

Tek-Vor 1300I

INSERTION VORTEX FLOW METER



Quick Start Guide

1. Before You Begin

This guide provides basic guidelines to assist you in quickly getting started.



Installation of the transmitter in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Review the approval section of the Tek-Vor 1300I reference manual for any restrictions associated with a safe install



Do not remove the transmitter covers in explosive environments when the circuit is live.



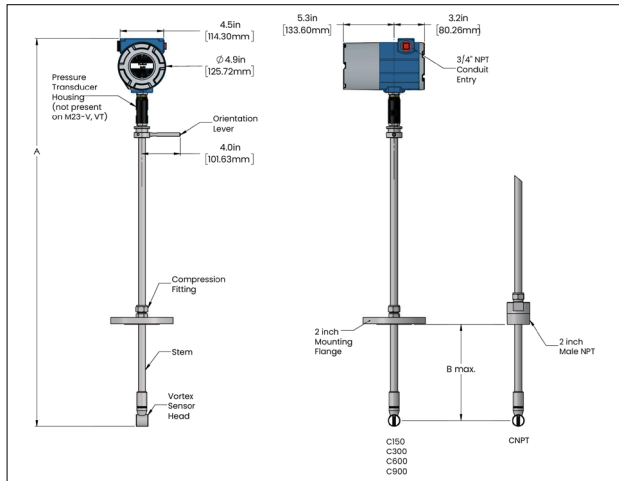
Make sure the transmitter is installed by qualified personnel and in accordance with applicable of practice.

2. Unpack

Tek-Vor 1300I Insertion Vortex Meter

3. Dimensional Drawing

Tek-Vor 1300I Compression Fitting Models



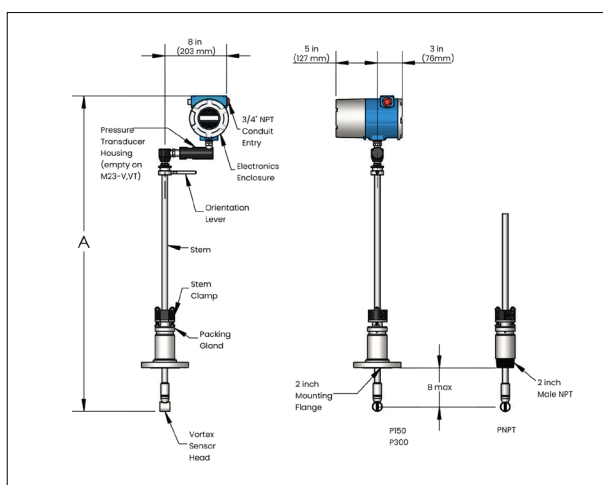
	CL	SL	EL
CNPT	13 (5.7)	14 (6.2)	15 (6.7)
C150	15 (6.8)	16 (7.3)	17 (7.8)
C300	17 (7.8)	18 (8.3)	19 (8.8)
C600	18 (7.8)	19 (8.7)	20 (9.2)
C900	31 (14.1)	32 (14.5)	33 (15)

Add 11LB (5KG) for remote electronics

MODEL M23-V, VT, VTEP, VETEP in (mm)	CL/Compact Length		SL/Standard Length		EL/Extended Length	
	A	B	A	B	A	B
CNPT, Compression Fitting, Male NPT	21.6 (549)	9.8 (249)	38 (965)	26.2 (665)	50 (1270)	38.2 (970)
C150, Compression Fitting, 150 lb. Flange	21.6 (549)	10.9 (277)	38 (965)	27.3 (693)	50 (1270)	39.3 (998)
C300, Compression Fitting, 300 lb. Flange	21.6 (549)	10.8 (274)	38 (965)	27.2 (691)	50 (1270)	39.2 (996)
C600, Compression Fitting, 600 lb. Flange	21.6 (549)	10.4 (264)	38 (965)	26.8 (681)	50 (1270)	38.8 (986)
C900, Compression Fitting, 900 lb. Flange	21.6 (549)	9.9 (251)	38 (965)	26.3 (668)	50 (1270)	38.3 (973)

MODEL M23-VTP in (mm)	CL/Compact Length		SL/Standard Length		EL/Extended Length	
	A	B	A	B	A	B
CNPT, Compression Fitting, Male NPT	24.6 (625)	9.8 (249)	41 (1041)	26.2 (665)	53 (1348)	38.2 (970)
C150, Compression Fitting, 150 lb. Flange	24.6 (625)	10.9 (277)	41 (1041)	27.3 (693)	53 (1348)	39.3 (998)
C300, Compression Fitting, 300 lb. Flange	24.6 (625)	10.8 (274)	41 (1041)	27.2 (691)	53 (1348)	39.2 (996)
C600, Compression Fitting, 600 lb. Flange	24.6 (625)	10.4 (264)	41 (1041)	26.8 (681)	53 (1348)	38.8 (986)
C900, Compression Fitting, 900 lb. Flange	24.6 (625)	9.9 (251)	41 (1041)	26.3 (668)	53 (1348)	38.3 (973)

Tek-Vor 1300I Packing Gland Models

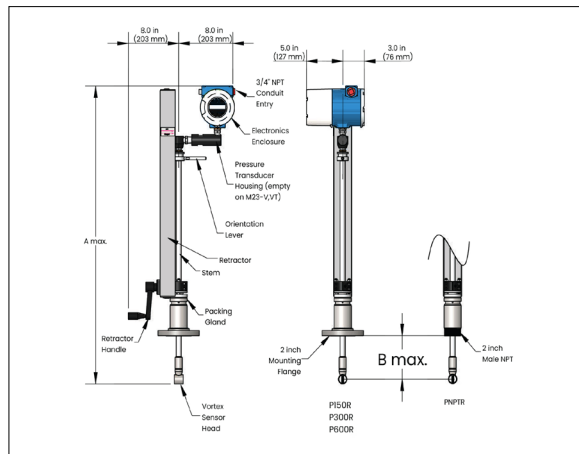


MODEL M23 in (mm)	SL/Standard Length		EL/Extended Length	
	A	B	A	B
PNPT, Packing Gland, Male NPT	40.5 (1029)	21.5 (546)	52.5 (1334)	33.5 (851)
P150, Packing Gland, 150 lb. Flange	40.5 (1029)	21.1 (536)	52.5 (1334)	33.1 (841)
P300, Packing Gland, 300 lb. Flange	40.5 (1029)	21.1 (536)	52.5 (1334)	33.1 (841)

APPROXIMATE WEIGHT, LB (KG) Add 11 LB (5 KG) for remote electronics	SL	EL
PNPT	16 (7.1)	17 (7.6)
P150	21 (9.4)	22 (9.9)
P300	25 (11.3)	26 (11.8)

Quick Start Guide

Tek-Vor 1300I Packing Gland Models with Permanent Retractor

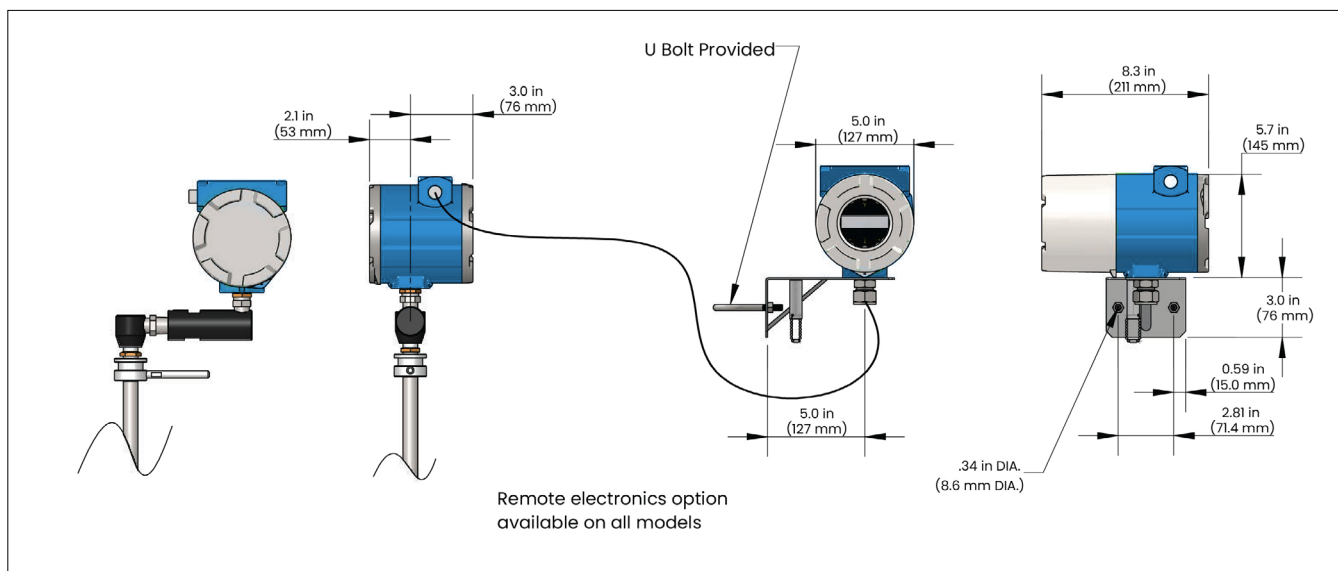


	SL	EL
PNPTR	25 (11.5)	32 (14.5)
P150R	30 (13.7)	37 (16.7)
P300R	34 (15.5)	41 (18.5)
P600R	35 (16.0)	42 (19.0)

Add 11LB (5KG) for remote electronics

MODEL M23 in (mm) WITH PERMANENT RETRACTOR	SL/Standard Length		EL/Extended Length	
	A	B	A	B
PNPTR, Packing Gland, Male NPT	40.5 (1029)	21.5 (548)	52.5 (1334)	33.5 (851)
P150R, Packing Gland, 150 lb. Flange	40.5 (1029)	21.1 (536)	52.5 (1334)	33.1 (841)
P300R, Packing Gland, 300 lb. Flange	40.5 (1029)	21.1 (536)	52.5 (1334)	33.1 (841)
P600R, Packing Gland, 600 lb. Flange	40.5 (1029)	21.1 (536)	52.5 (1334)	33.1 (841)

Remote Electronics Option



4. Power Supply

4–20 mA and Pulse Wiring

For a 4–20 mA and Pulse configuration, the flowmeter typically uses a 12–36 VDC supply (24 VDC nominal) for the current loop. Connect the power supply “+” to the meter’s 4–20 mA “+” terminal and the meter’s 4–20 mA “–” terminal back to the supply “–” (or through your controller/PLC in series), ensuring correct polarity and enough voltage to account for loop resistance. The pulse output is usually an open-collector transistor that requires an external pull-up resistor (to 5–24 V) if not provided by the receiving device; always observe the maximum voltage/current ratings on the pulse terminals.

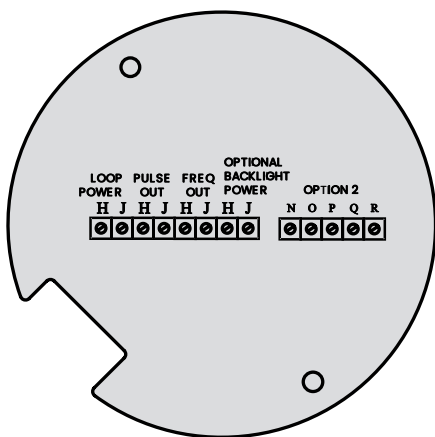


Fig. 1 Loop Power Wiring Terminals

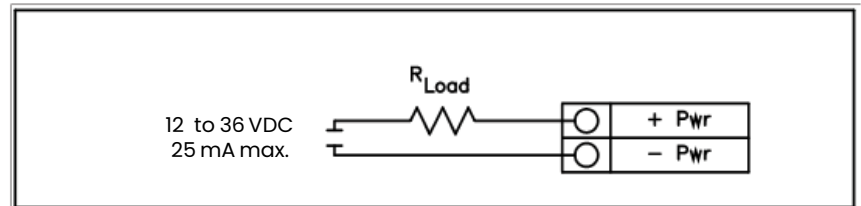


Fig. 2 DC Power Connections

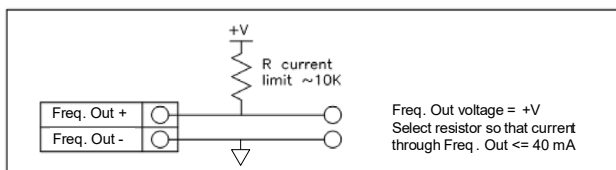


Fig. 3 Isolated Frequency Output using External Power Supply

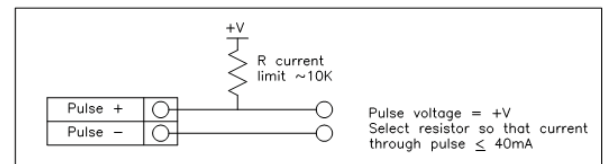


Fig. 4 Isolated Pulse Output using External Power Supply

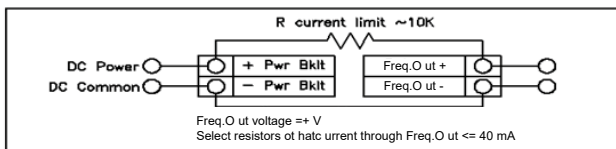


Fig. 4 Non-Isolated Frequency Output using External Power Supply

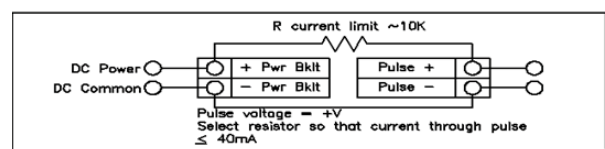


Fig. 5 Non-Isolated Pulse Output using External Power Supply

Quick Start Guide

HART wiring

For a 4–20 mA, Pulse, and HART configuration, the Tek-Vor 1300I still uses the same two-wire loop as standard 4–20 mA, with the addition of a 250 Ω resistor in series if your control system input impedance is below 250 Ω (to enable HART communication). The HART communicator can attach across this resistor or at the transmitter terminals, so long as there is enough supply voltage to power both the meter and communicator. Meanwhile, the pulse output follows the same open-collector wiring described previously: it requires an external pull-up resistor to a suitable voltage source if your receiving device does not provide one.

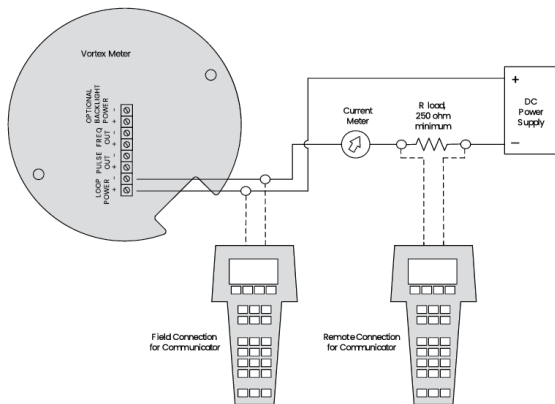


Fig. 6 Loop Powered Meter Wiring (HART)

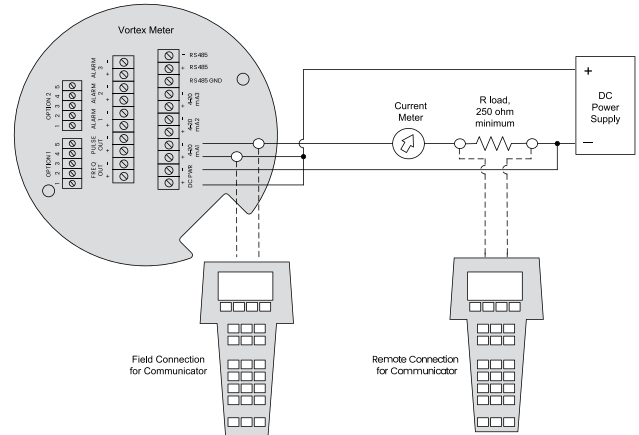


Fig. 7 DC Powered Meter Wiring (HART)

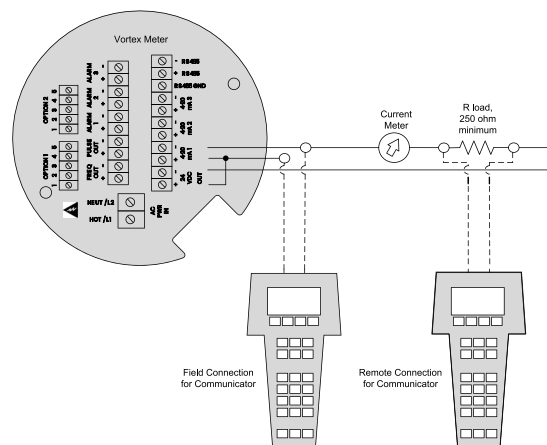


Fig. 8 AC Powered Meter Wiring (HART)

RS485 (Modbus) Wiring

The Tek-Vor 1300I RS485 communication requires connecting each device's "A" (or "D+") terminals together and each "B" (or "D-") terminals together in a multi-drop bus configuration. A shield or ground reference should be tied to earth at one end to help minimize noise. In many installations, a 120 Ω termination resistor is placed across A and B at each end of the bus to reduce signal reflections and ensure stable communication.

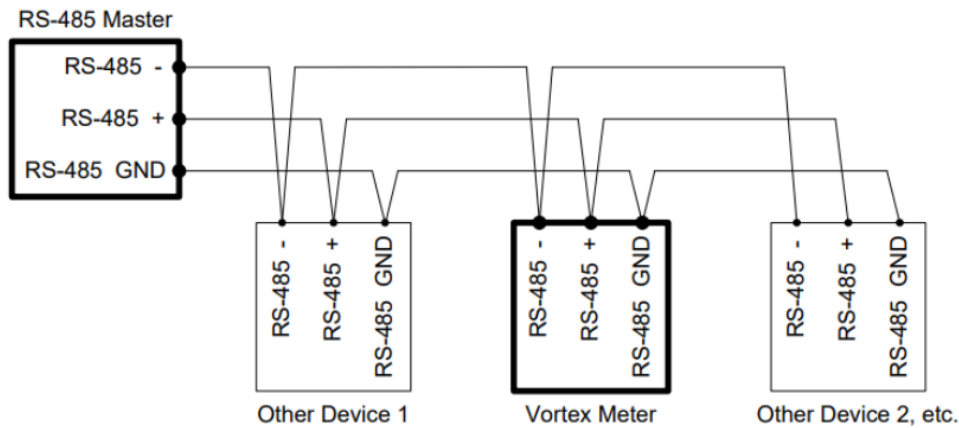


Fig. 9 RS485 (Modbus) Wiring

Ethernet / TCP-IP (PoE) Wiring

For Ethernet/TCP-IP (PoE) Wiring, connect the LAN terminal to a PoE switch or injector for both power and data transmission over a single Ethernet cable. If PoE is not available, use the DC PWR terminals as an alternative power source, ensuring wire sizes between 20–12 AWG with a 7 mm strip length. When installing in NEMA 4X enclosures, use certified conduit fittings for environmental protection, and seal unused entries with approved blanking elements. For hazardous area installations, ensure flameproof conduit seals are installed within 18 inches (457 mm) of the enclosure.

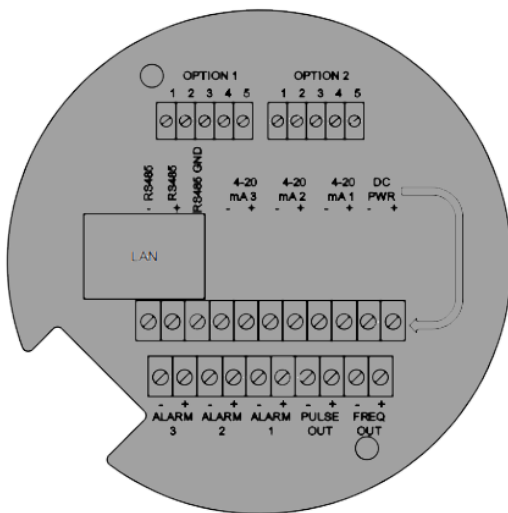


Fig. 10 POE Wiring Terminals

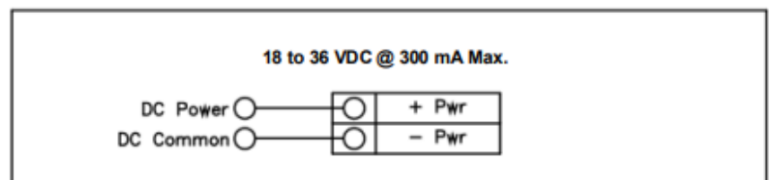
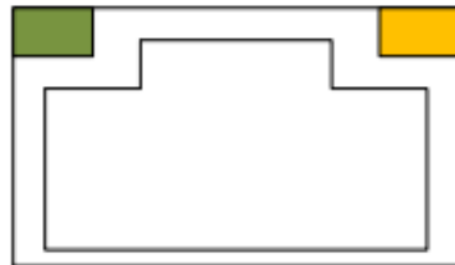


Fig. 11 DC Power Connections



Quick Start Guide

- Before doing wiring work, turn OFF the power supply to prevent electric shocks.
- Connect a power source with the correct rating to prevent an accident
- Ensure installation of the transmitter meets applicable state and national electrical code requirements. Do not remove the transmitter covers in explosive environments when the circuit is live. Both transmitter covers must be fully engaged to meet explosion-proof requirements.

Note: For more information on Power Supply, refer to the detailed manual.

5. Grounding

The power supply of signal processing circuit in Tek-Vor 1300I IN Line Vortex Flowmeter is transferred from an outside power supply by an isolation type DC-to-DC transmitter with advanced grounding technology. The field frequency interference can be isolated well.

When using this product, the “V-” of power supply should not be connected with the ground. When this product is used in an environment with strong interference, the shell should be in connection with the earth through a cable, so the interference can be eliminated.

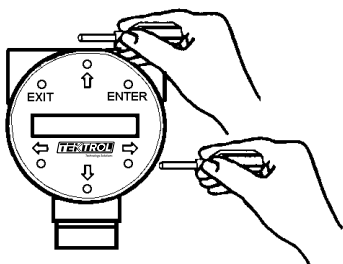
Note: Make sure that the flowmeter is properly grounded.

6. Communication

- **The communication interface for a Tek-Vor 1300I** should support **HART, Modbus RTU (RS485), and BACnet MS/TP**, enabling seamless data exchange in industrial environments.
- **The wiring terminals for RS485 communication** are labeled “**A**” (D+) and “**B**” (D-). For power wiring details, refer to **Section 4 (Power Supply)** of this Quick Start Guide.
- **For HART communication**, a **250 Ω load resistor** is required in the **4–20 mA loop** to enable proper signal transmission and diagnostics.
- **For Modbus RTU and BACnet MS/TP (RS485)**, connect all devices in a **parallel daisy-chain**, use **120 Ω termination resistors** at both ends, and ground the shield at one end only. Ensure **matching baud rate, parity, and stop bits** across all devices for stable communication.

Note: For more information on communication, refer to the detailed manual.

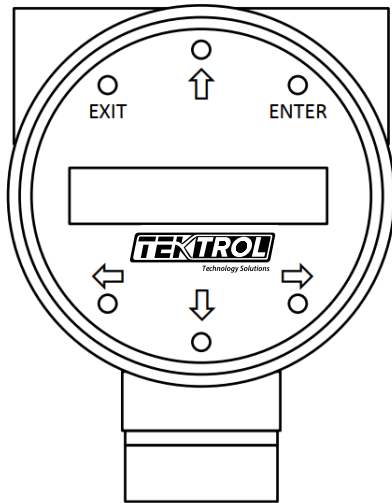
7. Configuration



The Tek-Vor 1300I flow meter is equipped with digital electronics that allow users to set, adjust, and monitor system parameters and performance. A comprehensive range of commands is accessible through the integrated display and keypad. The LCD display, featuring 2 x 16 characters, facilitates both flow monitoring and programming.

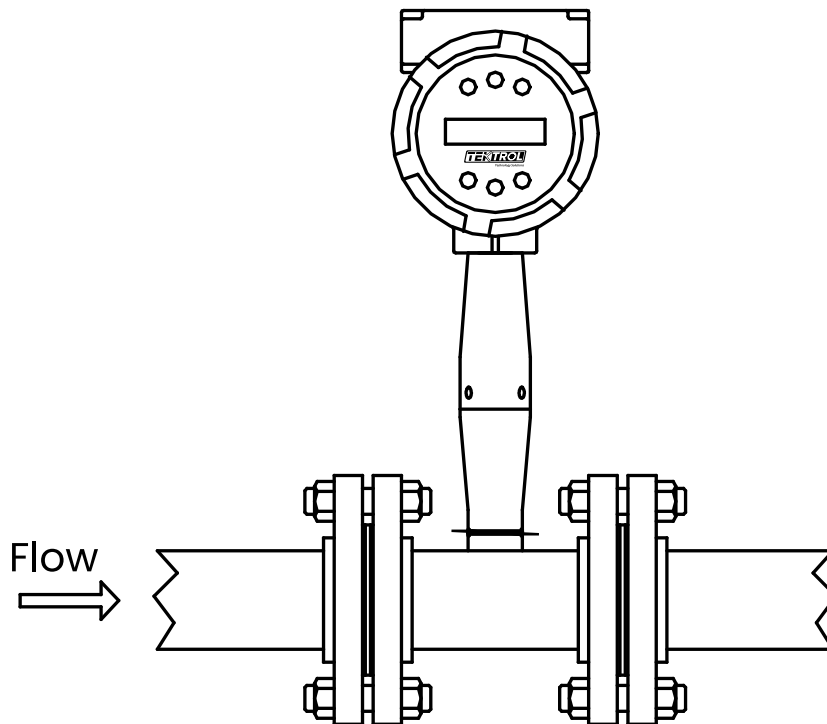
The configuration of the Tek-Vor 1300I can be done using six pushbuttons. Like A black triangle with two arrows. $\updownarrow$ The Up-Down Button, A black and white arrow $\leftrightarrow$ and L-R buttons these buttons can be operated with the enclosure cover removed for direct access. Alternatively, if the explosion-proof cover remains in place, users can operate the keypad using a hand-held magnet positioned at the side of the enclosure, as illustrated in the diagram

Below are the available keypad commands for configuring the device:



1. Run Mode: the ENTER key allows access to the Setup Menu (through a password screen). Within the Setup Menu, pressing ENTER activates the current field.
2. Set Up Menu, press the ENTER key until an underline cursor appears. Use the $\uparrow$ $\downarrow$ $\leftarrow$ $\rightarrow$ keys to select new parameters. Press ENTER to continue. (If change is not allowed, ENTER has no effect.) All outputs are disabled when using the Setup Menu. The EXIT key is active within the Setup Menu. When using a Setup Menu, EXIT returns you to the Run Mode. If you are changing a parameter and make a mistake, EXIT allows you to start over.
3. The $\uparrow$ $\downarrow$ $\leftarrow$ $\rightarrow$ keys advance through each screen of the current menu. When changing a system parameter, all $\uparrow$ $\downarrow$ $\leftarrow$ $\rightarrow$ keys are available to enter new parameters.

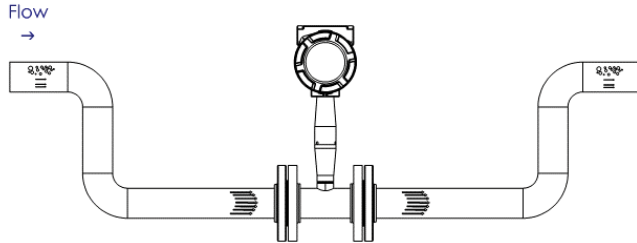
8. Flow Direction



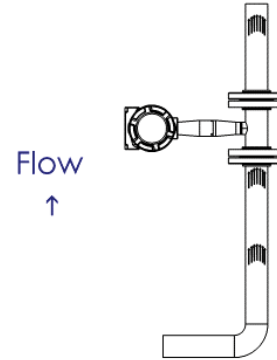
Quick Start Guide

9. Installation

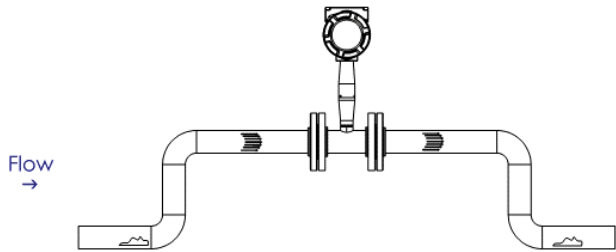
Liquid Horizontal



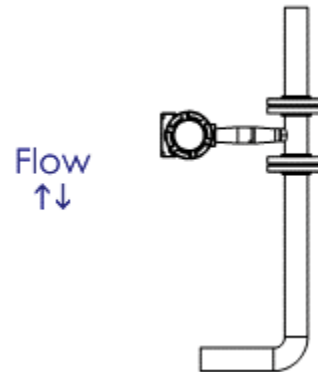
Liquid Vertical



Gas/Steam Horizontal



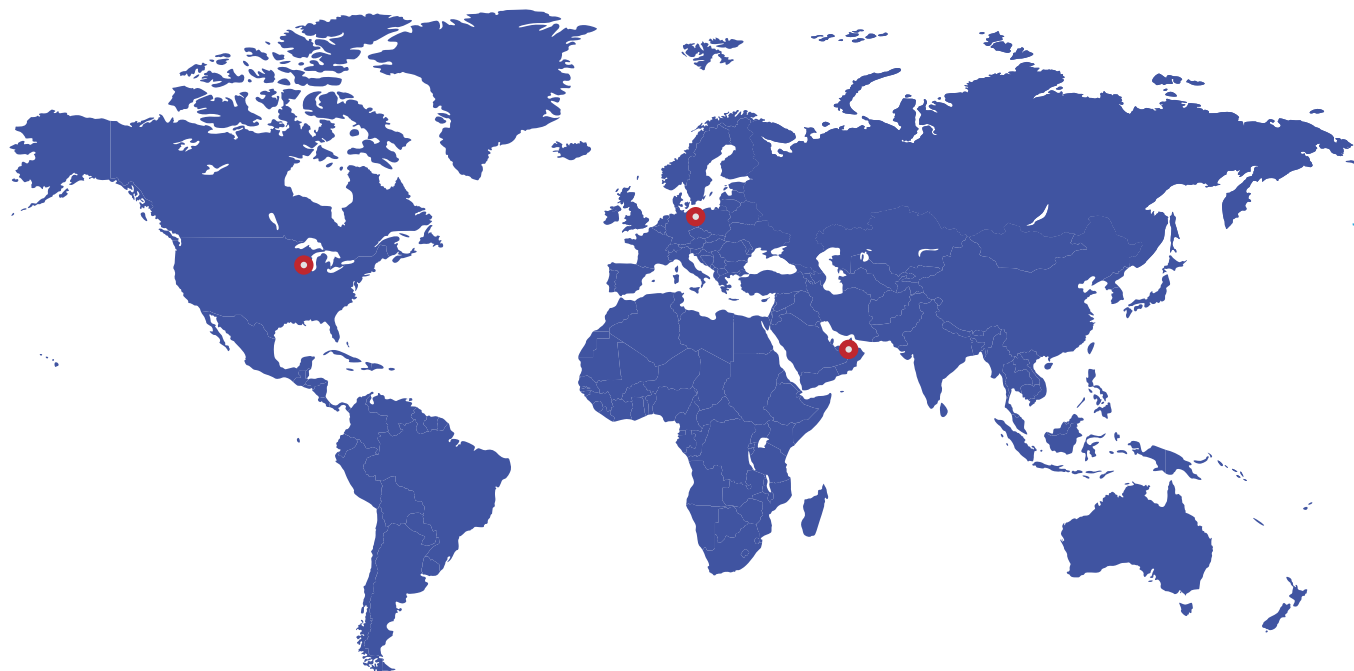
Gas/Steam Vertical



Note: For information on Installation, refer to the detailed manual.

10. Error Messages

Note: For information on error messages, refer to the detailed manual.



Tek-Trol LLC

796 Tek Drive Crystal Lake, IL
60014, USA
Sales: +1 847-857-6076

Tek-Trol Solutions BV

Florijnstraat 18, 4879 AH
Etten-Leur, Netherlands
Sales: +31 76-2031908

Tek-Trol Middle East FZE

SAIF Zone, Y1-067, PO BOX No.
21125, Sharjah, UAE
Sales: +971-6526-8344

Support: +1 847-857-6076

Email: tektrol@tek-trol.com

www.tek-trol.com