MODEL CODE

VTFA ☐ - ☐☐☐☐ - ☐☐ - ☐☐

No. of Sub-Arrays
1 = 1 Sub-Array
2 = 2 Sub-Arrays
3 = 3 Sub-Arrays
4 = 4 Sub-Arrays

Sub-Array 1
1 = Single Sensor
2 = Dual Sensor
3 = Triple Sensor
4 = Quad Sensor

Sub-Array 2
0 = Unused
1 = Single Sensor
2 = Dual Sensor
3 = Triple Sensor
4 = Quad Sensor

Sub-Array 3
0 = Unused
1 = Single Sensor
2 = Dual Sensor
3 = Triple Sensor
4 = Quad Sensor

Sub-Array 4
0 = Unused
1 = Single Sensor
2 = Dual Sensor
3 = Triple Sensor
4 = Quad Sensor

OPTIONS
BLANK = No Options
B = BACnet MS/TP
D = Internal Transmitter Display *(Ref Note 3)*
P = Purge *(Ref Note 4)*

TRANSMITTER ENCLOSURE
0 = Standard
1 = NEMA 4X

CABLE LENGTH *(Ref Note 2)*
1 = 25' (7.6m)
2 = 50' (15.2m)
3 = 75' (22.9m)
4 = 100' (30.5m)

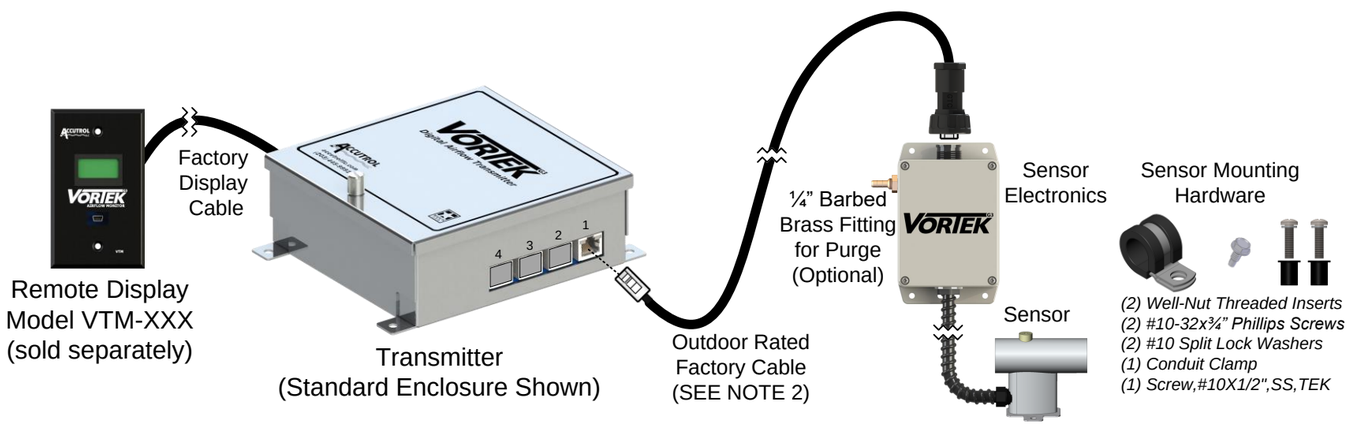
NOTES:

1. The following information shall be provided with order:
   Device Tag Number
   Analog Output Full Scale Range
   Analog Output Signal Type
   Fan Inlet Diameter
   (Refrence Figures on Following Pages)
2. Contact factory if cables longer than 100' are required.
   The cable terminations are based on the Transmitter Enclosure Selection per table below.

Transmitter Enclosure Type	Cable Terminations	
	Transmitter End	Sensor Electronics End
0	Standard RJ45	Waterproof RJ45
1	Waterproof RJ45	Waterproof RJ45

3. When Option D (Internal Transmitter Display) is selected, the Remote Display cannot be used.
4. Purge option requires connection to 20 psi clean and dry instrument air supply.

Model Shown Below: VTFA1-1000-10-P



SPECIFICATIONS

PERFORMANCE

Accuracy	
Individual Sensors	+/-2% of reading
System Accuracy	+/-5% of reading (installed accuracy expected when installation meets guidelines)
Repeatability	+/- 0.1% of reading
Sensor FS Range	Factory Default is 12,000 FPM (60.69 m/s) (software configurable)

ENVIRONMENTAL

Operating Temperature	
Sensor	-20° to 140° F (-29° to 60° C)
Transmitter	-20° to 150° F (-29° to 66° C)
Display (optional)	-4° to 158° F (-20° to 70° C)
Storage Temperature	
Sensor & Transmitter	-40° to 150° F (-40° to 66° C)
Display (optional)	-22° to 176° F (-30° to 80° C)
Humidity	
Sensors	Non-condensing
Transmitter	0 to 90% non-condensing

ELECTRICAL

Input Power	24VAC +/- 20% 50-60Hz, 2.4 VA with no options, 4.8 VA with display & BACnet options 24VDC +/-10%, 1 W with no options, 3 W with display & BACnet options
Inputs	4 Sensor Input Channels with up to 4 Sensors per Input (16 Sensors Max)
Output	0-20mA, 4-20mA, 0-10v, 2-10v, 0-5v or 1-5v (software configurable) 12-bit Resolution, Capable of driving 1K ohm load
Configuration Port	USB 2.0, Isolated, Mini B Connector
USB Power Switch	Selects alternate power source for configuration when main power is not available Draws 5v power from USB configuration port
Status Indicators	LED Status Indicators for; Power, Output, Configuration Port, Power Source Switch, Sensor Input Channel 3 and 4, Display and BACnet Communications
I/O Terminal Block	3 position vertical pluggable screw terminal block, screw access on top, 12-30 AWG
Cables	
Standard	Outdoor rated shielded cables with watertight plug on sensor end
Optional	NEMA 4X Transmitter; Outdoor rated shielded cables with watertight plug on both ends
Network Com Port	EIA 485 2-wire BACnet MS/TP
(Optional)	Galvanically Isolated Data Rates 9600, 19200, 38400, 76800 and 115200 1/8 Unit Load Receiver Input Impedance Network bias and EOL Termination not provided within the Transmitter
Display	Remote mount or transmitter mount
(Optional)	Liquid Crystal Display, 2 lines x 8 characters with white LED backlight Includes USB Configuration Port

MATERIALS OF CONSTRUCTION

Sensor	Base and Shroud: Anodized Aluminum Shedder: ABS Plastic Mounting Bracket: 304SS Mounting Screws: 304SS Rivet Nut: Neoprene Rubber with #10-32 threaded Brass Insert
Flexible Conduit	UV resistant flexible PVC, VW1 Flammability Rating
Conduit Clamp	Zinc-Plated Steel, EPDM Rubber, Stainless Steel Tek Screw
Conduit Fittings	Nylon 6/6, 94V-2 Flammability Rating
Enclosures	Transmitter: Aluminum Alloy 5052-H32,16 Gauge Sensor Electronics: NEMA 4X (IP66) Polycarbonate Plastic, UL94-V0 Optional Transmitter: NEMA 4X (IPX6) Polycarbonate Plastic, UL94-V0

EMC AND SAFETY CE

Emissions	EN 55011:2009+A1:2010, FCC Part 15:2017, ICES-003 Issue 6, EN61000-3-2:2014, EN61000-3-3:2013
Immunity	EN61326-1:2013, EN61000-4-2:2009, EN61000-4-3:2006+A1:2008+A2:2010 EN61000-4-4:2012, EN61000-4-5:2006, EN61000-4-6:2009, EN61000-4-8:2010 EN61000-4-11:2004
Safety	EN61010-1:2010

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VorTek^{G3} Fan Array

DWG. NO:	VTFA SUBMITTAL		
REVISION:	H	ECN:	2663
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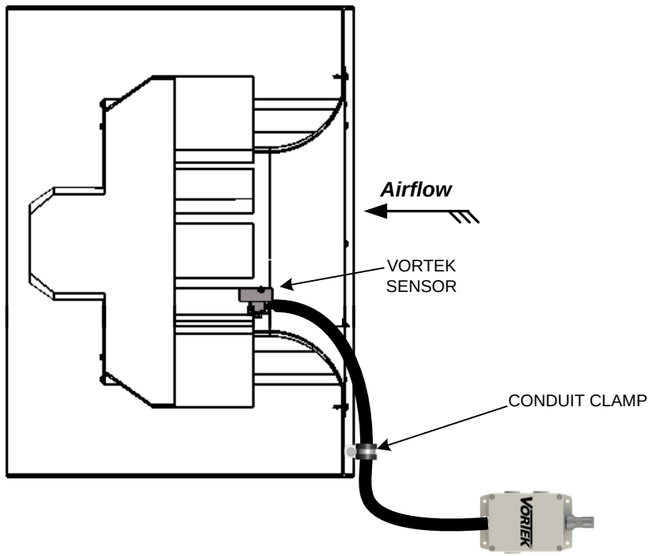
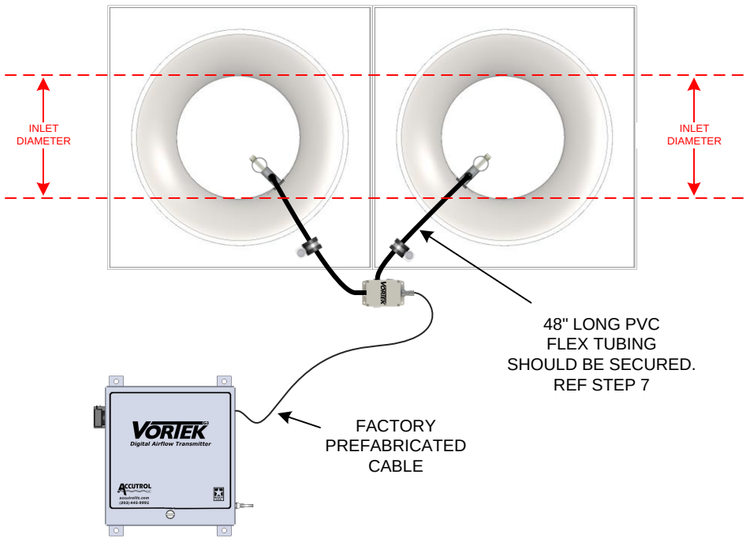
SENSOR INSTALLATION

CROSS SECTION VIEW





Model: VTFA1-2000-10

⚠CAUTION: Only use the mounting hardware provided with the sensors and follow the instructions below, otherwise damage to the fan may result. If hardware is missing contact the factory.

⚠WARNING: Use safety glasses and cut-resistant gloves when installing sensors. Verify the circuit providing power to the fan is turned off and there is no power at the fan motor.

MOUNTING HARDWARE PROVIDED WITH EACH SENSOR:

(2) #10-32 Well-Nuts with Threaded Inserts
(2) #10-32 x ¾" Long Phillips Screws
(2) #10 Split Lock Washers
(1) Conduit Clamp
(1) Screw, #10x½",SS,TEK

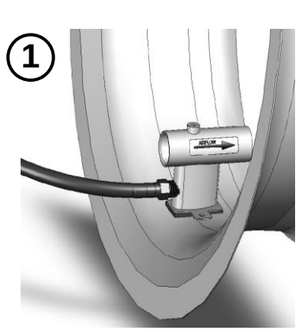
TOOLS REQUIRED:

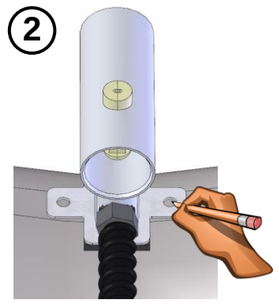
Drill with a 3/8" Drill Bit
5/16" Hex Driver
#2 Phillips Screwdriver with Torque Indicator

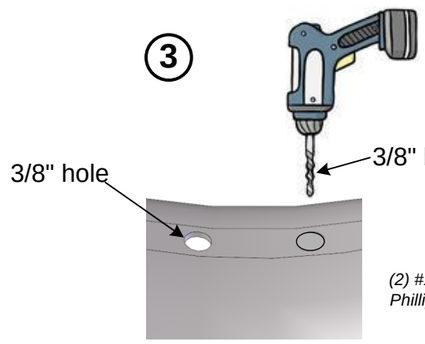
1. Position the sensor into the throat of the fan inlet bell (smallest diameter) with airflow direction indicator facing towards the fan blades. Verify the fan blades will not come in close contact with the sensor and there are no obstructions in front of the sensor.

2. Using the sensor mounting bracket as a template, mark the inlet bell through the two mounting holes then remove the sensor.

3. Drill a hole at each location using a 3/8" diameter drill bit.







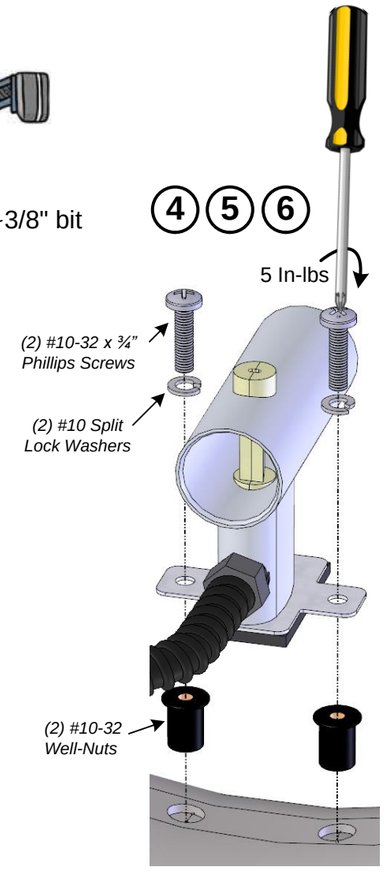
4. Insert the 2 well-nuts into the 3/8" diameter holes.

5. Place the sensor into the fan inlet bell and align the two holes in mounting bracket with the two well-nuts. Verify the airflow direction indicator on the sensor is pointing towards the fan blades.

6. Secure the sensor in place using mounting hardware supplied. Tighten the two screws to 5 inch-pounds.

7. In addition to serving as a signal conduit, the flexible tubing also provides a mechanical safety connection to prevent the sensor from getting pulled into the fan if it becomes disengaged. Pull the flexible conduit away from the fan inlet and secure it to a surface using the provided Conduit Clamp so it is not in the air stream and there is no slack in the tubing between the sensor and mounting hardware. Secure the Sensor Electronics Enclosure in place out of the airstream.

8. For multiple fan applications, repeat above steps for other fans.



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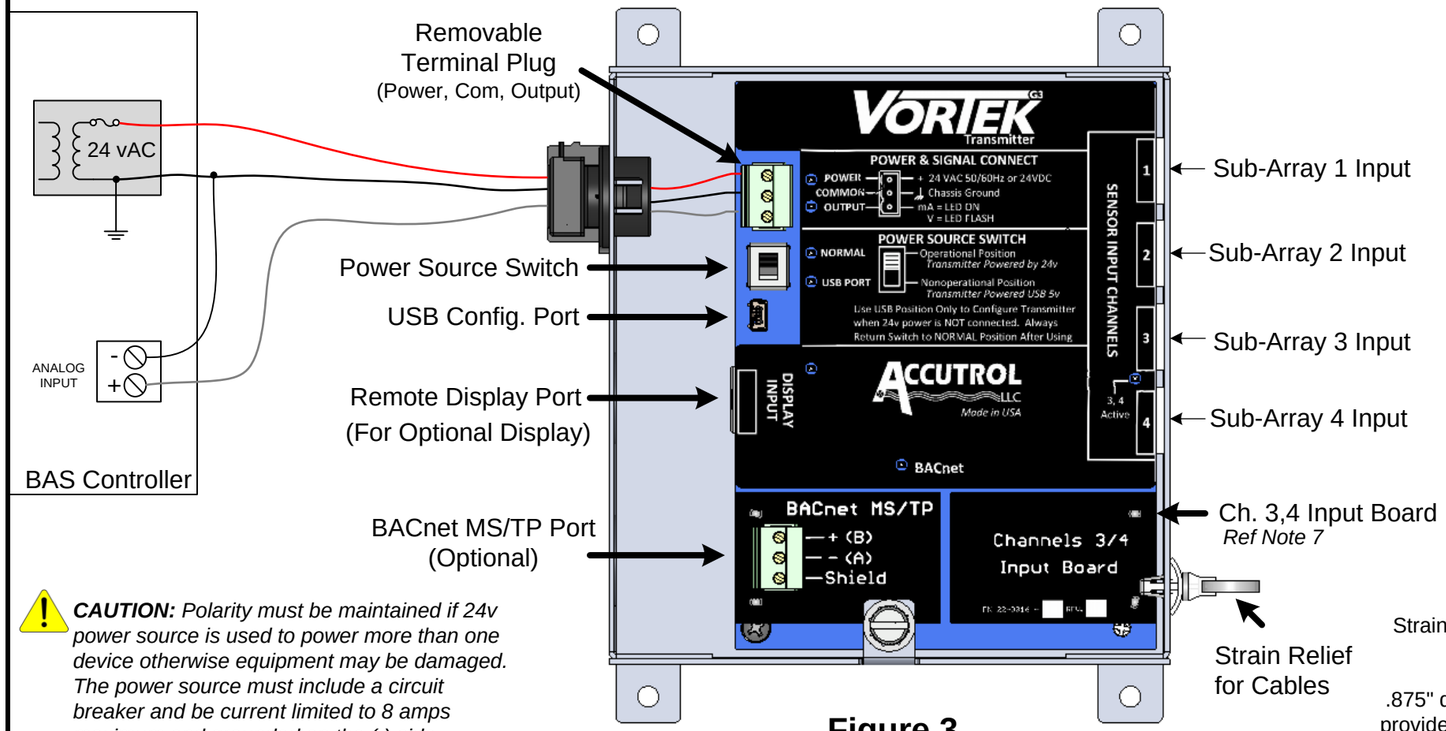
TRANSMITTER INSTALLATION

1. Select an easily accessible location to install the transmitter within the range of the sensor cables that have been provided. Provide clearance to remove the cover and easily access the connectors and field connections.
2. Using the four 0.20" diameter holes located on the transmitter enclosure, secure the transmitter to mounting surface using (4) #8 or #10 Pan Head Screws. For sheet metal mounting surface, use sheet metal or tek screws, for plywood surface use coarse thread wood screws, for drywall surface, use drywall anchors with the appropriate screws.
3. Connect each sensor to the corresponding sensor input channel on the transmitter using the cables provided (Reference Figure 1)

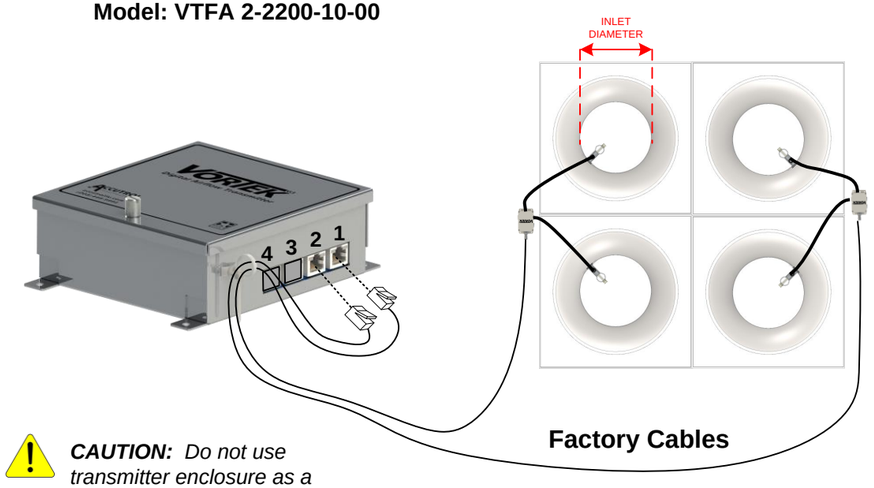


CAUTION: *Polarity must be maintained if 24v power source is used to power more than one device otherwise equipment may be damaged. The power source must include a circuit breaker and be current limited to 8 amps maximum and grounded on the (-) side.*

Figure 3

Figure 1

Model: VTFA 2-2200-10-00



CAUTION: *Do not use transmitter enclosure as a junction box. Only wires terminating on the transmitter board should enter the enclosure.*

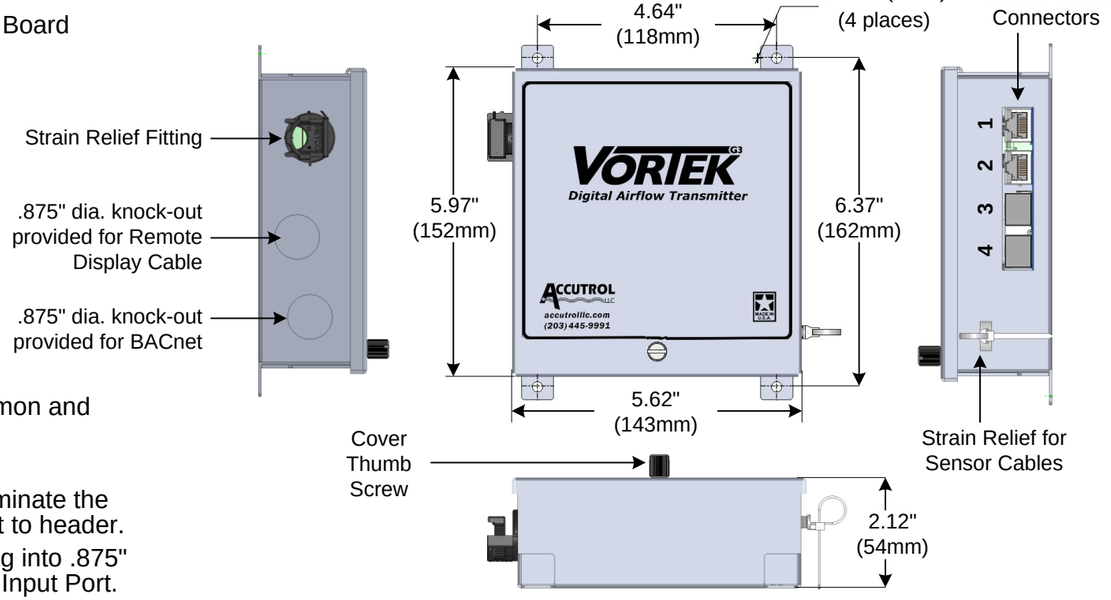


Figure 2

TRANSMITTER WIRING

1. Loosen the thumb screw located on the transmitter enclosure cover and remove cover.
2. Run 3-conductor cable from the field controller to the transmitter through the strain relief fitting.
3. Remove the terminal block from the power & signal header, loosen the three screws and terminate the power, common and output signal wires in the terminal block per markings.
4. Tighten the terminal block screws, verify wires are secure and reconnect to the header.
5. If BACnet is required; run BACnet MS/TP cable into enclosure, remove terminal block from BACnet header and terminate the BACnet wires in the appropriate terminals. Tighten the terminal block screws, verify wires are secure and reconnect to header.
6. If Remote Display is required; remove knock-out located directly in line with the Display Port, install strain relief fitting into .875" dia. hole, run the factory cable provided with the Remote Display into the enclosure and plug cable into the Display Input Port.
7. The channel 3,4 input board is required for applications that have 3 or 4 sub-arrays. Applications with 1 or 2 sub-arrays do not require this board.

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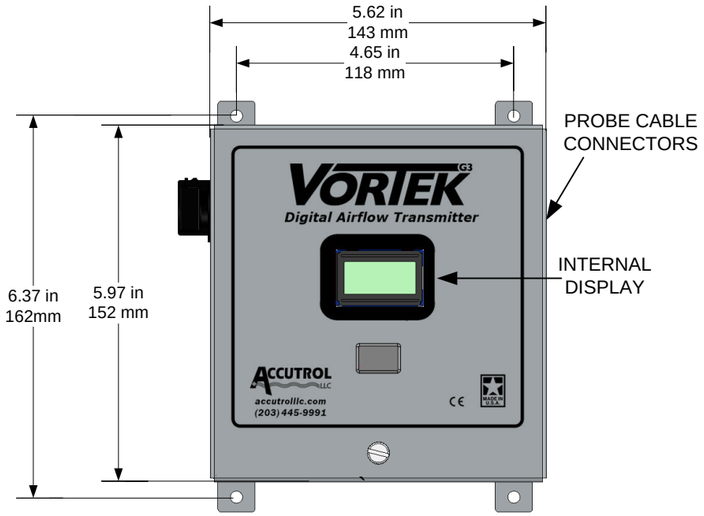
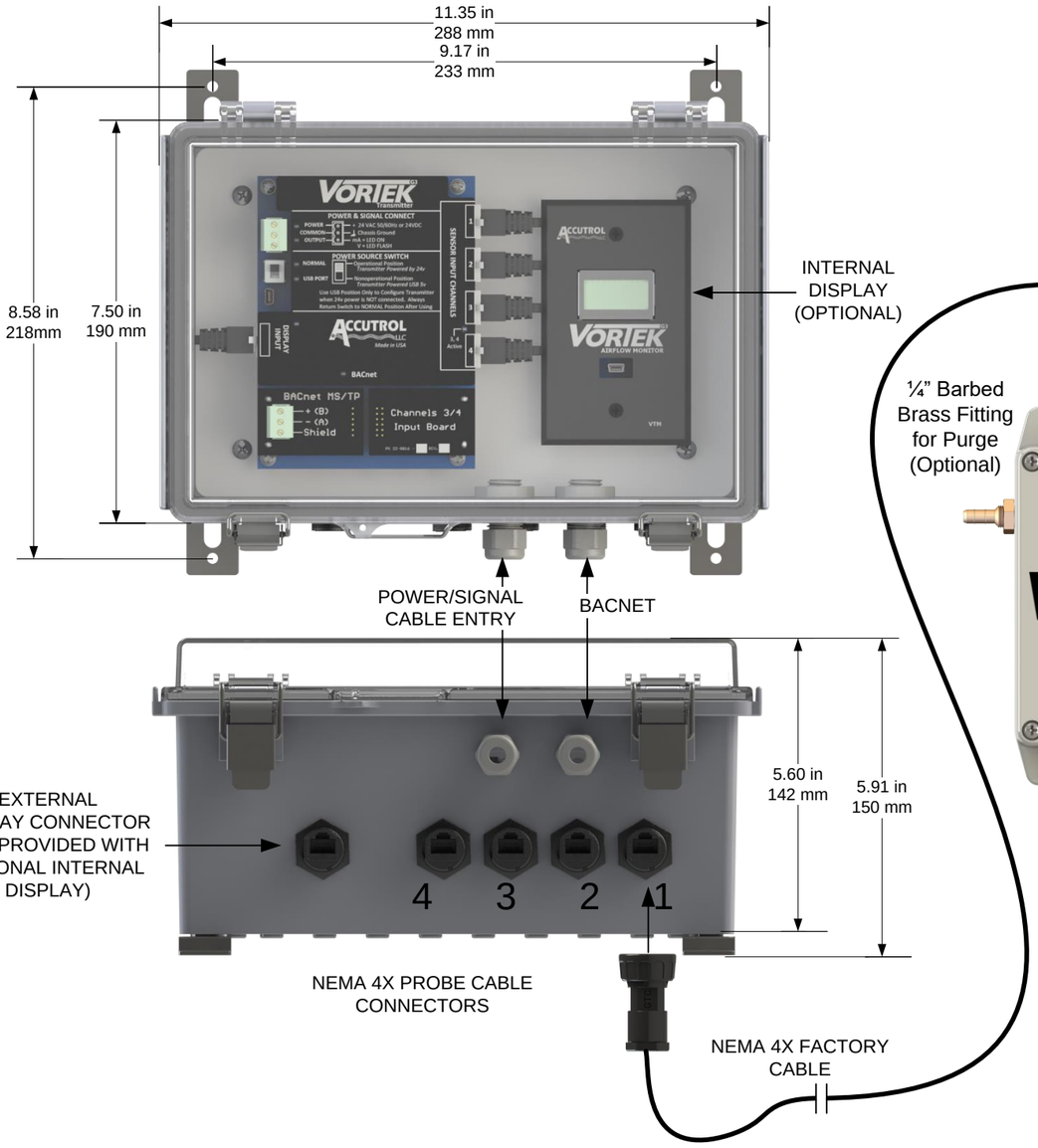
OPTIONS

TRANSMITTER WITH OPTIONAL DISPLAY

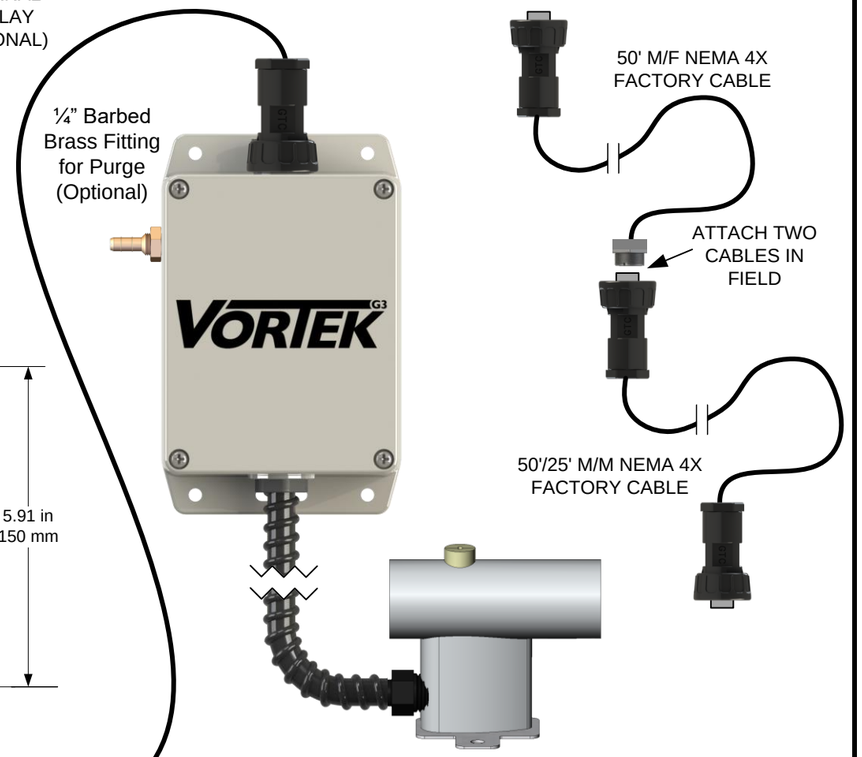


NEMA 4X (IP66) TRANSMITTER WITH OPTIONAL DISPLAY



NEMA 4X SENSOR WITH OPTIONAL PURGE

NOTE:
WATERPROOF FACTORY CABLES OF LENGTHS 75' AND 100' ARE CONSTRUCTED USING A 50' M/F WATERPROOF CABLE AND EITHER A 25' OR 50' WATERPROOF M/M CABLE. THESE CABLES REQUIRE FIELD CONNECTION.



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