




Tek-Vor 1300C



Quick Start Guide

1. Before You Begin

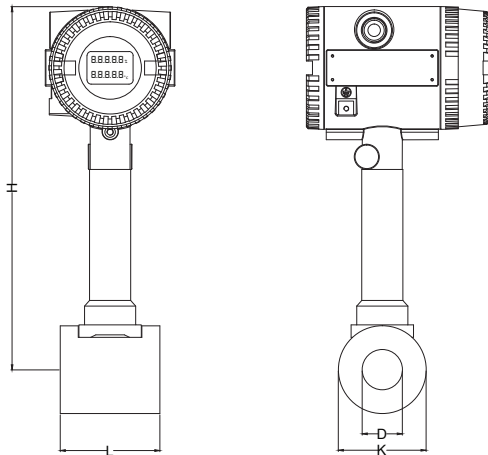
This guide provides basic guidelines to assist you in quickly getting started.

-  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 approvals section of the Tek-Vor 1300C reference manual for any restrictions associated with a safe installation.
-  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 codes of practice.

2. Unpack

Tek-Vor 1300C Vortex Mass Flowmeter

3. Dimensional Drawing

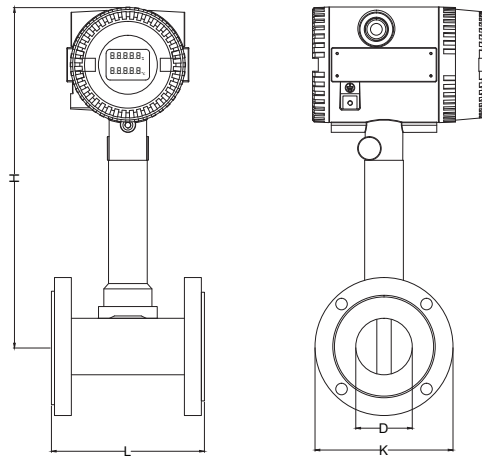


Wafer Type

• D: Size • K: Pipe OD • L: Pipe Length • W: Flange Screw • T: Flange Thickness • M: Screw Hole • N: Screw Quantity • H: Meter Height

Dimension for Wafer Type

D In. (mm)	K In. (mm)	L In. (mm)	W In. (mm)	T In. (mm)	M In. (mm)	N In. (mm)	H In. (mm)	Flange OD in. (mm)
1" (25)	3 5/8" (91)	2 5/8" (65)	4" (100)	NA	NA	NA	11 4/8" (288.5)	5 2/8" (130)
1 5/8" (40)	3 3/8" (84)	2 5/8" (65)	4 6/8" (120)	NA	NA	NA	11 7/8" (295.8)	5 6/8" (145)
2" (50)	3 6/8" (94)	2 5/8" (65)	5 2/8" (132)	NA	NA	NA	12" (301)	6 3/8" (160)
3 2/8" (80)	4 6/8" (120)	2 5/8" (65)	6 3/8" (160)	NA	NA	NA	12 5/8" (316)	7 5/8" (192)
4" (100)	5 5/8" (140)	3 5/8" (90)	7 5/8" (190)	NA	NA	NA	13 1/8" (327)	9 2/8" (230)
6" (150)	7 5/8" (190)	2 5/8" (65)	9 5/8" (240)	NA	NA	NA	14 1/8" (353)	11 2/8" (280)
8" (200)	9 5/8" (240)	3 3/8" (85)	11 7/8" (296)	NA	NA	NA	15 1/8" (378)	13 3/8" (335)
10" (250)	11 5/8" (290)	4" (100)	14 1/8" (354)	NA	NA	NA	16 1/8" (404)	16 2/8" (405)
12" (300)	13 5/8" (340)	4 6/8" (120)	16 4/8" (412)	NA	NA	NA	17 1/8" (429)	18 3/8" (460)

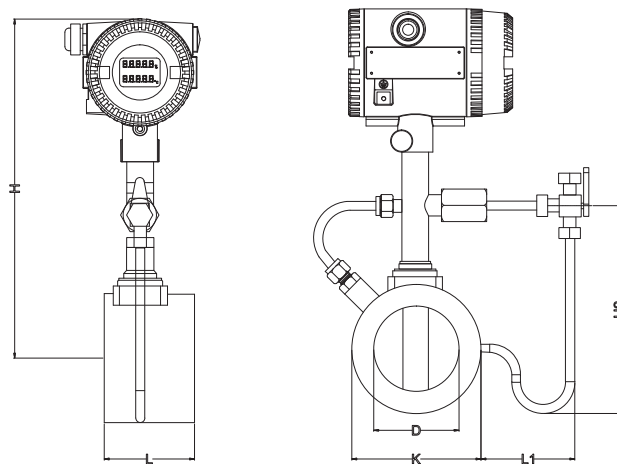


Flanged Type (ANSI 150#)

• D: Size • K: Pipe OD • L: Pipe Length • W: Flange Screw • T: Flange Thickness • M: Screw Hole • N: Screw Quantity • H: Meter Height

Dimension for Flanged Type (ANSI 150#)

D In. (mm)	K In. (mm)	L In. (mm)	W In. (mm)	T In. (mm)	M In. (mm)	N In. (mm)	H In. (mm)
1" (25)	4 3/8" (107.9)	7 2/8" (180)	3 1/8" (79.4)	5/8" (14.3)	5/8" (15.9)	4	11 7/8"(295.5)
1 5/8" (40)	5 1/8" (127)	7 2/8" (180)	3 7/8" (98.4)	6/8" (17.5)	5/8" (15.9)	4	12 1/8" (302.5)
2" (50)	6 1/8" (152.4)	7 2/8" (180)	4 7/8" (120.6)	6/8" (19)	6/8" (19)	4	12 2/8" (307)
3 2/8" (80)	7 5/8" (190.5)	8" (200)	6 1/8" (152.4)	1" (23.8)	6/8" (19)	4	13" (326)
4" (100)	9 2/8" (230)	8 6/8" (220)	7 5/8" (190.5)	1" (23.8)	6/8" (19)	8	13 4/8" (336)
6" (150)	11 1/8" (279.4)	8 6/8" (220)	9 5/8" (241.3)	1" (25.4)	7/8" (22.2)	8	14 3/8" (360)
8" (200)	13 6/8" (342.9)	8 6/8" (220)	11 7/8" (298.4)	1 1/8" (28.6)	7/8" (22.2)	8	15 3/8" (385)
10" (250)	16 2/8" (406.4)	10" (250)	14 4/8" (361.9)	1 2/8" (30.2)	1" (25.4)	12	16 4/8" (412.7)
12" (300)	19 2/8" (482.6)	12" (300)	17 2/8" (431.8)	1 2/8" (31.8)	1" (25.4)	12	17 7/8" (445.4)



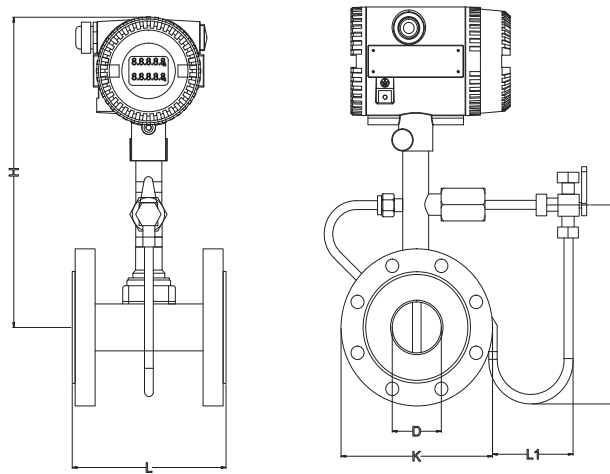
Multi-Variable Wafer Type

• D: Size • K: Pipe OD • L: Pipe Length • W: Flange Screw • T: Flange Thickness • M: Screw Hole • N: Screw Quantity • H: Meter Height

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Dimension for Multi-Variable Wafer Type

D In. (mm)	K In. (mm)	L In. (mm)	W In. (mm)	T In. (mm)	M In. (mm)	N Screw Qty.	H In. (mm)	Flange OD In. (mm)	H2 In. (mm)	L1 In. (mm)
1" (25)	3 5/8" (91)	2 5/8" (65)	(100)	NA	NA	NA	11 4/8" (288.5)	5 2/8" (130)	5 7/8" (146)	5 4/8" (136)
1 5/8" (40)	3 3/8" (84)	2 5/8" (65)	4 6/8" (120)	NA	NA	NA	11 7/8" (295.8)	5 6/8" (145)	6 5/16" (157.8)	5 3/16" (129)
2" (50)	3 6/8" (94)	2 5/8" (65)	5 2/8" (132)	NA	NA	NA	12" (301)	6 3/8" (160)	6 6/8" (168)	5" (124)
3 2/8" (80)	4 6/8" (120)	2 5/8" (65)	6 3/8" (160)	NA	NA	NA	12 5/8" (316)	7 5/8" (192)	8 2/8" (206)	4 3/8" (109)
4" (100)	5 5/8" (140)	3 5/8" (90)	7 5/8" (190)	NA	NA	NA	13 1/8" (327)	9 2/8" (230)	8 5/8" (217)	4" (99)
6" (150)	7 5/8" (190)	2 5/8" (65)	9 5/8" (240)	NA	NA	NA	14 1/8" (353)	11 2/8" (280)	10 6/8" (268)	4" (99)
8" (200)	9 5/8" (240)	3 3/8" (85)	11 7/8" (296)	NA	NA	NA	15 1/8" (378)	13 3/8" (335)	12 6/8" (318)	4" (99)
10" (250)	11 5/8" (290)	4" (100)	14 1/8" (354)	NA	NA	NA	16 1/8" (404)	16 2/8" (405)	14 6/8" (369)	4" (99)
12" (300)	13 5/8" (340)	4 6/8" (120)	16 4/8" (412)	NA	NA	NA	17 1/8" (429)	18 3/8" (460)	16 6/8" (419)	4" (99)



Multi-Variable Flanged Type (ANSI 150#)

• D : Size • K : Pipe OD • L : Pipe Length • W : Flange Screw • T : Flange Thickness • M : Screw Hole • N : Screw Quantity • H : Meter Height • H2 : Condensation Pipe Height • L1 : Condensation Pipe Length

Dimension for Multi-Variable Wafer Type

D In. (mm)	K In. (mm)	L In. (mm)	W In. (mm)	T In. (mm)	M In. (mm)	N Screw Qty.	H In. (mm)	H1 In. (mm)	L1 In. (mm)
1" (25)	4 3/8" (107.9)	7 2/8" (180)	3 1/8" (79.4)	5/8" (14.3)	5/8" (15.9)	4	11 4/8" (295.5)	6 7/8" (170.5)	5 4/8" (136)
1 5/8" (40)	5 1/8" (127)	7 2/8" (180)	3 7/8" (98.4)	6/8" (17.5)	5/8" (15.9)	4	12 1/8" (302.5)	7 6/16" (185)	5 3/16" (129)
2" (50)	6 1/8" (152.4)	7 2/8" (180)	4 7/8" (120.6)	6/8" (19)	6/8" (19)	4	12 2/8" (307)	8 1/8" (202)	5" (124)
3 2/8" (80)	7 5/8" (190.5)	8" (200)	6 1/8" (152.4)	1" (23.8)	6/8" (19)	4	13" (326)	9 5/8" (241)	4 3/8" (109)
4" (100)	9 2/8" (230)	8 6/8" (220)	7 5/8" (190.5)	1" (23.8)	6/8" (19)	8	13 4/8" (336)	10 7/8" (271)	4" (99)
6" (150)	11 1/8" (279.4)	8 6/8" (220)	9 5/8" (241.3)	1" (25.4)	7/8" (22.2)	8	14 3/8" (360)	12" (300)	4" (99)
8" (200)	13 6/8" (342.9)	8 6/8" (220)	11 7/8" (298.4)	1 1/8" (28.6)	7/8" (22.2)	8	15 3/8" (385)	15 1/8" (377.5)	4" (99)
10" (250)	16 2/8" (406.4)	10" (250)	14 4/8" (361.9)	1 2/8" (30.2)	1" (25.4)	12	16 4/8" (412.7)	17 3/8" (435.2)	4" (99)
12" (300)	19 2/8" (482.6)	12" (300)	17 2/8" (431.8)	1 2/8" (31.8)	1" (25.4)	12	17 7/8" (445.4)	20 3/8" (507.9)	4" (99)

4.Display

The Tek-Vor 1300C Vortex Flowmeter provides local display and setting that can display several variables on the local multifunctional LCD display. It has 3 buttons.

The Tek-Vor 1300C Vortex Flowmeter display panel indicates "Frequency", "Flow rate", and "Total flow". The Tek-Vor 1300C Multi-Variable version or a standard Tek-Vor 1300C working with RTD and pressure transmitter can also indicate other variables such as "Temperature", "Pressure", "Density", "Mass flow".



The LCD display has 2 display areas, the upper row and lower row. The upper row displays either Volume Flow Rate or Mass Flow Rate. Immediately underneath the upper row, the unit of the variable displayed in upper row is shown in smaller digits/letters.

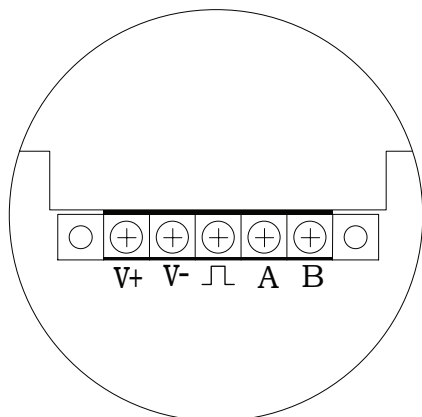
The lower row display indicates variables such as Frequency, Pressure, Temperature, Density, Total Flow, and Velocity. Immediately underneath the lower row, the unit of the variable displayed in lower row shown in smaller digits/letters.



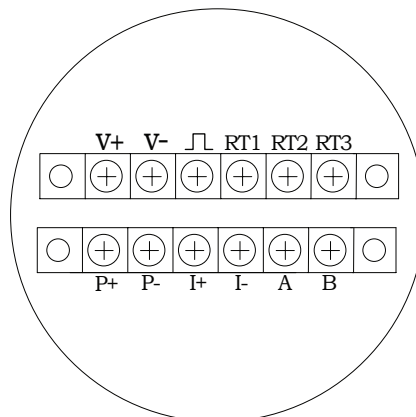
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5. Power Supply

The Tek-Vor 1300C has two different terminal boards- 5-terminal board for the standard model and 12-terminal board for the multi-variable model.



5-terminal Board
(2 Wire)



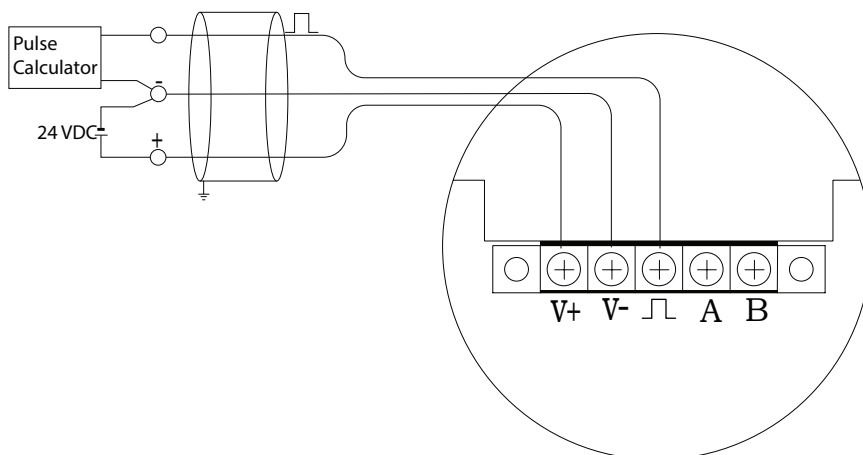
12-terminal Board
(Bluetooth)

Power Supply	V+
	V-
Pulse Output	⏏
RS 485 Communication	A+
	B-
Current	I+
	I-
Temperature Sensor	RTD1, RTD2, RTD3
Pressure Sensor	P+
	P-

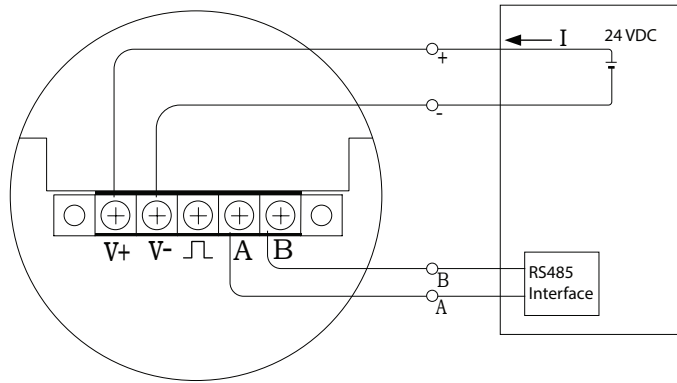
Wiring for 5-terminal Board

For 3-Wire Pulse Output

A 3-Wire pulse output requires a power source of 13.5 to 42 VDC. Tek-Vor 1300C uses a current pulse output with 50% duty ratio. The resistance should be within 500 Ω to 1000 Ω and power consumption should be no less than 0.5 W.

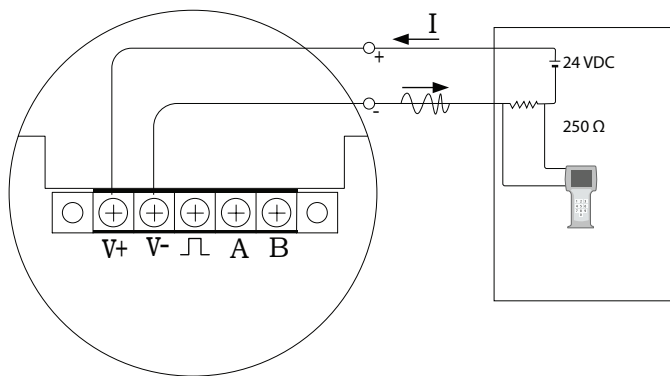


For RS485



For 2-Wire HART with 4-20mA

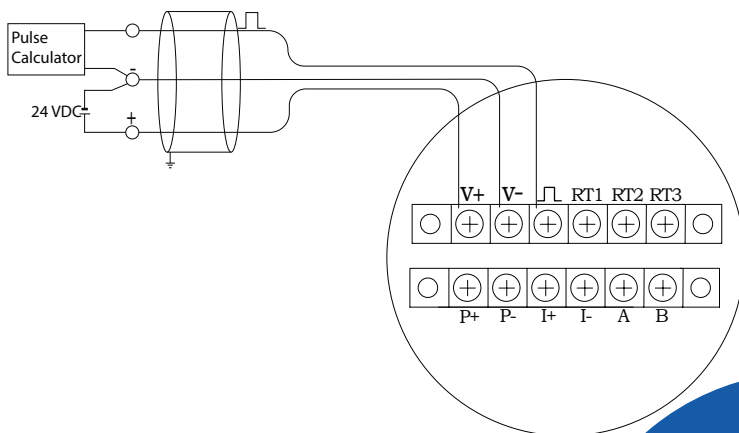
When there is not temperature and pressure compensation and the power source is 24 VDC, the maximum load for 4 to 20 mA analog is 500 Ω. And when there is temperature and pressure compensation and the power source is 24 VDC, the max load for 4 to 20 mA analog is 400 Ω. When using a HART communicator, add a 250 Ω load resistor.



Wiring for 12-terminal Board

For 3-Wire Pulse Output

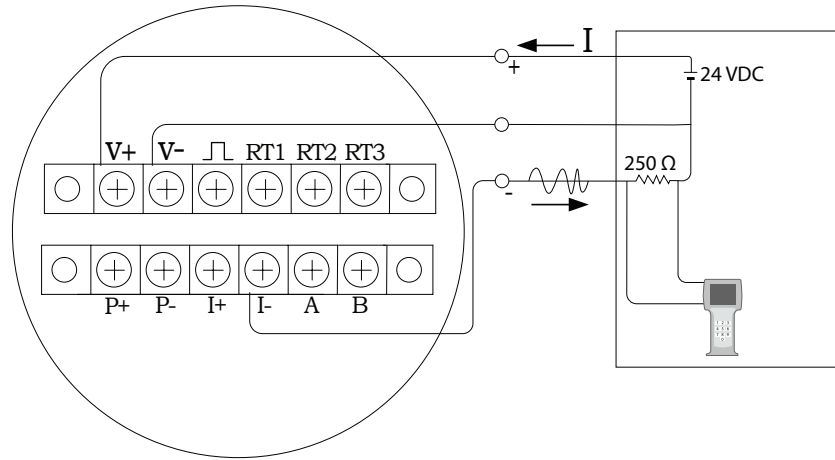
A 3-Wire pulse output requires a power source of 13.5 to 42 VDC. Tek-Vor 1300C uses a current pulse output with 50% duty ratio. The resistance should be within 500 Ω to 1000 Ω, and power consumption should be no less than 0.5 W.



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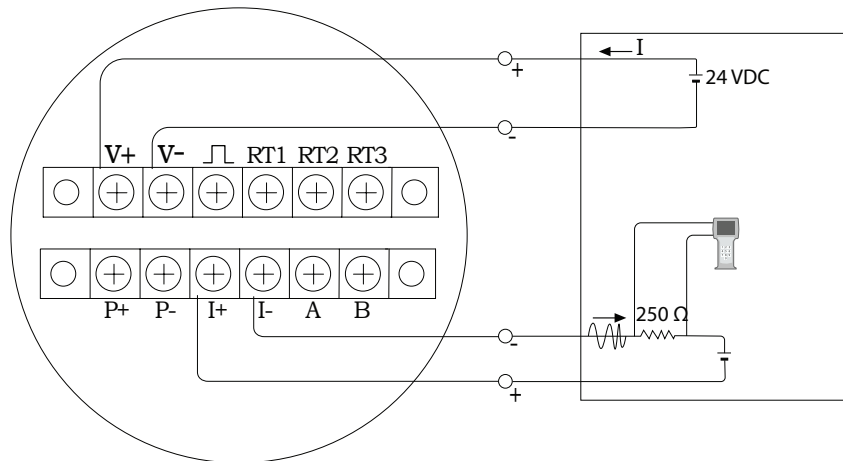
For 3-Wire HART with 4-20 mA

When the power source is 24 VDC, the maximum load for 4 to 20 mA analog is 500 Ω .

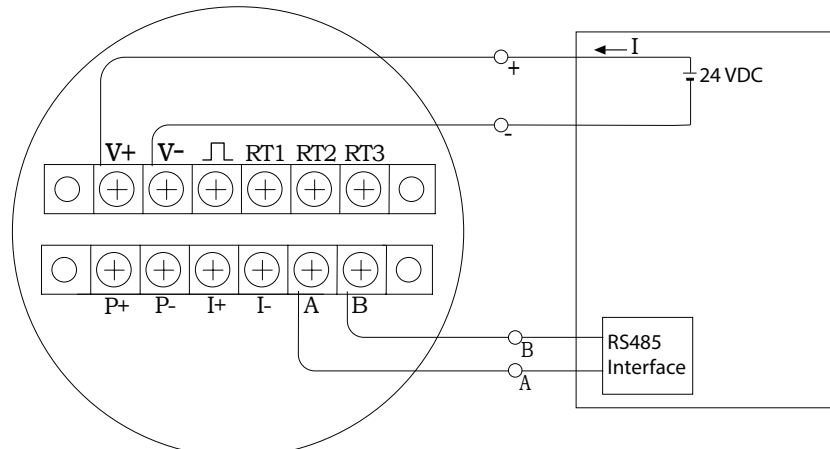







For 4-Wire HART with 4-20 mA

When the power source is 24V DC, the maximum load for 4 to 20 mA analog is 500 Ω .



For RS485



-  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.

6. Grounding

The power supply of signal processing circuit in Tek-Vor 1300C 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.

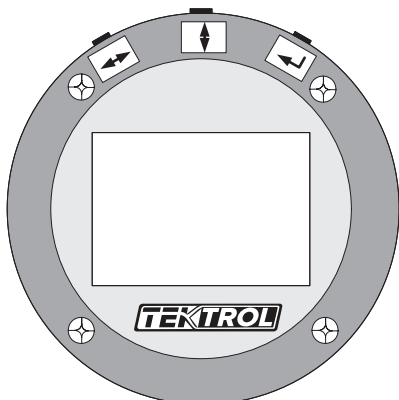
Note: Make sure that the flowmeter is properly grounded.




7. Communication

- The communication interface should be RS485, the range of the Baud Rate should be between 1200 and 115200.
- The wiring terminal is "A" and "B". Refer to section 5. (Power Supply) of this Quick Start Guide for wiring terminal information.
- The communication should comply with the MODBUS-RTU statute.

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

8. Configuration



The configuration of Tek-Vor 1300C can be done with the help of 3 display buttons,  the L-R button,  the U-D button, and  the Enter button.

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The “U-D button” switches the displaying content. The L-R button shifts the digits to the left and right of total flow. The “Enter button” displays the entire digits of total flow directly.

Status

The Tek-Vor 1300C Vortex Flowmeter has three different statuses:

- Working Status
- Setting Status
- Calibration Status

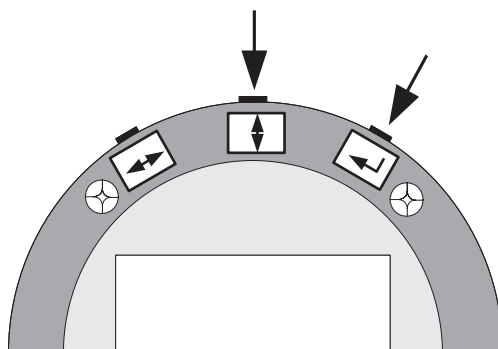
When under the Setting status, the flowmeter can be set, while it is still processing, setting won't have any effect on the measuring parameters. The calibration of the flowmeter is completed in the manufacturer's laboratory before delivery, including temperature and pressure calibration and the setting of high limit and low limit of 4 to 20 mA stimulation output.

Parameter Setting

The Tek-Vor 1300C Vortex Flowmeter has Digit and Code setting functions. Use the Code setting to set parameters such as fluid type, compensation type, and output signal. Use the Digit setting to set parameters related to a number, such as pipe size and, flow range factor.

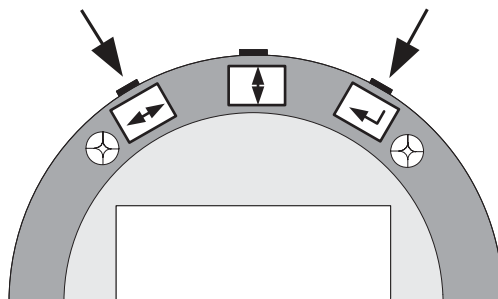
For Code Setting:

Under working status, to enter the Code setting, hold down the “Enter button” and press the “U-D button” at the same time.



For Digit Setting:

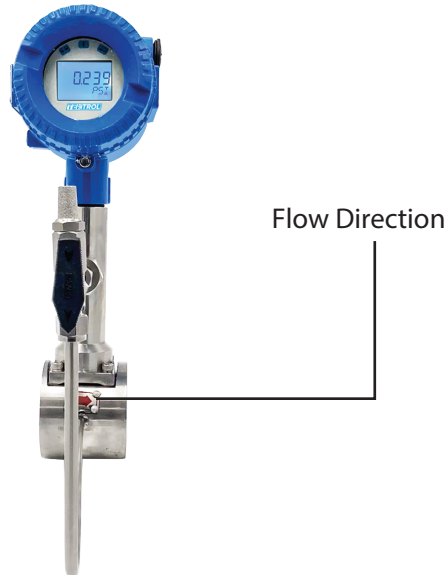
Under Working status, to enter the Digit setting, hold down the “Enter button” and press the “L-R button” at the same time



Note: For more information on Code Setting Address and Digit Setting Address, refer to the detailed manual.

Note: Tek-Vor 1300C Vortex Flowmeter has been set according to requirement before delivery, please do not change the setting unless it is necessary and under correct instruction.

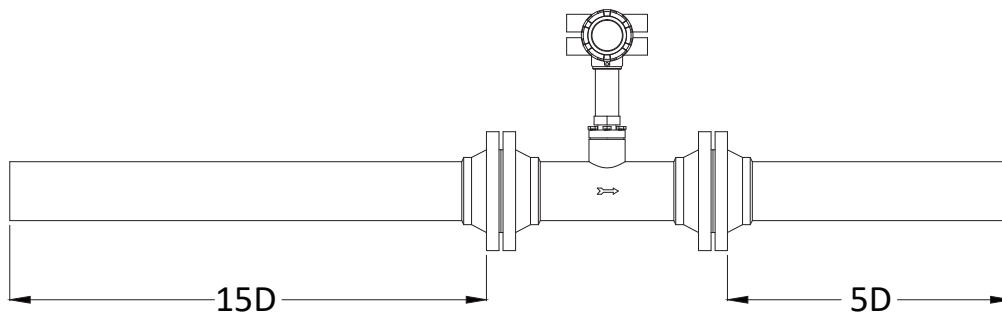
9. Flow Direction



A flow arrow indicates the flow direction in front of the sensor, so please install the Tek-Vor 1300C accordingly. Otherwise, the transmitter may not display the flow rate correctly.

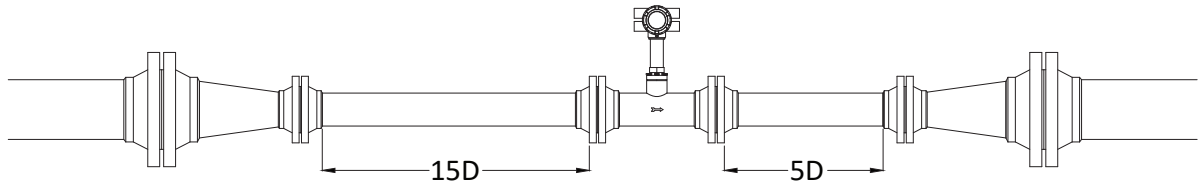
10. Installation

Standard Installation

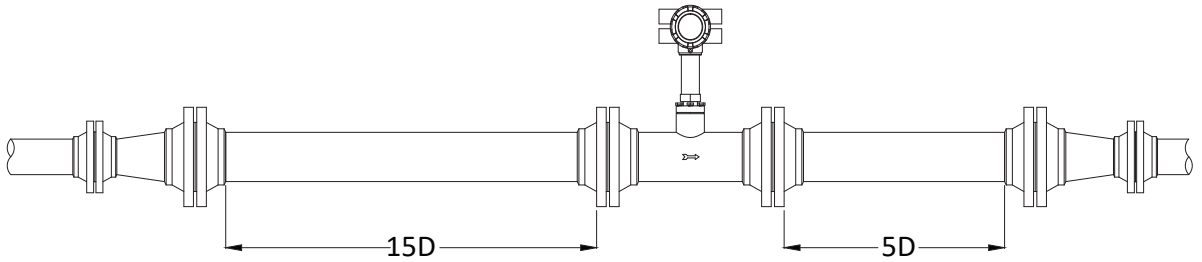


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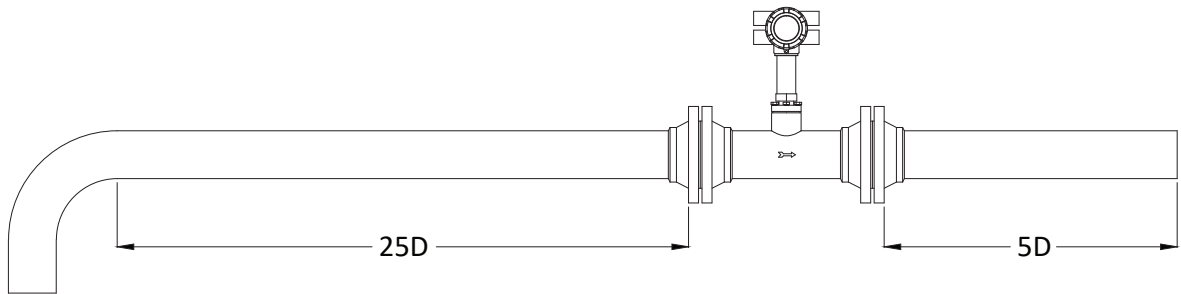
Installation for Pipe Reducer



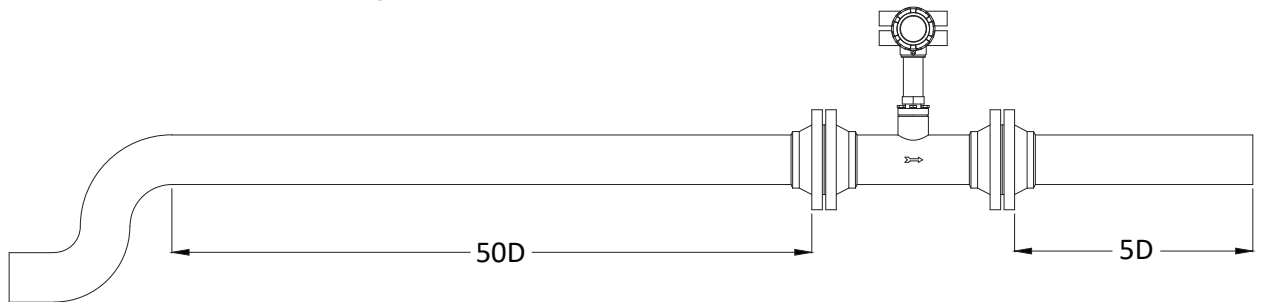
Installation for Pipe Expander



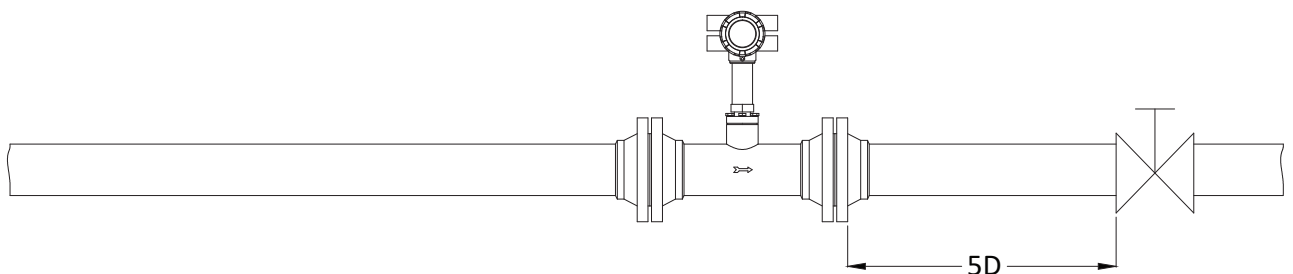
Installation for Single Bend Pipeline



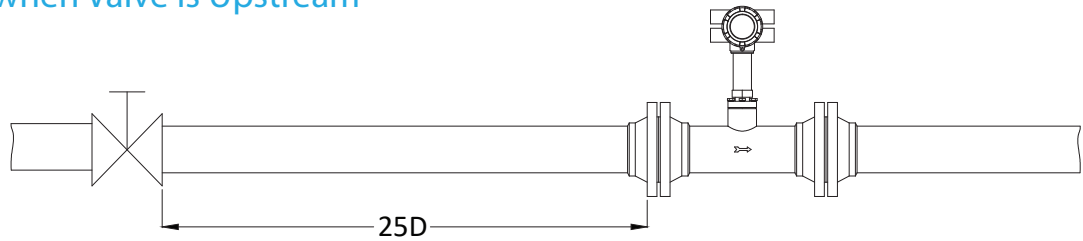
Installation for Double Bend Pipeline



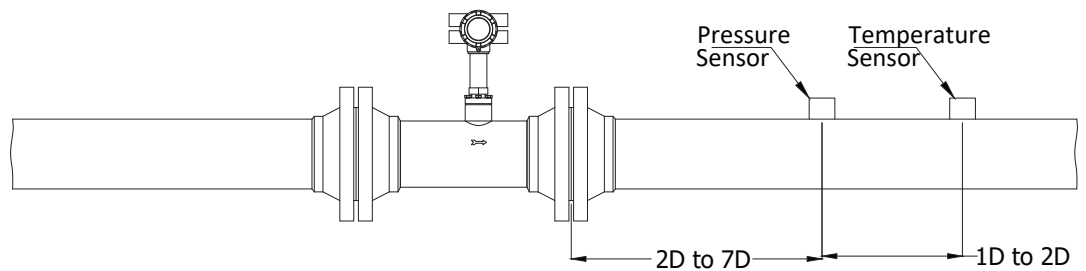
Installation when Valve is Downstream



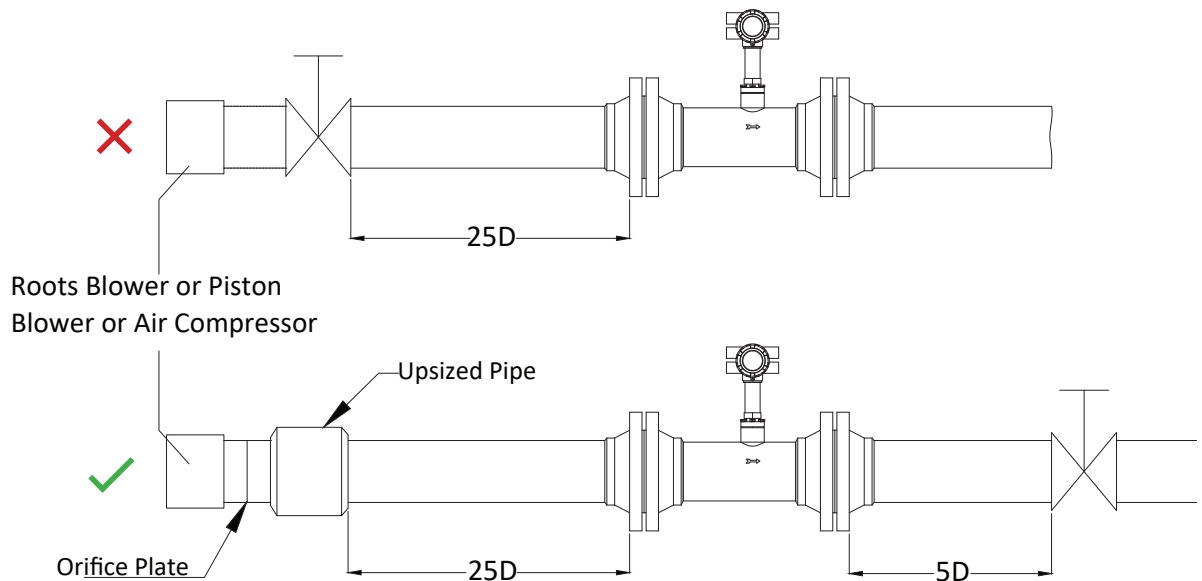
Installation when Valve is Upstream



Installation when Temperature and Pressure Sensor are Downstream

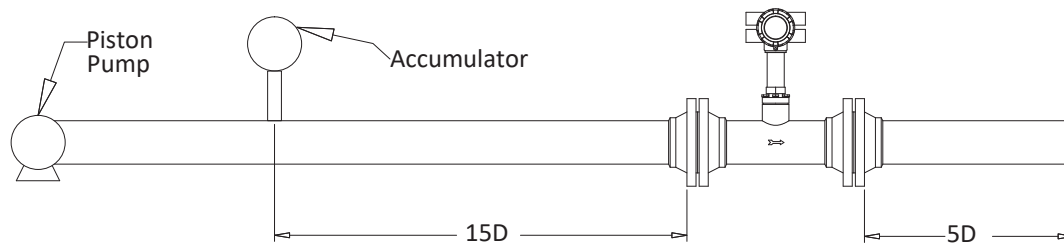


Installation when Roots Blower, Piston Blower, or Air Compressor are Upstream

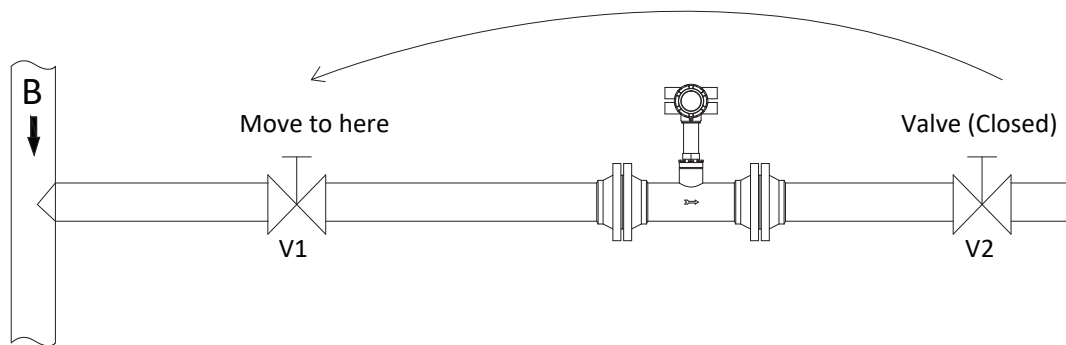


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Installation for Flowmeter after a Piston Pump



Installation when T Type Pipeline is Upstream



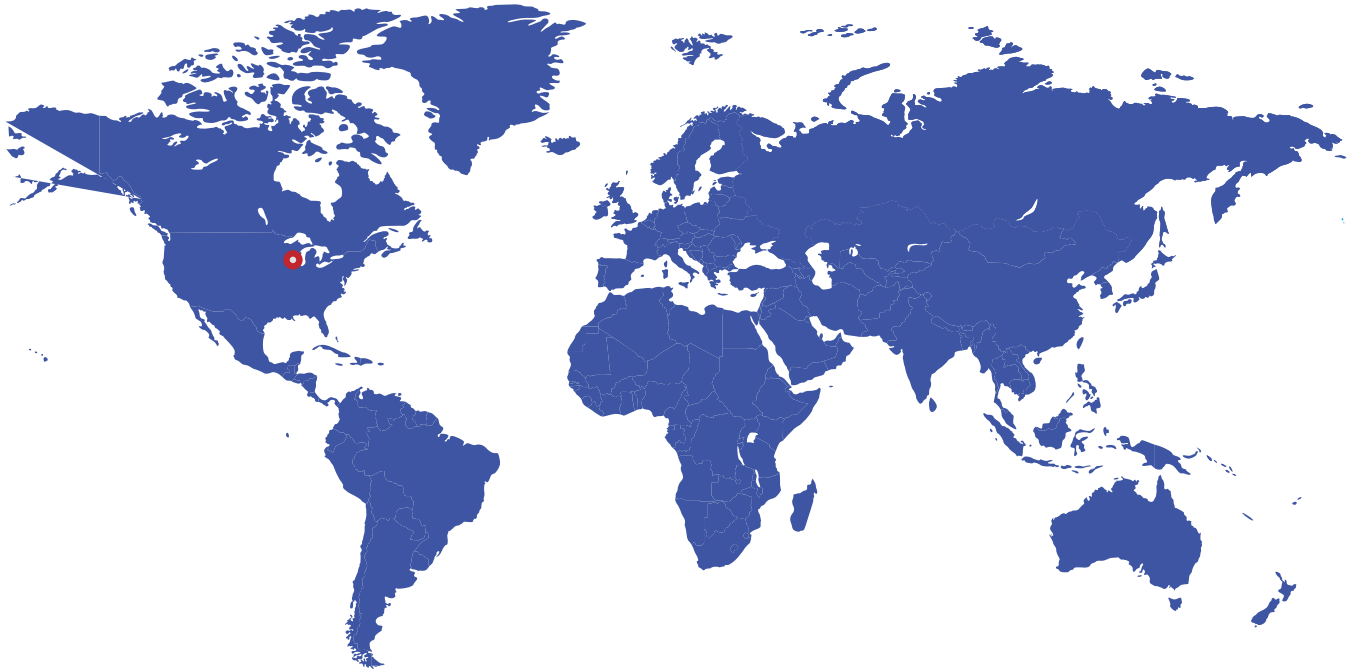
Note: When the upstream pipeline is T type, and the flowmeter and valve downstream of the meter is shut, the fluid will flow towards pipe B. The meter may still show a reading for it by detecting the pulsating pressure. If this happens, close the upstream valve V1.

11. Error Messages

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



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