3. FIELD CHARACTERIZATION

The VELTRON III is equipped with a field characterization (K-factor) feature which allows for the introduction of gain and/or bias factors into the transmitter's flow calculations. This feature is intended to be used in two types of applications:

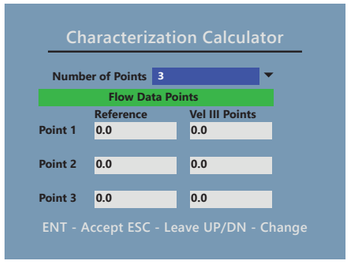
I. To adjust for flow measurement error as a result of highly distorted airflow induced by upstream or downstream flow disturbances.
II. To adjust the transmitter's output to bring it into close correlation with field measured flow data.

The K-Factor gain and bias values can be entered directly or the VELTRON III can calculate these values based on measured and reference values from a 1, 2, or 3 point airflow traverse.

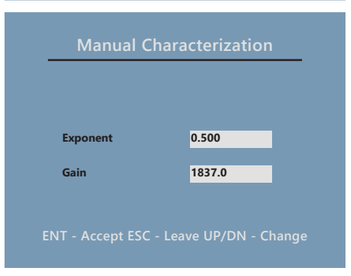
For best results, Air Monitor recommends at least 2 velocity points be used to characterize the installation, with one velocity reading taken in the bottom 1/3 of the operating range. When making this measurement, it is essential that the velocity measurement be within the operating range of the Veltron III and airflow sensor. The Veltron III can simultaneously display flow velocity in actual and standard conditions. Before airflow traverse readings are taken, temporarily reconfigure the display to show both velocity readings and make sure the airflow velocity does not exceed the airflow sensor cutoff before any airflow traverse readings are taken.

Number of Points

The number of data points (1-3) to be used for field characterization.



3 Points - For point 1, enter a flow rate or velocity that is in the bottom third of the operating range. For point 2, enter a flow value that is in the middle third of the operating range. For point 3, enter a flow value that is in the upper third of the operating range.



If you select the manual option in the field characterization menu, you will be provided with data entry fields for manually entering exponent and gain values. This data will be calculated and provided by the balancer or others.

Visit the VELTRON III product page for more information.

Air Monitor
Precision Airflow Measurement
An ONICON Brand

11451 Belcher Road South • Largo, FL 33773 • USA • +1 (727) 447-6140
www.airmonitor.com/hvac/ • hvacsales@airmonitor.com

QUICK START GUIDE

VELTRON III - Pressure & Flow Transmitter

Air Monitor
Precision Airflow Measurement
An ONICON Brand

INSTALLATION PROCEDURE

STEP 1: UNPACKING

PACKING LIST

- VELTRON III Transmitter
- RTD Temperature Sensor (Up to 2 if selected upon ordering)
- Quick Start Guide
- Factory Setup Sheet

INSPECTION & HANDLING

Veltron III should be carefully inspected for damage prior to Installation. Report damage to your freight department or contact the delivery carrier.

WARRANTY

Air Monitor Corporation (Herinafter referred to as "Seller") warrants that at the time of shipment, products sold pursuant to this contract will be free from defects in materials and workmanship, and will conform to the specifications furnished or approved in writing by the Seller. Please refer to Conditions of Sale on the Air Monitor website for more information.

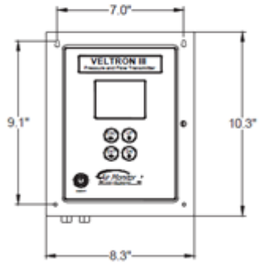
STEP 2: MECHANICAL INSTALLATOIN

Find an easily accessible location where electrical connections can be made and display readings can be taken from the floor level. The mounting surface must be structurally sound and capable of withstanding a minimum weight of 10lbs (4.5kg). Use the following screws for mounting.

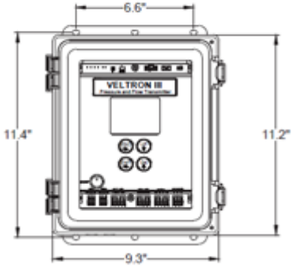
For NEMA 1 Enclosure:
(4) Machine screws - #8-32 x 1.5"
(4) Wood screws - #8 x 1.5"
(4) Concrete screws - 0.1875" x 1.5"

For NEMA 4X Enclosure:
(4) Machine screws - HHMS 0.25-20 x 1.5"
(4) Wood screws - FHLS 0.25 x 1.5"
(4) Concrete screws - HHCS 0.25 x 1.5"

NEMA 1 ENCLOSURE



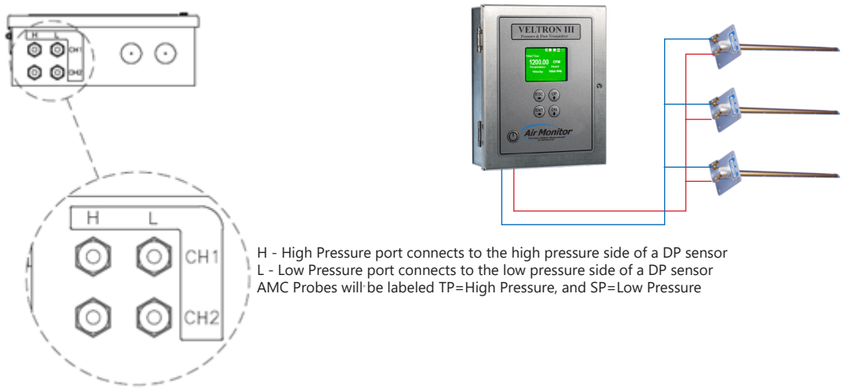
NEMA 4X ENCLOSURE



Install the pressure or flow sensor per manufacturer recommendations. Use the table below to determine the appropriate sensor tubing diameter based on the distance from the enclosure to the airflow sensors. Contact Air Monitor for assistance if longer tubing lengths are required.

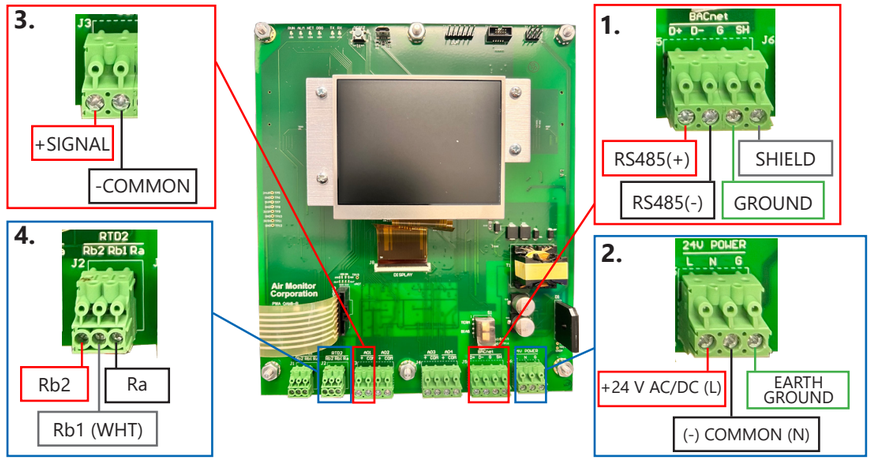
Nominal/Min Tubing Internal Diameter (in)	Tube Length Total (ft)	Sensor Max Distance from Transmitter (ft)
1/8 (0.125)	30	15
3/16 (0.1875)	200	100
1/4 (0.25)	500	250
3/8 (0.375)	1000	500

Air Monitor recommends that signal tubing between the transmitter enclosure and all sensors be stainless steel or copper of the appropriate size. Use tees or manifolds to combine multiple sensors into single high and low pressure lines running to the transmitter's channel fittings for each channel. UV resistant, flexible, plastic tubing specifically designed for outdoor use, such as Tygon R-3400 or equivalent, may also be used. Use brass inserts with the plastic tubing as required to ensure a leak free connection. The connection types can be either compression fittings which are recommend with metal tubing or barb fittings which are recommended for plastic tubing.



H - High Pressure port connects to the high pressure side of a DP sensor
L - Low Pressure port connects to the low pressure side of a DP sensor
AMC Probes will be labeled TP=High Pressure, and SP=Low Pressure

STEP 3: ELECTRICAL INSTALLATION



1. POWER
   I. Verify that correct AC/DC voltage is available at the power supply input terminals per its wiring diagram.

   II. Input voltages should be supplied via one of the two methods below:
   - 24 VAC, 15VA @ 24 VAC (40 VA with heater)
   - 24 VDC, 10W @ 24 VDC (35W with heater)

VELTRON III
QUICK START GUIDE

2. CONNECTING VIA BACNET MS/TP
   I. Power on unit to verify it is functioning properly. After verifying, power down the unit.
   II. Wire RS485 cables to unit. The network cable connections are polarity sensitive and must be connected the same way on every device (i.e. + to + and - to -). Shield drain connections should be daisy chained in the same manner as the signal cables for RS485. The shield drain wire should be left unterminated at the end of the cable and connected to earth only at the network master controller. Shield wires must not be connected to the RS485 connector on the Veltron III. The maximum number of devices allowed on an RS485 network segment without a repeater is 32. Adding more than 32 devices to a single segment may reduce the transceiver output voltage to a level that is too low to be distinguished from background noise on the cable.
   III. Connect power to unit.
   IV. Navigate to the Veltron III network configuration. Select Main Menu→Network Configuration→BACnet or MODBUS.
   V. Configure device the Baud Rates, Device Address Range, Device Instance Range, and Max Master.
   VI. Power cycle the device and it is now ready to connect to the controller or next device in the trunk.

3. ANALOG OUTPUT
   I. For each analog output wire the two wires, the signal and the common for the device to provide 4-20mA, 0-5V, or 0-10V signal for each output.
   II. Analog loop should not have power supplied to or it will damage the analog output.

4. RTD (IF SELECTED)
   I. Remove the RTD from the transmitter enclosure (taped in bag at bottom).
   II. Select a convenient mounting location(s) near the inlet or inside the air handler/duct to mount the RTD(s).
   III. Use the supplied sheet metal screws to mount the RTD(s).
   IV. Wire the RTD to the unit.

STEP 4: PROGRAMMING

TEMPERATURE FIELD CHARACTERIZATION

To navigate to the Temp Field Characterization menu. Select Main Menu→Temp Field Characterization or System1/System2→Temp Field Characterization for Dual Channel, Dual split.

I. If the device was configured for an RTD, the user will be prompted to enter a reference temperature to calibrate the RTD in the field.

II. If the device was configured without an RTD, the temperature will manually be entered into the Process Temperature screen.

2. HUMIDITY CORRECTION

To navigate to the Humidity Correction menu. Select Main Menu→Humidity Correction Option or System1/System2→Humidity Correction Option for Dual Channel, Dual system.

This function allows the user to set the air to be adjusted for Supply Air, Return Air, or Custom. For supply air RH is set to 20% RH if Temp > 85°F and then switches to RH of 98% if <85°F. Return Air RH is set at 60% regardless of Temp rading from RTD. For Custom you can enter your low RH value and high RH value, the Low RH value will be used when RTD Temp is >65°F.