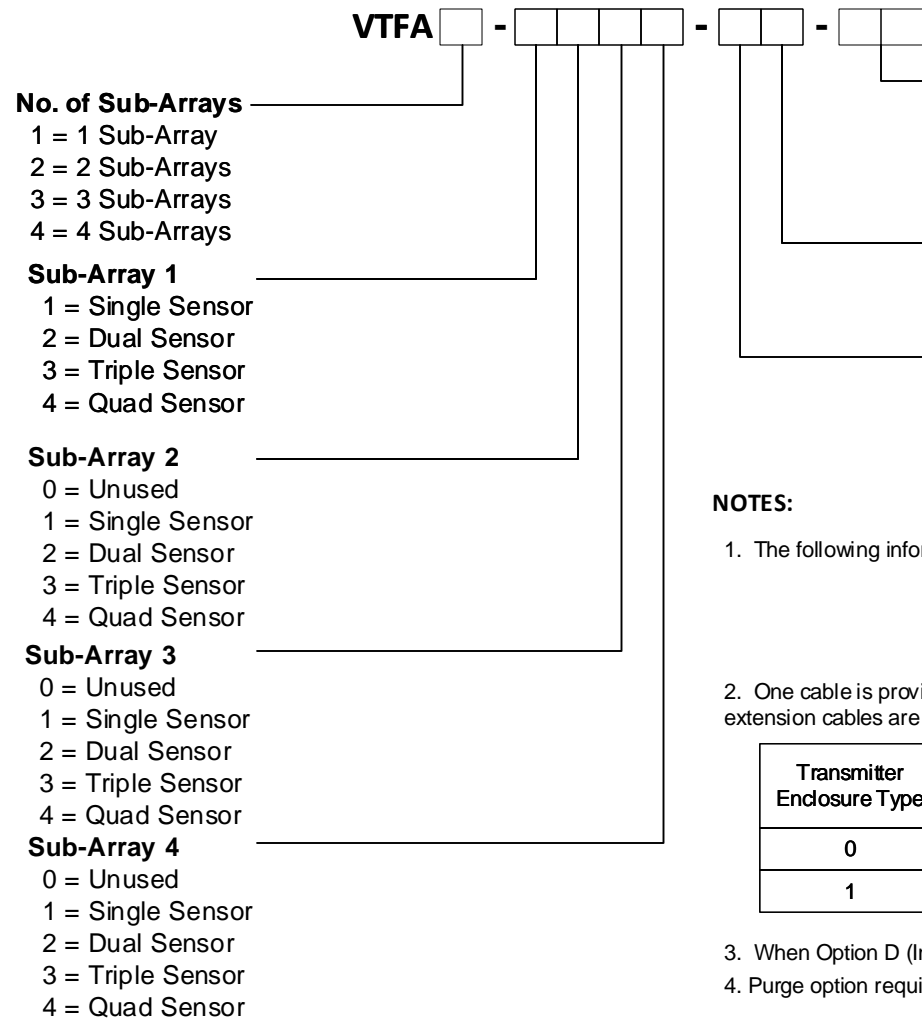


# MODEL CODE



**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

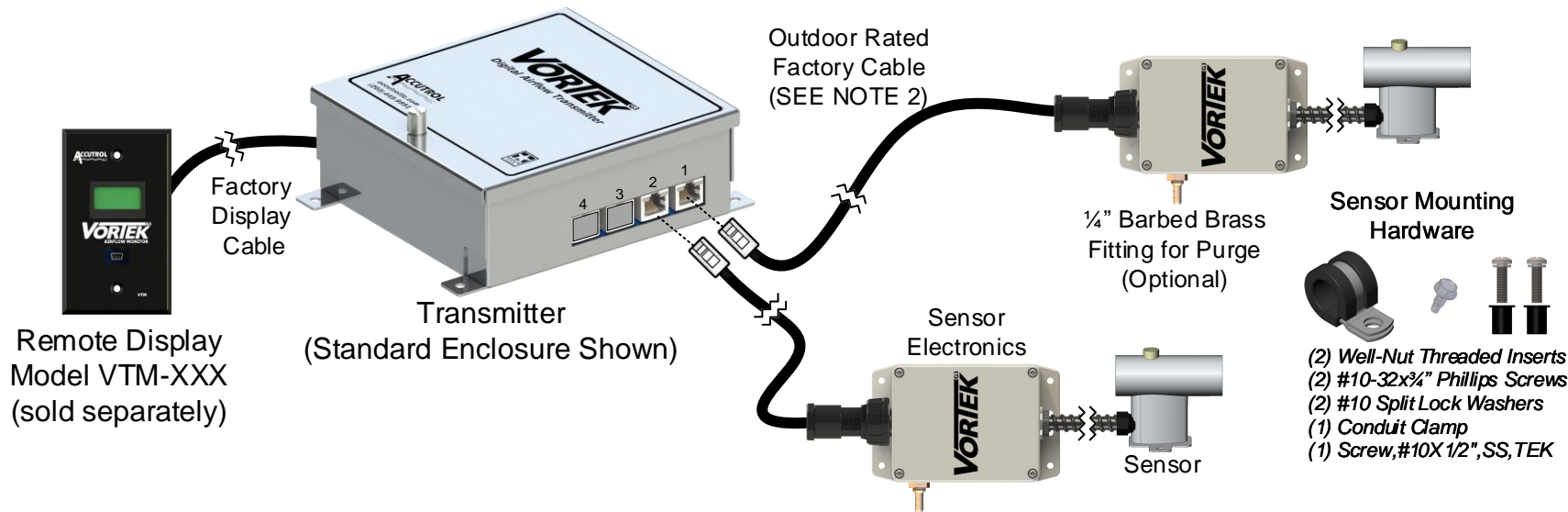
**CABLE LENGTH (Ref Note 2)**

- 1 = 25' (7.6m)
- 2 = 50' (15.2m)

**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
    - (Reference Figures on Following Pages)
  2. One cable is provided with each probe. Max length of Outdoor Rated cable is 50'. Outdoor-rated 50' extension cables are sold separately.
- | Transmitter Enclosure Type | Cable Terminations |                        |
|----------------------------|--------------------|------------------------|
|                            | Transmitter End    | Sensor Electronics End |
| 0                          | Standard RJ45      | Weatherproof RJ45      |
| 1                          | Weatherproof RJ45  | Weatherproof 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: VTFA2-1100-10-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; IP67 Outdoor rated shielded cables with watertight plug on both ends
- Network Com Port (Optional)** EIA 485 2-wire BACnet MS/TP  
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 (Optional)** Remote mount or transmitter mount  
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**

- 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



Accutrol Representative:

## SUBMITTAL DRAWING

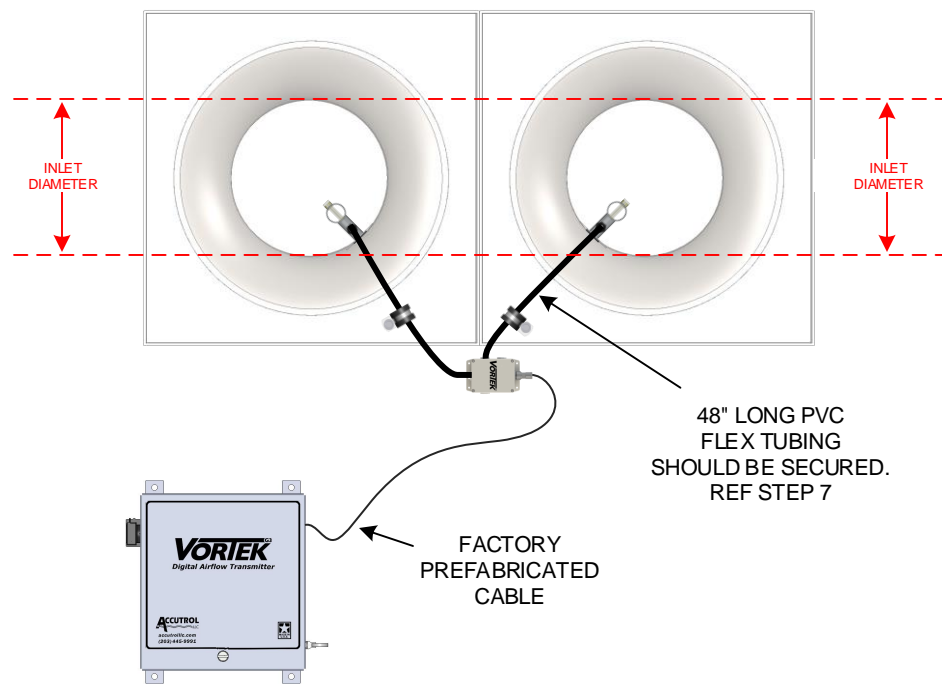
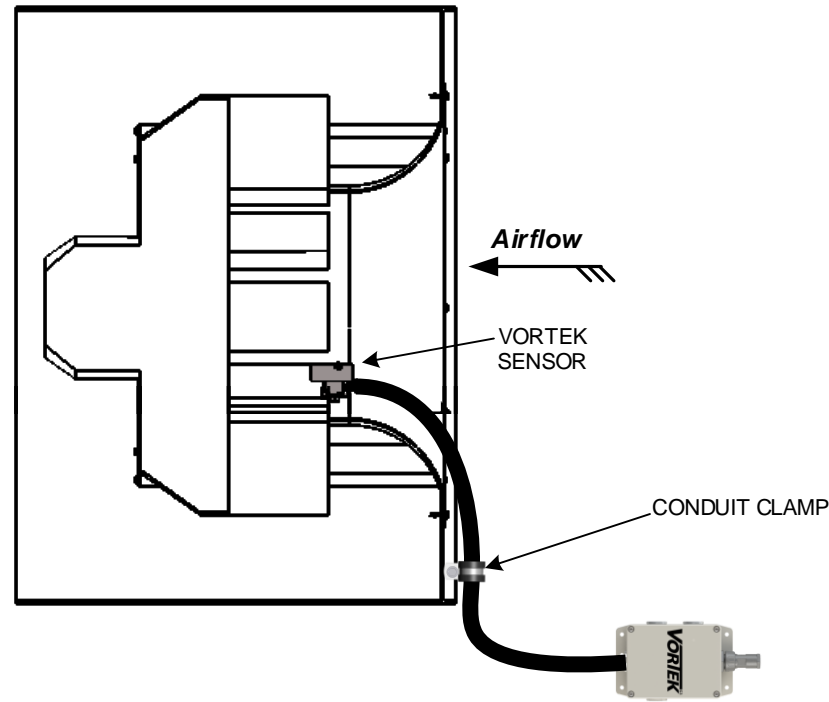
### VorTek<sup>G3</sup> Fan Array

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<b>DWG. NO:</b>	VTFA SUBMITTAL		
<b>REVISION:</b>	L	<b>ECN:</b>	2725
<b>REV. DATE:</b>	7-21-21	<b>SHEET:</b>	1 OF 4

# 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.

**MOUNTING HARDWARE PROVIDED WITH EACH SENSOR:**

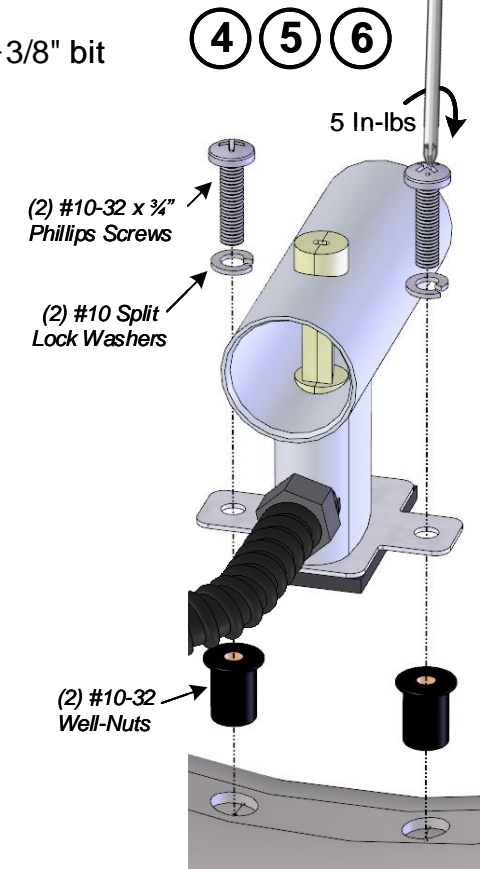
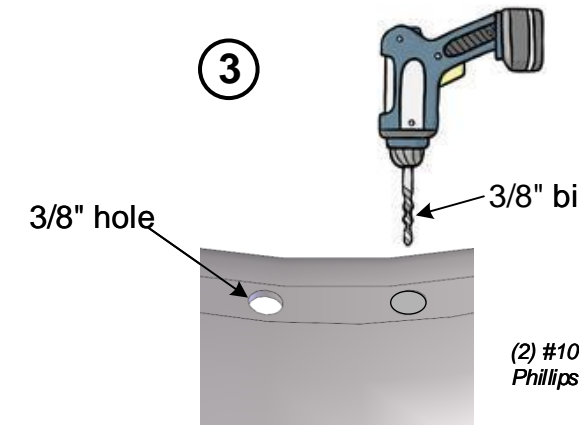
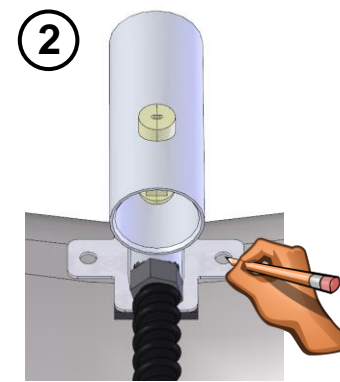
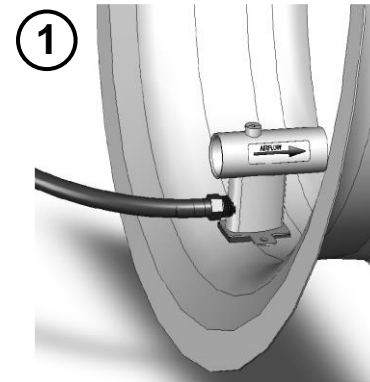
- (2) #10-32 Well-Nuts with Threaded Inserts
- (2) #10-32 x 3/4" Long Phillips Screws
- (2) #10 Split Lock Washers
- (1) Conduit Clamp
- (1) Screw, #10x1/2",SS,TEK

**⚠ 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.

**TOOLS REQUIRED:**

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

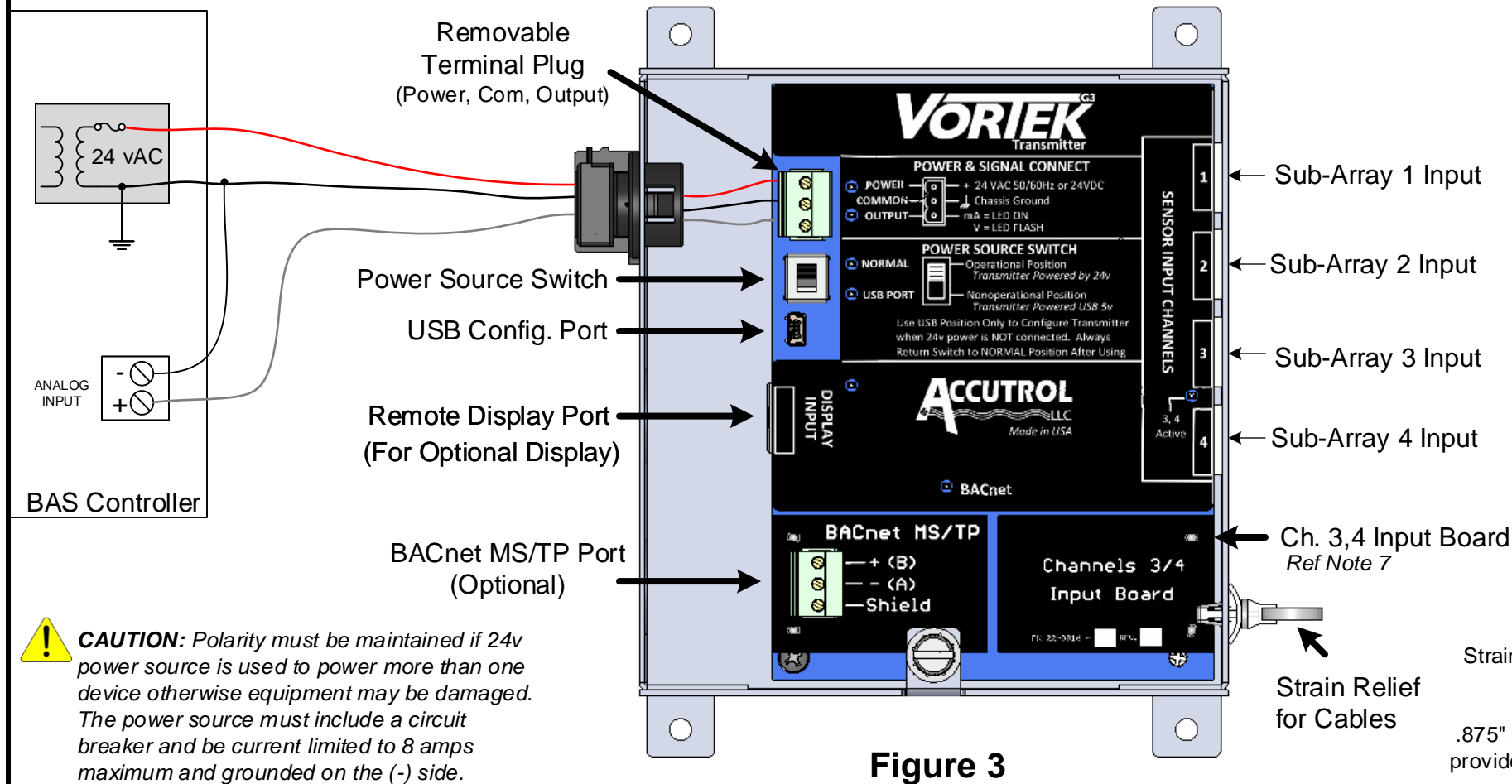
1. Position the sensor into the throat of the fan inlet bell (smallest diameter) with airflow direction indicator facing towards the fan blades. Verify the fan blades will not come in close contact with the sensor and there are no obstructions in front of the sensor.
2. Using the sensor mounting bracket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

# 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)

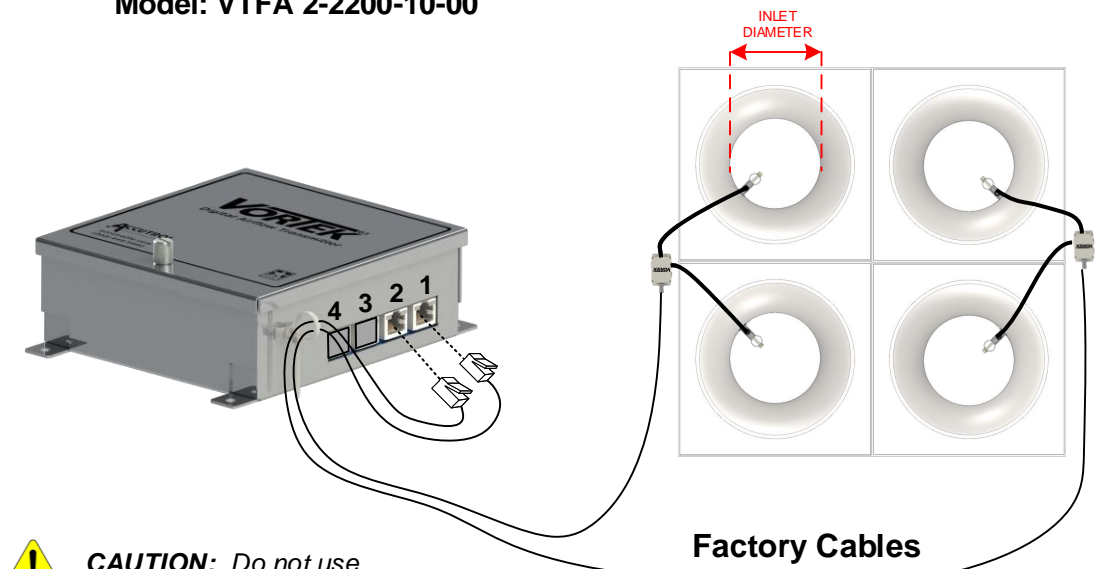


**CAUTION:** Polarity must be maintained if 24v power source is used to power more than one device otherwise equipment may be damaged. The power source must include a circuit breaker and be current limited to 8 amps maximum and grounded on the (-) side.

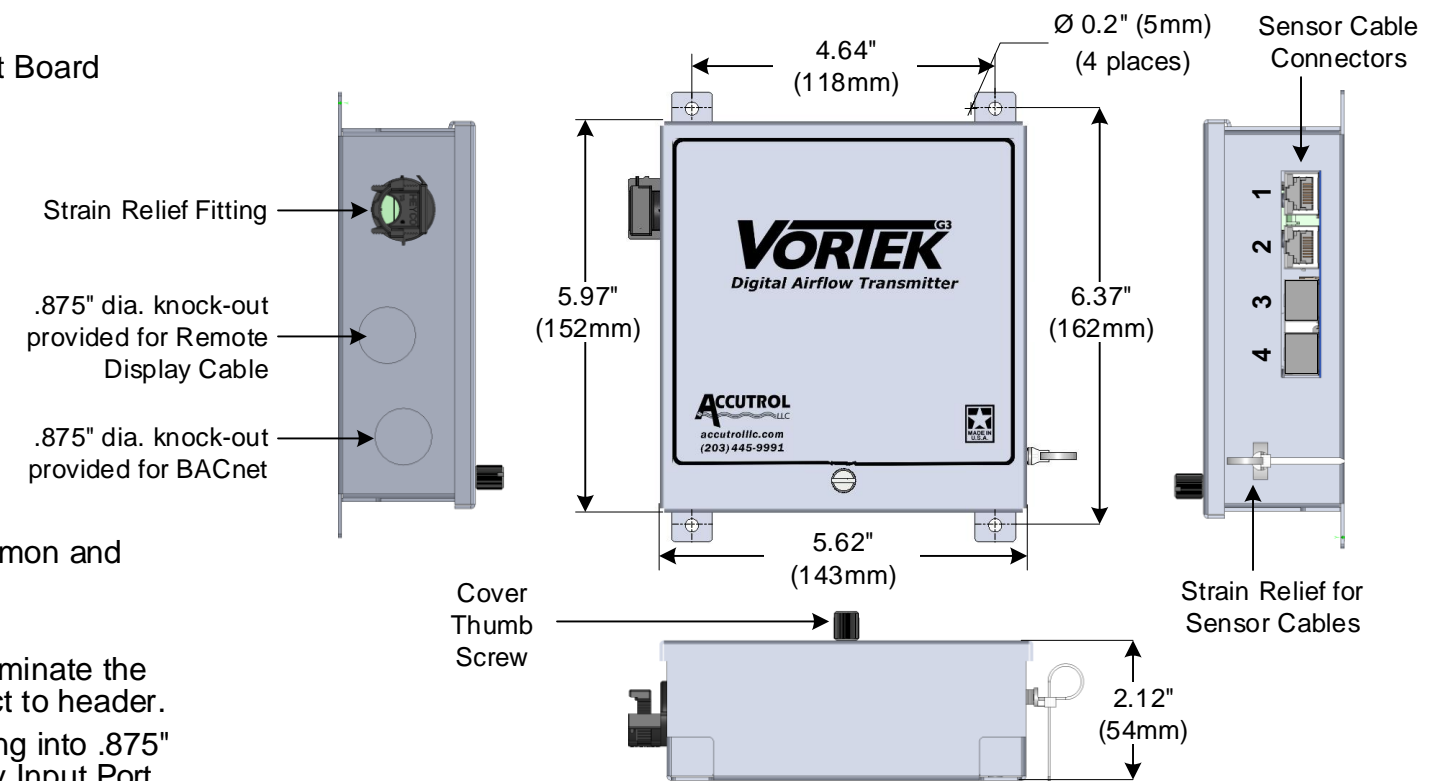
# TRANSMITTER WIRING

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.

**Figure 1**  
Model: VTFA 2-2200-10-00



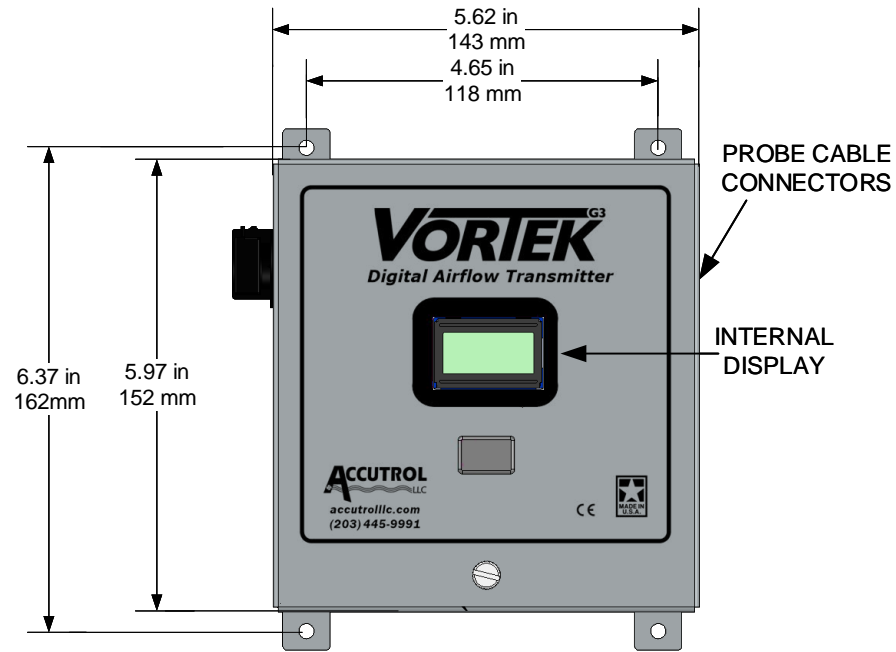
**CAUTION:** Do not use transmitter enclosure as a junction box. Only wires terminating on the transmitter board should enter the enclosure.



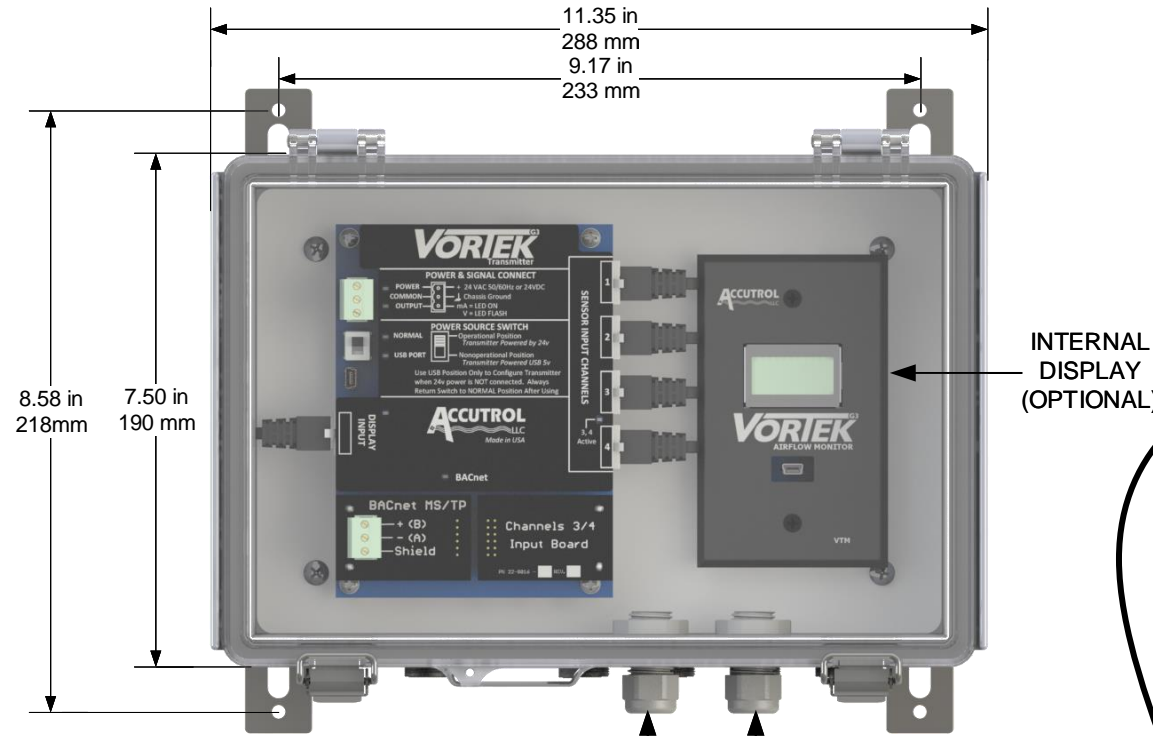
**Figure 2**

# OPTIONS

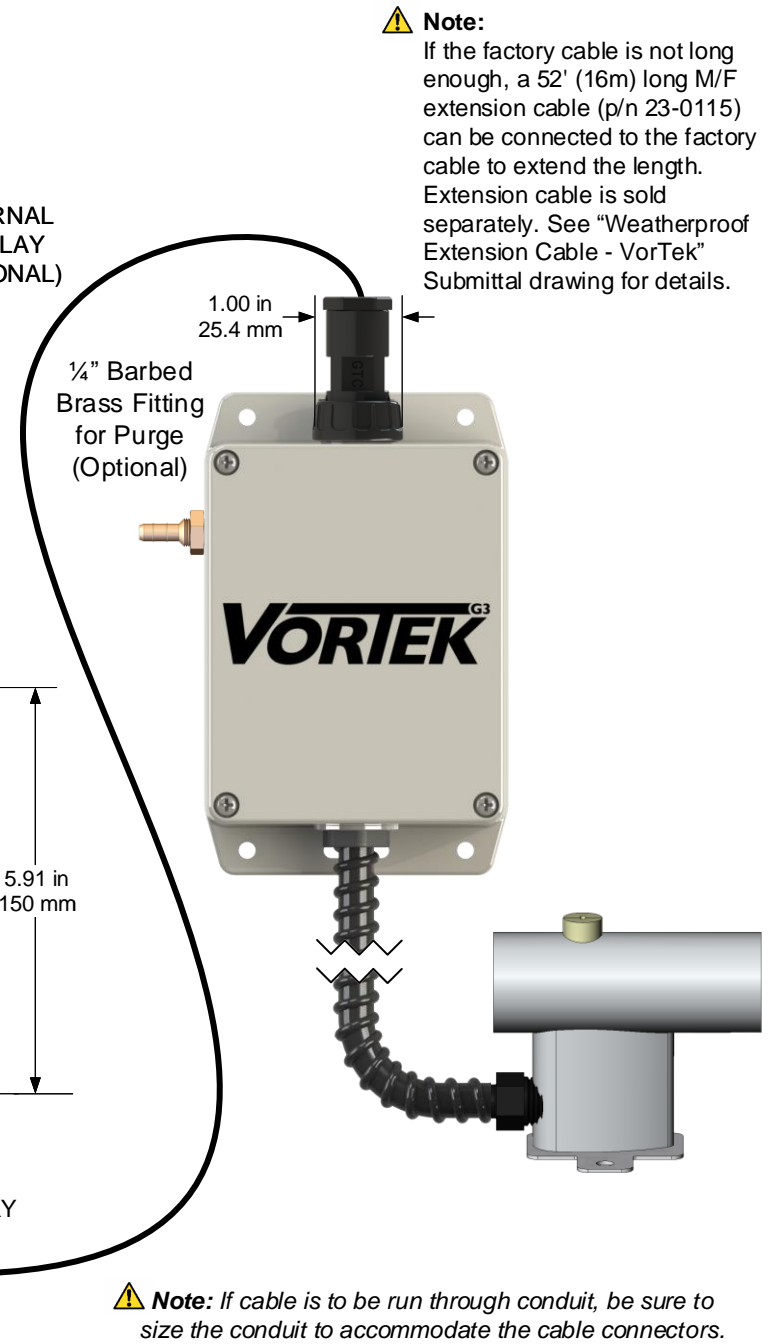
## TRANSMITTER WITH OPTIONAL DISPLAY



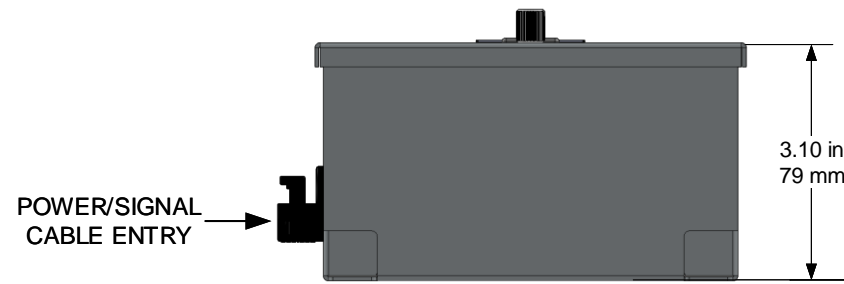
## NEMA 4X TRANSMITTER WITH OPTIONAL DISPLAY



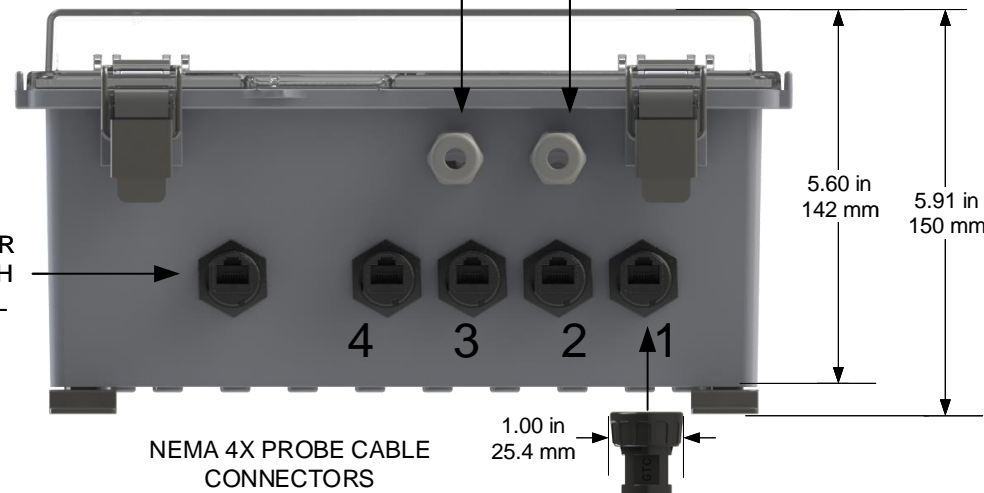
## NEMA 4X SENSOR WITH OPTIONAL PURGE



**Note:**  
If the factory cable is not long enough, a 52' (16m) long M/F extension cable (p/n 23-0115) can be connected to the factory cable to extend the length. Extension cable is sold separately. See "Weatherproof Extension Cable - VorTek" Submittal drawing for details.



EXTERNAL DISPLAY CONNECTOR (NOT PROVIDED WITH OPTIONAL INTERNAL DISPLAY)



IP67 FACTORY CABLE

**Note:** If cable is to be run through conduit, be sure to size the conduit to accommodate the cable connectors.