d-Conv – Convergence *User Manual*

YieldPoint Inc.

February 2019

Warranty and Service Policy

Product Warranty

YieldPoint Inc warrants the instruments described in this manual to be free from defects in materials and factory workmanship to the original buyer. This warranty is contingent upon proper use of the equipment and does not cover equipment that has been modified or has been subjected to abusive physical or electrical stresses. YieldPoint Inc., agrees to repair or replace, at its sole discretion, any instrument that fails to perform as specified within 6 months after date of the original shipment from the factory, or 3 months after the date of installation, whichever date comes first.

Yieldpoint Inc., reserves the right to make substitutions and modifications in the specifications of equipment that do not materially or adversely affect the performance of the equipment.

New equipment may be returned within 30 days of shipment with prior approval. New items which are less than thirty days old after shipment may be returned for credit, less a minimum restocking and testing charge of twenty percent of the list price upon factory approval only, provided the customer pays all shipping and handling charges. Specially ordered, or modified goods, or goods which have been used or have been unpacked, or goods which have been shipped more than thirty days prior are not returnable.

The information contained in this manual is subject to change without notice. YieldPoint Inc. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Further, YieldPoint Inc., assumes no responsibility for any errors that may appear in this manual and makes no commitment to update, or keep current, the information contained in this manual.

Service Policy

Units within the warranty period returned for repair, test, and recalibration are serviced at no charge in accordance with the terms of the warranty policy. The Customer pays all transportation and other charges to the factory.

Units out of warranty returned for repair, test, and/or recalibration are handled on a time and material basis. If requested, or if costs exceed 50% of current list price, YieldPoint Inc., advises the customer prior to making the repairs. Such repairs are performed at the customer's expense. Typical test, recalibration, and repairs are 25% of the instrument's current list price. Transportation charges both ways are at the customer's expense.

Please be sure all returns are shipped with the following information included:

1. Your company Name with Billing and Shipping Addresses.

2. A complete description of your problem, or re-calibration data.

3. The contact person at your company, with their telephone and facsimile numbers.

4. Non-Warranty returns additionally need your Purchase Order Number.

Please pack your returned instruments in their original shipping cartons, or in equivalent strong protective shipping cartons.

The *d-Conv Convergence Sensor*

The *d*-Conv is based on a miniature inductive displacement sensor packaged in a telescoping stainless steel tubular body. The sensor's range is 200mm. When fully extended the sensor will read 0.5mm and when fully stretched it will read 200mm.

The displacement sensors are distributed along the cable yet they are small enough to be housed in the instrumentation head. This "signal processing head" of the ***d*-CABLE** can be reduced to a diameter almost equal to the diameter of the cable itself. The cable can be easily used in situations that require plating or pre-tensioning.

The output signal from the ***d*-CONV** is a digital signal RS485 serial (9600,8, N,1) signal with the Serial Number, Sensor Type and data multiplexed on a single twisted pair. The reading comprises multiple values (one for each displacement sensor) directly in **millimeters** so that the user has a direct and immediate indication of sensor deformation without having to enter the data in a spreadsheet.

NOTE: The YieldPoint manual readout unit (***d*-READER**) outputs load directly in millimeters (resolution 0.01mm).

CALIBRATION SHEETS

Every ***d*CONV** is individually calibrated to its entire range of movement or 200mm. The calibration data sheets are available upon request.

YieldPoint

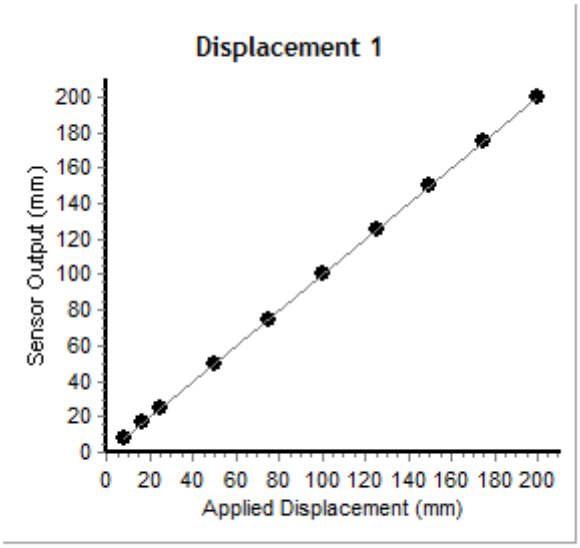
d-EXTO 200mm CALIBRATION SHEET

Date of calibration: 10/26/2018

Sensor ID: 181021027

Sensor Type: d1EXTO

APPLIED DISP (mm)	DISP 1 (mm)
0.00	. 0
8.33	8.30
16.66	16.66
25.00	24.98
50.00	50.00
75.00	75.00
100.00	100.00
125.00	125.00
150.00	150.02
175.00	174.99
200.00	199.99
CAL. SLOPE	1.0001
CAL. OFFSET	-0.0091



Calibrated by: JK

INSTALLATION OF THE d-CONV

Unpacking the dCONV.

1. Take the sensor out of its white cardboard box.

2. Plug the lead wire connector to a readout unit (dReader) and check the readings. When fully extended the sensor should read around 200mm and when fully contracted it should read about 0.5mm.

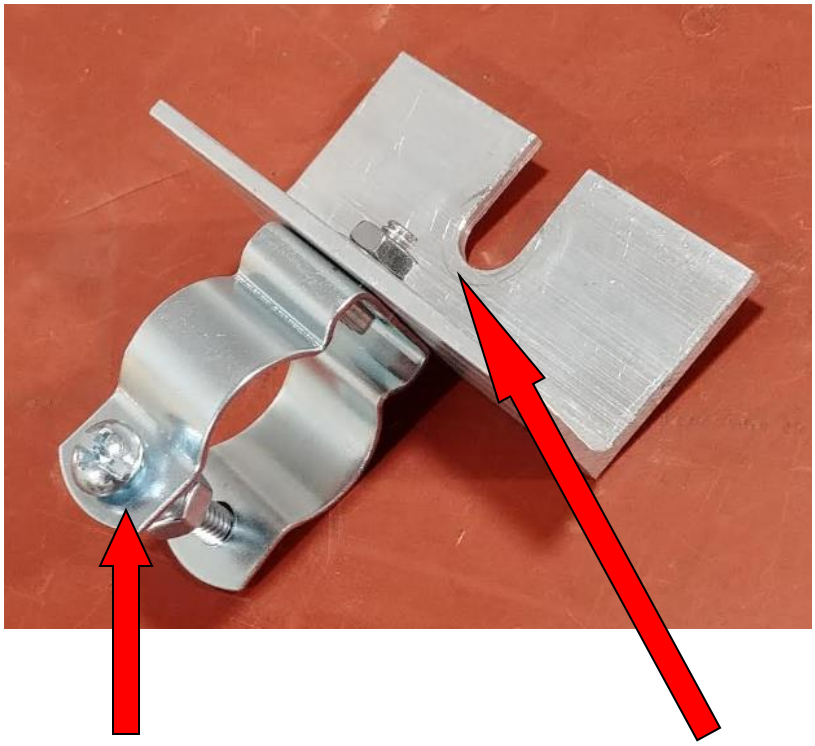
3. An internal stop will protect against excessive extension of the instrument: make sure to not pull too hard and break the stop.
4. Disconnect from the dReader: the sensor is ready to install.

Installing the dCONV on the telescoping pole.

1. The sensor comes with 2 pairs of nuts on either side.

2. Make sure to not move the inside nuts against the body of the sensor. There must be a space between nut and stainless steel body.

3. There is one pair of brackets per sensor. These brackets will be mounted on either end of the sensors. Each bracket will be placed and tightened between the 2 nuts.

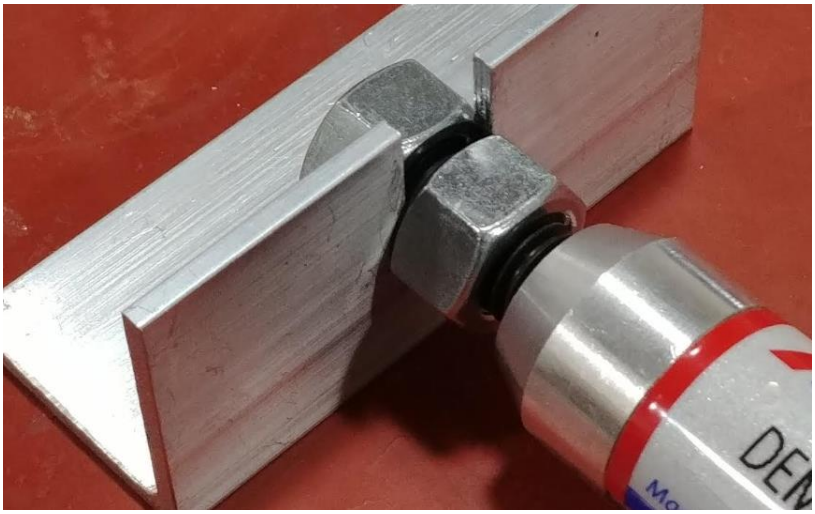


Mounting for telescoping tube Mounting for sensor

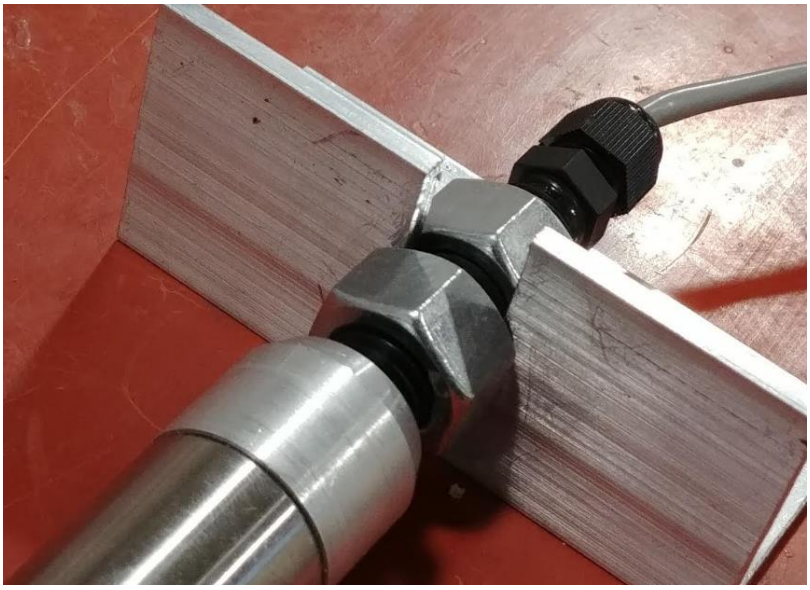
2 fully assembled sensor brackets.

Bracket aligned with pair of nuts.

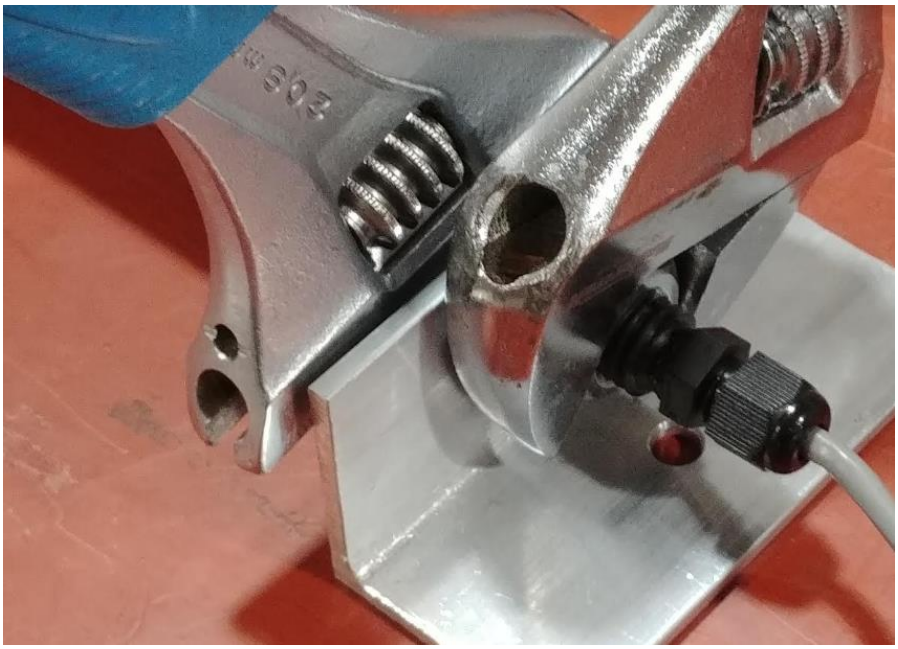
Bracket aligned with pair of nuts.



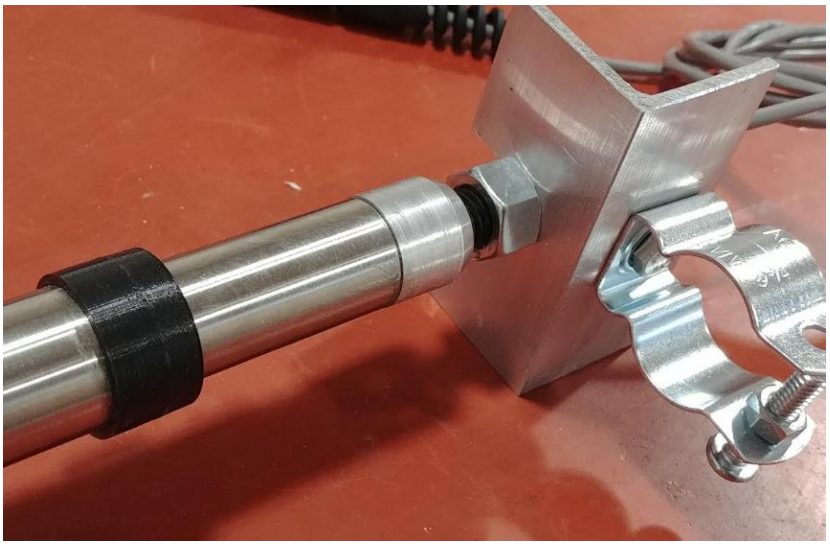
Bracket mounted between nuts.



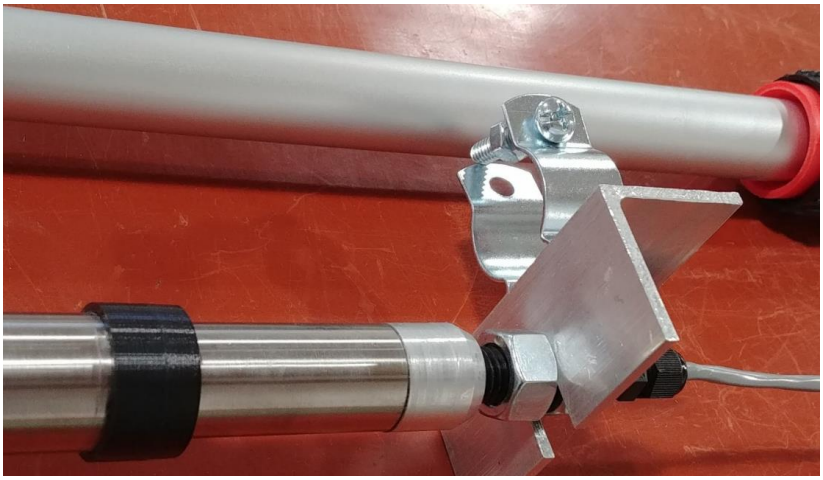
Bracket #2 mounted between nuts.



Nuts tightened over bracket.

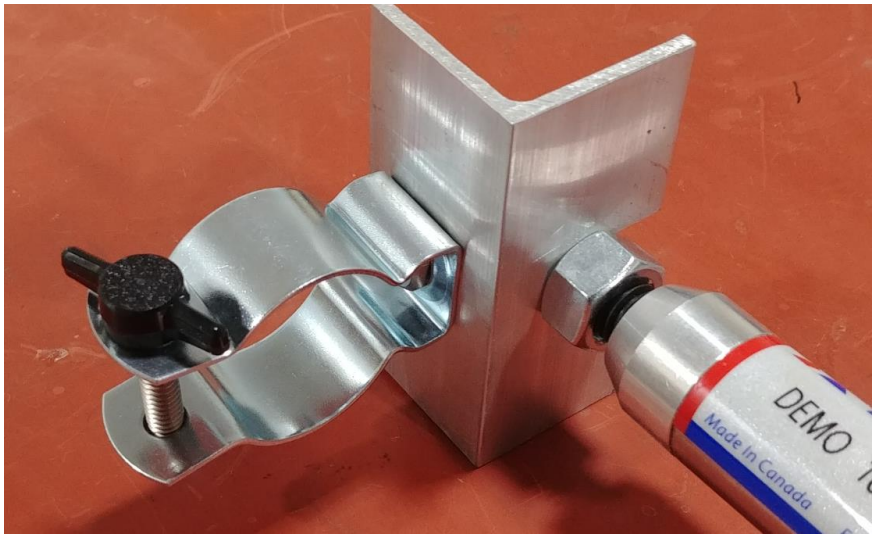


Bracket mounted on small side of sensor.



Bracket mounted on sensor to clamp to the small diameter side of the telescoping pole.

One of the brackets has a wingnut for easy remnoval. The reason for this is that once an instrument has moved by 200mm and consumed its entire range of displacement, it can easily be reset by loosening one bracket, stretching the instrument again by 200mm and tightening the bracket on the pole again.



Removable bracket mounted on one end of sensor.

Bracket mounted on sensor to clamp to the large diameter side of the telescoping pole.

Final assembly of brackets on sensor, and position relative to telescoping pole.

Data can be viewed on our Geotechnical Data Platform. The illustrative sample below is from an extensometer.