TS-VFM

Installation Guide

This install guide provides necessary installation instructions for the mounting of the INCON Vapor Flow Meter inside a dispenser or inside a dispenser sump. Information regarding the cabling and the connection to the Tank Sentinel Console is found in the *Tank Sentinel Installation Guide* (p/n 000-2150). All documentation relating to operability, maintenance, and testing of the Vapor Flow Meter is found in the *Vapor Recovery Monitor Operator's Guide* (p/n 000-2058).

Important: See the Vapor Recovery Install/Operators Manual or Tank Sentinel Installation Manual for Important Safety Messages.

Required Tools

- Pipe joint tape (Teflon Tape)
- Pipe Wrench
- Small screwdriver (terminal block connection)
- Slip joint pliers (crimping splice connector)

Related Documents

- 000-2058 : *Vapor Recovery Monitor Operators Guide*
- 000-2150 : *Tank Sentinel Installation Guide - TS-5XXX Series*
- 000-2142 : *Tank Sentinel Programming Guide - TS-5XXX Series*
- 000-2151 : *Tank Sentinel Operator's Guide - TS-5XXX Series*

Preparation

Only use approved pipe joint tape (Teflon Tape) for joints connecting to the Vapor Flow Meter. The use of non hardening, "pipe-dope," thread sealant is strictly prohibited and will void the warranty.

1. Perform a site inspection. Determine how the Vapor Flow Meter will be installed. The preferred installation method for this product is to install above the vapor shear valve. If there is not enough room between the vapor shear valve and the vapor pump, installation below the shear valve may be needed.
2. If the Vapor Recovery equipment is going to be installed on an existing service station, verify that there is a run of intrinsically safe conduit going back to the console. Vapor Flow Meter wiring can share the same space with other intrinsically safe cables, but cannot be run with non-intrinsically safe cables.
3. Make sure that all contractor-supplied piping materials are compatible with California fuels and meet all local codes.

Parts List and Materials Needed

Table 1 - Above Shear Valve

Item Description	Supplied By	Quantity
Vapor Flow Meter, TS-VFM	INCON	1
Sensor Installation Kit, 020-1509	INCON	1
Weatherproof Junction Box	Contractor	1
1.5" to 1" reducing bushing	Contractor	1
1.5" to __" reducing bushing*	Contractor	1
1" pipe nipple	Contractor	1
__" pipe nipple*	Contractor	1
Pipe Union	Contractor	1

Table 2 - Below Shear Valve

Item Description	Supplied By	Quantity
Vapor Flow Meter, TS-VFM	INCON	1
Sensor Installation Kit, 020-1509	INCON	1
Weatherproof Junction Box	Contractor	1
1.5" pipe nipple	Contractor	2
1.5" pipe union	Contractor	1

* - piping size is dependent on vapor piping size inside the dispenser. Typically the connection to a Healy VP1000 is a ½" NPT. Thus, the bushing size will be 1.5" to 0.5".

Installation Steps

Above Shear Valve

1. Lock and tag out power to the dispenser and the console before attempting any work on the dispenser.
2. Refer to Figure 1 for reference.
3. Do not remove the protective caps on the Vapor Flow Meter until you are ready to thread the nipples into the Flow Meter.
4. Begin by connecting the two 1.5" to 1" reducing bushings to the Vapor Flow Meter's body. Be sure to use only Teflon tape when sealing these threads. Take special precaution not to let any foreign material fall inside of the Vapor Flow Meter.
5. Next, start assembling the hardware from the bottom up. Connect a short, 1" NPT threaded nipple to the top of the vapor shear valve and to the 1.5" to 1" reducing bushing on the flow meter.
6. Connect another 1" pipe nipple to the top reducing bushing followed by a 1" pipe union. The existing dispenser piping can now connect to the top of the union.
7. If there is not already a watertight junction box for the intrinsically safe cables, then install one as described earlier in Tools Required.
8. Pull the black Vapor Flow Meter cable through the supplied cable grip and into the junction box. Using the supplied crimp connectors, splice the flow meter cable to the field cable. The color codes on the black flow meter cable are: **Red** = **+** (plus) and **Black** = **–** (minus)

Below Shear Valve

1. Lock and tag out power to the dispenser and the console before attempting any work on the dispenser.
2. Refer to Figure 2 for reference.
3. Do not remove the protective caps on the Vapor Flow Meter until you are ready to thread the nipples into the Flow Meter.
4. Begin by connecting two 1.5" NPT pipe nipples to the Vapor Flow Meter's body. Be sure to use only Teflon tape when sealing these threads. Take special precaution not to let any foreign material fall inside of the Vapor Flow Meter.
5. Next, prepare the piping inside of the dispenser sump to connect to the Vapor Flow Meter. If flexible piping is currently installed, make sure, when adding the Vapor Flow Meter, that there are no bend radii that are too sharp, kinks, or traps. The contractor may need to replace the existing flexible piping with a shorter length in order to avoid potential flow restrictions.
6. Add the Vapor Flow Meter between the existing piping in the sump and the bottom of the vapor shear valve. In most cases the vapor shear valve will need to be temporary removed in order to assist with making the connection. Add a union to either the top of the shear valve or below the shear valve.
7. If there is not already a watertight junction box for the intrinsic safe cables, then install one as described earlier in Tools Required.
8. Pull the black Vapor Flow Meter cable through the supplied cable grip and into the junction box. Using the supplied crimp connectors, splice the flow meter cable to the field cable. The color codes on the black flow meter cable are: **Red** = **+** (plus) and **Black** = **–** (minus)

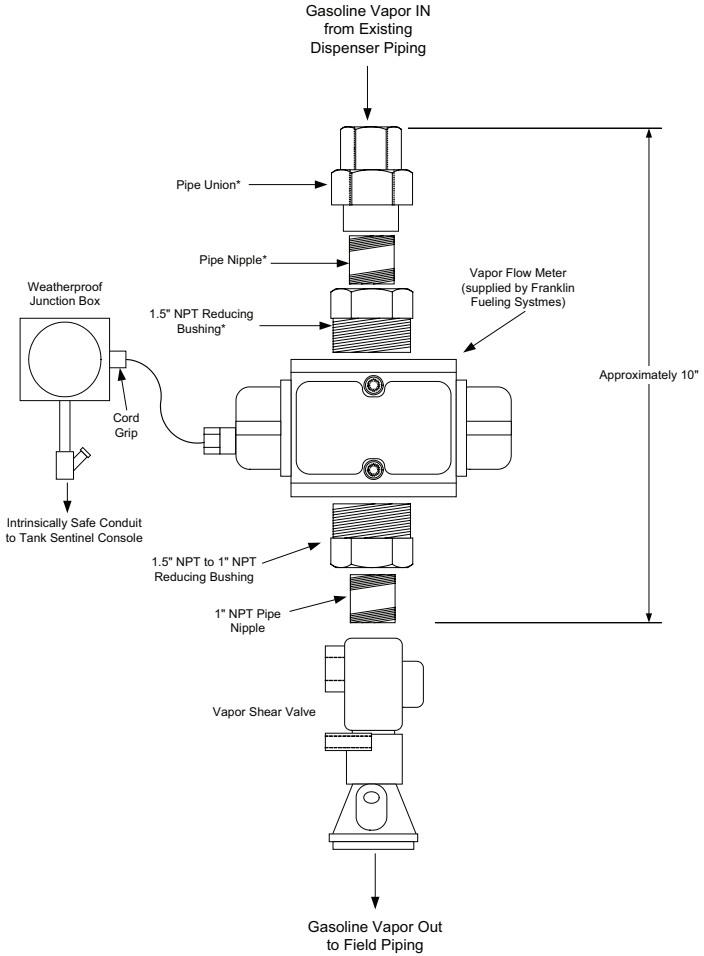


Figure 1
Flow Meter Above Shear Valve

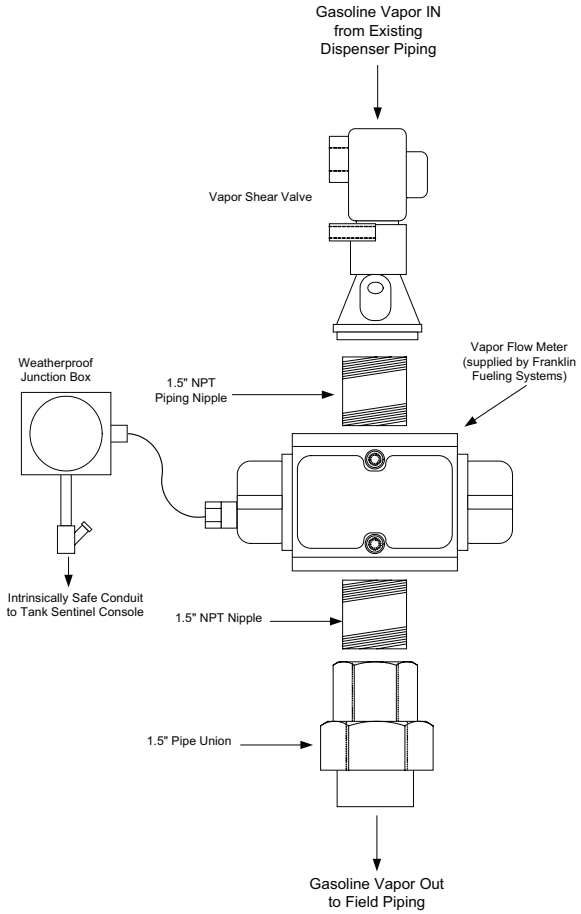
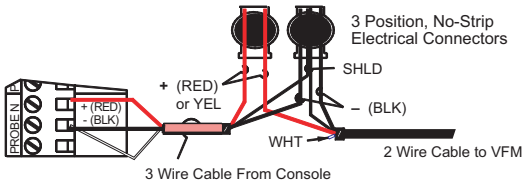
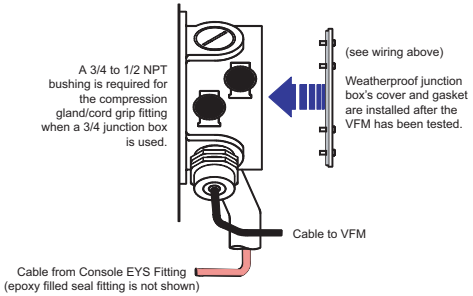


Figure 2
Flow Meter Below Shear Valve



To splice: Insert unstripped wires and use a slip-joint pliers to seat the black piece.



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