-in lid
6 Lid locking screw (not shown)

SPECIFICATIONS

	AST-IS6
Measurement Range	0 - 2000 ppm
Power Supply	24 VDC or VAC, 50/60 Hz (half-wave rectifier input)
Power Consumption	<1 W average
Linear Output	0-10 VDC or 0-20 mA 2-10 VDC or 4-20 mA
Temperature Sensor Range	No temperature sensor
Accuracy	na
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	0—95% RH non-condensing
Display	Yes
Enclosure Rating	IP54 rated
Dimensions	177 x 85 x 38 mm 7 x 3.35 x 1.5 inches
Alarm	No
Mute button	No
Relay Output	No
Mounting Type	Wall mount
Probe length	na
Communication	Analog
Certifications	CE and EMC

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

This product fulfills 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

CE

KEY FEATURES:

- State of the art non-dispersive infrared (NDIR) technology to measure carbon dioxide gas
- Maintenance free in normal applications
- Membrane covered sample chamber for a stable, reliable and highly accurate carbon dioxide sensor
- Fully coated PCB together with a special filter equipped housing for resistance towards dust and humidity
- Two programmable analog outputs

WALL MOUNTING INSTRUCTIONS

The enclosure is delivered with the wall plate attached. There are several mounting holes available to ensure a secure mounting location.

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 handed carefully and protected from electrostatic discharge.

1) Electrical cable entry: The box has a factory mounted cable entry bushing in dimension PG7, item-3 in drawing on previous page. Never feed more than one cable through each cable entry bushing, or else gas might leak through!

2) Screw the wall plate onto the wall: The wall plate has several holes from which to choose the best location to secure the transmitter with screws. Drill holes for 3,5mm screws and put dowel into them. Dowels and screws 3,5 x 25mm are included in a plastic bag

3) The lid can be locked with the screw at the bottom of the sensor box, item-5 on drawing on previous page.

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

ELECTRICAL CONNEECTIONS

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-IS6 unit and for the control system!* Unless different transformers are used, special precautions need to be taken.
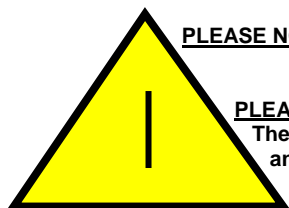
PLEASE NOTE! The *AST-IS6* **signal ground** *is not* **galvanically separated from the** *AST-IS6* **power supply!**

PLEASE NOTE!
The same ground reference has to be used for the *AST-IS6* **unit and for the control system!**

If possible keep the sensor powered up after mounting. Connect the analogue output before measuring.

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-IS6 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.

Connection Terminal	Function	Electrical Data	Remarks
G+	Power (+)	24VDC/DC + (+20%), 3W	2W without output load
G0	Power ground (-)	24VAC/DC -	See Note-1
Out-1	Analog Output-1 (+)	0-10 VDC or 0-20 mA 2-10 VDC or 4-20 mA	According to positions of Out-1 & start point jumpers See note-2
Out-2	Analog output-2 (+)	Same as Out-1	According to positions of Out-2 & start point jumpers See Note-2
		0,9-1,6 VDC or 1.5-2,5 mA	Status = ERROR
		0 VDC or 0mA	Status = NOT READY

WIRING TERMINALS & SIGNAL OUTPUT JUMPER SETTINGS
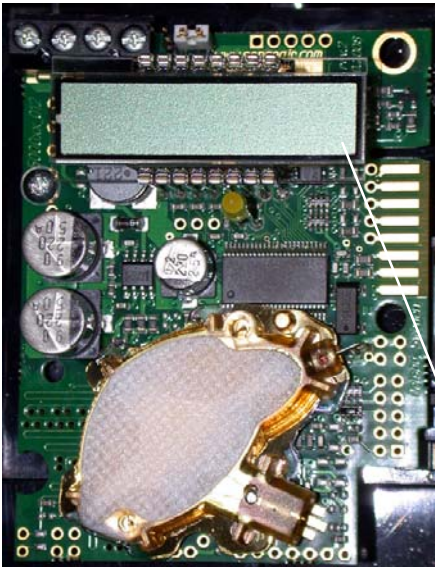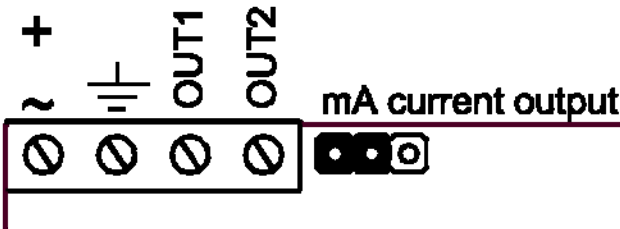

POWER 24VAC / DC+
POWER GROUND (-)
OUT-1 ANALOG OUT 0-10VDC(+)
OUT-2 ANALOG OUT 4-20 mA(+)
CURRENT OUTPUT JUMPER SET
VOLTAGE OUTPUT JUMPER SET

+ ~
⊥

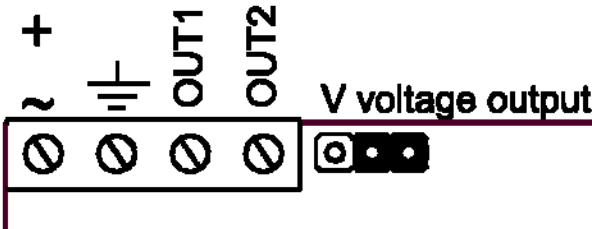**NOTE: JUMPER IN THIS PHOTO IS SET FOR VOLTAGE OUTPUT. FOR CURRENT OUTPUT, COVER THE TWO PINS CLOSEST TO THE TERMINAL STRIP.**
<<<<<
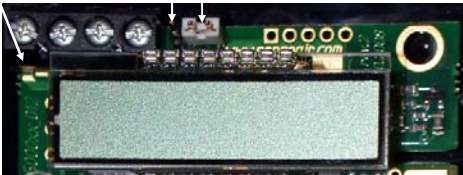
The drawings below indicate the jumper locations and positions for attaining current or voltage output

mA current output

Drawing of PCB jumper area with the jumper set to current output (left position)
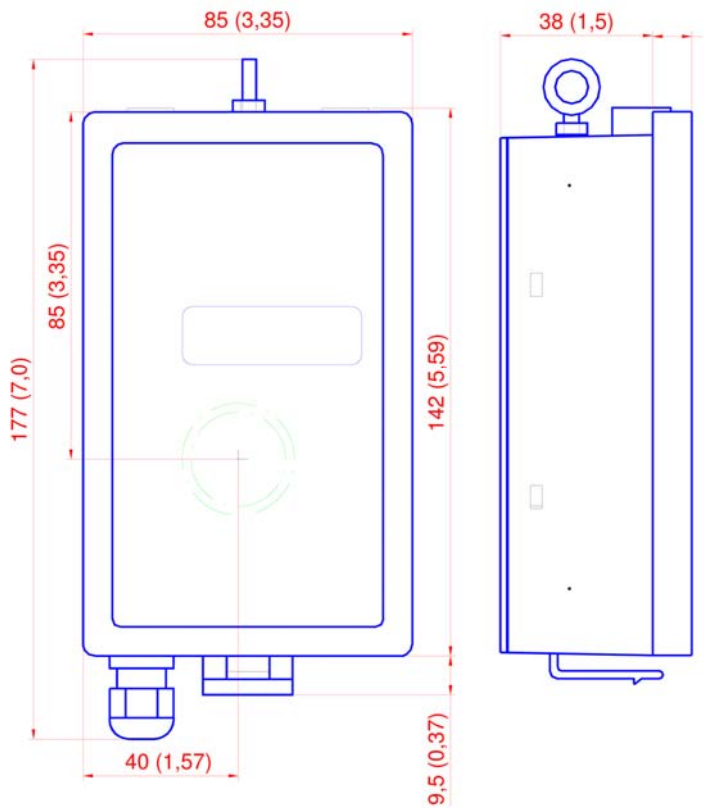

V voltage output

Drawing of PCB jumper area with the jumper set to voltage output (right position)

DIMENSIONS

Never feed more than one cable through each cable entry bushing.

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

DIMENSIONS OF TRANSMITTER in mm (and inches)
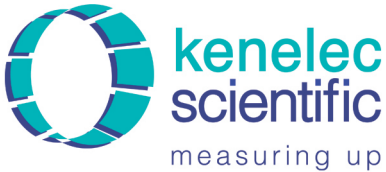
Critical Environment Technologies Canada Inc.

Unit 145, 7391 Vantage Way, Delta, BC, V4G 1M3, Canada

Toll Free: +1.877.940.8741

Tel: +1.604.940.8741

Fax: +1.604.940.8745

www.critical-environment.com

kenelec scientific
measuring up

Distributed by:

Kenelec Scientific Pty Ltd
1300 73 22 33
sales@kenelec.com.au
www.kenelec.com.au