

## *Tek-Flux 1400C*

*Utility Electromagnetic Flow Meter*



Battery Powered



NSF

# Quick Start Guide

## 1. Before you begin

Before installation, check the model, specifications, and installation location for the transmitter. Follow the full User Guide for detailed installation and other information.



Verify that the operating environment of the flow tube and transmitter is consistent with the appropriate hazardous locations certifications.



Do not remove the transmitter cover in the explosive atmosphere when the circuit is alive.



Before connecting a HART-based communicator in an explosive atmosphere, make sure that the instruments of the loop are installed by intrinsically safe or non-incentive field wiring practices.



Make sure only qualified personnel perform the installation.

## 2. Unpack

Tek-Flux 1400C Utility Electromagnetic Flow Meter

## 3. Dimensional Drawings

### • Battery Powered

Material of Construction	
Pipe Material	Carbon Steel
Electrode Material	316 SS
Flanges	Carbon Steel
Coil Housing	Carbon Steel
Flow Transmitter	Die Cast Aluminium
Liner	Polypropylene

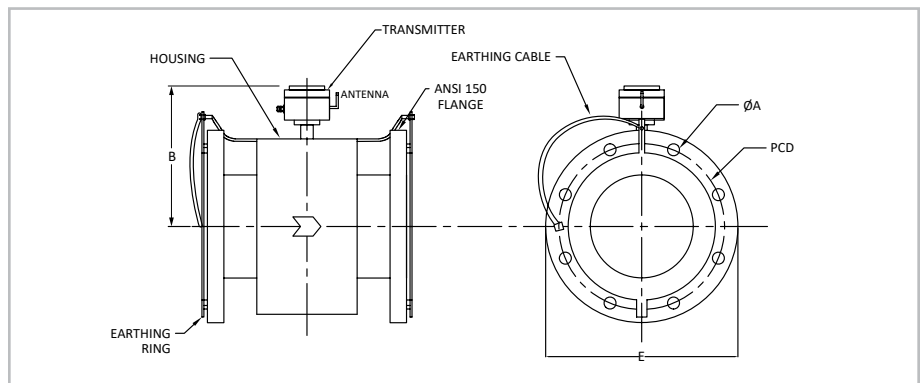


Fig 1: Battery Powered

Line Size in (mm)	D in (mm)	B in (mm)	E in (mm)	Flange OD	PCD	Ø A X NO. OF HOLES
2"(50)	8" (200)	9 ½" (239)	7" (175)	6" (150)	4 ¾" (121)	Ø19 X 4
2 ½" (65)	8" (200)	9 ¾" (245)	7 ½" (187)	7 ¼" (180)	5 ½" (140)	Ø19 X 4
3" (80)	8" (200)	10 ⅛" (253)	8 ⅛" (203)	7 ½" (190)	6" (152)	Ø19 X 4
4"(100)	10" (250)	10 ¾" (268)	9 ¼" (234)	9 ¼" (230)	7 ½" (190)	Ø19 X 8
5" (125)	10" (250)	11 ½" (287)	10 ¾" (272)	10 ¼" (255)	8 ¾" (216)	Ø23 X 8
6" (150)	12" (300)	12 ¼" (305)	12 ¼" (308)	11 ¼" (280)	9 ½" (241)	Ø23 X 8
8" (200)	14" (350)	13 ¼" (331)	14 ¼" (359)	13 ¾" (345)	12" (298)	Ø23 X 8
10" (250)	16" (400)	14 ¼" (358)	16 ½" (413)	16 ¼" (405)	14 ½" (362)	Ø25 X 12
12" (300)	20" (500)	14 ¾" (368)	19 ½" (485)	19 ½" (485)	17 ¼" (432)	Ø25 X 12

- Line Powered

Flow Tube with Metal body

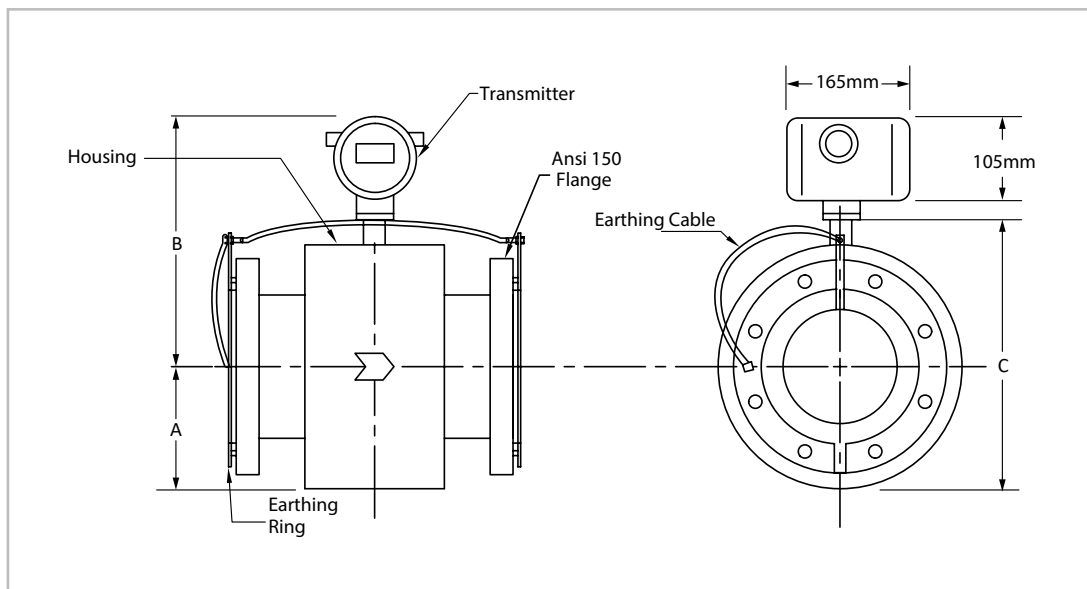


Fig 2: Integral Type

# Quick Start Guide

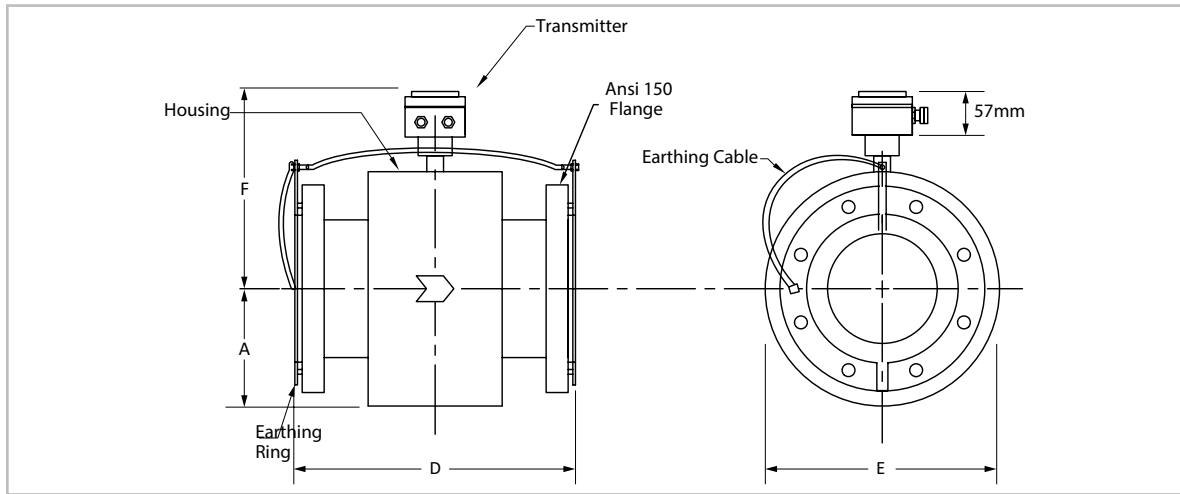


Fig 3: Remote Type

Line Size in (mm)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)
1/2" (15)	2 1/4" (58)	9 1/4" (233)	6 1/2" (165)	8" (200)	4 1/2" (115)	6 1/2" (165)
3/4" (20)	2 3/4" (70)	9 3/4" (245)	7 1/2" (190)	8" (200)	5 1/4" (140)	7" (177)
1" (25)	2 3/4" (73)	9 7/8" (248)	7 3/4" (195)	8" (200)	5 3/4" (145)	7 1/4" (180)
2" (50)	3 1/2" (88)	10 1/2" (263)	9" (225)	8" (200)	7" (175)	7 3/4" (195)
2 1/2" (65)	3 3/4" (94)	10 3/4" (269)	9 1/2" (237)	8" (200)	7 1/2" (187)	8" (201)
3" (80)	4 1/8" (104)	11" (277)	10 1/8" (253)	8" (200)	8 1/8" (203)	8 1/4" (209)
4" (100)	4 3/4" (117)	11 3/4" (292)	11 1/4" (284)	10" (250)	9 1/4" (234)	9" (224)
5" (125)	5 1/2" (136)	12 1/2" (311)	12 3/4" (322)	10" (250)	10 3/4" (272)	9 3/4" (243)
6" (150)	6 1/4" (154)	13 1/4" (329)	14 1/4" (358)	12" (300)	12 1/4" (308)	10 1/2" (261)
8" (200)	7 1/4" (180)	14 1/4" (355)	16 1/4" (409)	14" (350)	14 1/4" (359)	11 1/2" (287)
10" (250)	8 1/4" (207)	15 1/4" (382)	18 1/2" (463)	16" (400)	16 1/2" (413)	12 1/2" (314)
12" (300)	9 3/4" (243)	15 3/4" (392)	20 1/2" (510)	20" (500)	19 1/2" (485)	13" (324)
14" (350)	10 3/4" (268)	17" (423)	22 3/4" (567)	20" (500)	21 1/2" (535)	14 1/4" (355)
16" (400)	12" (298)	18" (448)	24 3/4" (621)	24" (600)	23 3/4" (595)	15 1/4" (380)
18" (450)	12 3/4" (318)	19" (474)	26 3/4" (666)	24" (600)	25 1/2" (635)	16 1/4" (406)
20" (500)	14" (350)	20" (499)	29" (724)	24" (600)	28" (700)	17 1/4" (431)
24" (600)	16 1/4" (408)	23 1/4" (582)	34 1/2" (865)	24" (600)	32 1/2" (815)	20 1/2" (514)
28" (700)	18" (448)	23 1/2" (590)	35 1/4" (883)	28" (700)	35 3/4" (895)	20 3/4" (522)
32" (800)	20 1/4" (508)	26" (650)	40" (1000)	32" (800)	40 1/2" (1015)	23 1/4" (582)
36" (900)	22 1/4" (558)	27 1/4" (683)	42 3/4" (1066)	36" (900)	44 1/2" (1115)	24 1/2" (615)
40" (1000)	24 1/4" (615)	29" (724)	48 1/2" (1214)	40" (1000)	49 1/4" (1230)	26 1/4" (655)

## 4. Display

- *Display Setting (Battery Powered)*

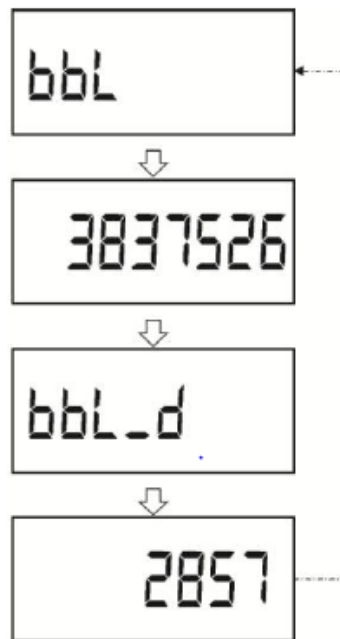
- o **Boot UP**

The Transmitter is delivered in a powered-up condition, and hence you will not normally see this screen, except when connecting a replacement battery.



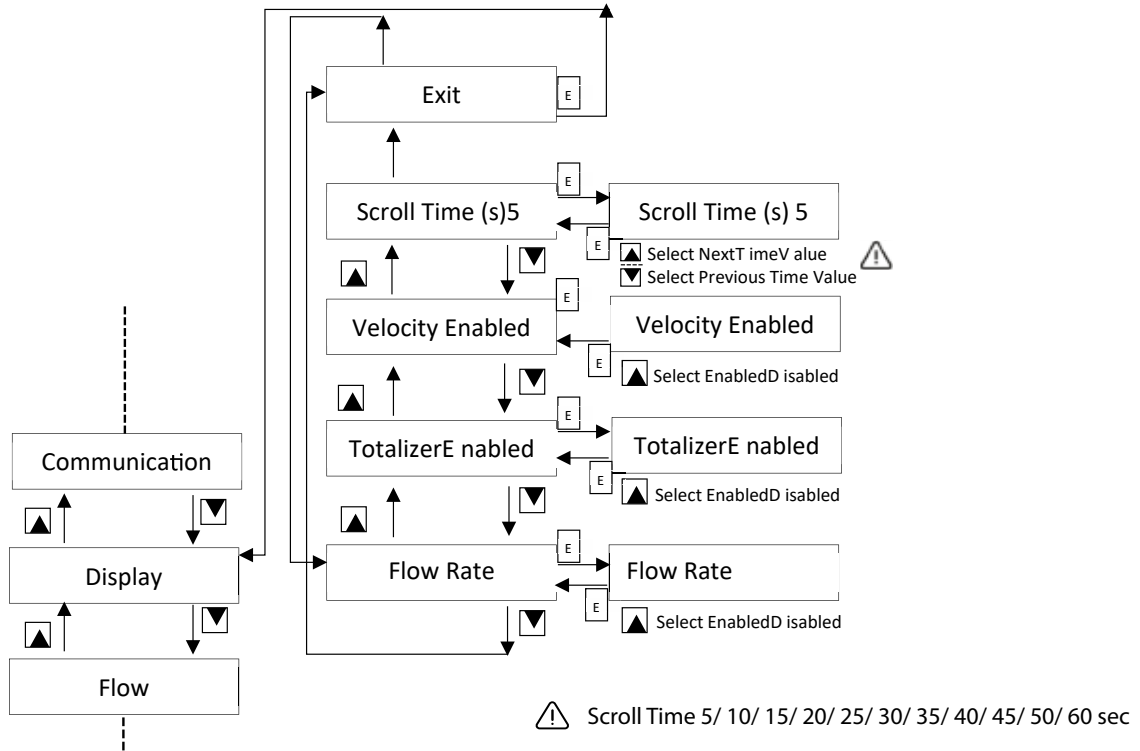
- o **Run Time**

The Transmitter is delivered in a powered-up condition, and hence you will not normally see this screen, except when connecting a replacement battery.



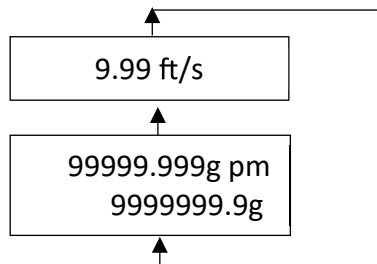
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- *Display Setting (Line Powered)*

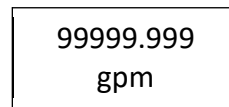


- *Display Screens (Unidirectional Flow)*

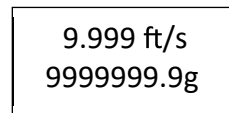
Enabled: Flow Rate, Total & Velocity



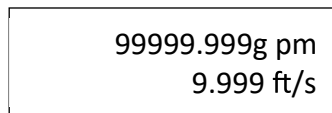
Enabled: only Flow Rate, Total



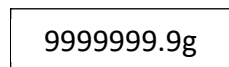
Enabled: only Velocity, Total



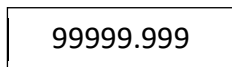
Enabled: only Flow Rate, Velocity



Enabled: only Total



Enabled: only Flow

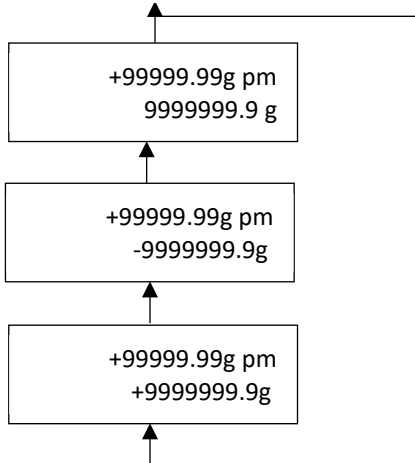


Enabled: only Velocity

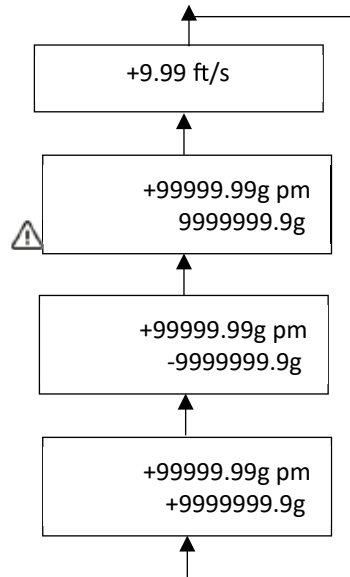


• Display Screens (Bidirectional Flow)

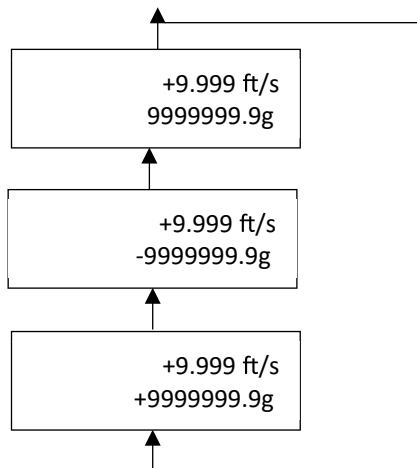
Enabled: only Flow Rate, Total



Enabled: only Flow Rate, Total & Velocity

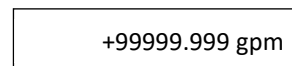


Enabled: only Velocity, Total

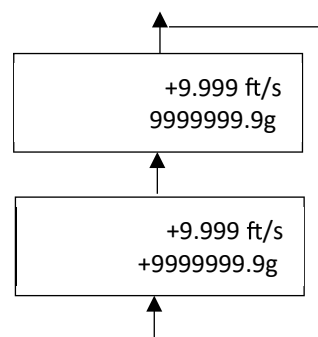


⚠ Net

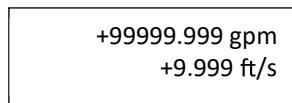
Enabled: only Flow Rate



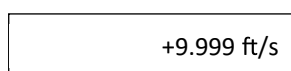
Enabled: only Total



Enabled: only Flow Rate, Velocity



Enabled: only Velocity



# Quick Start Guide

## 5. Power Supply

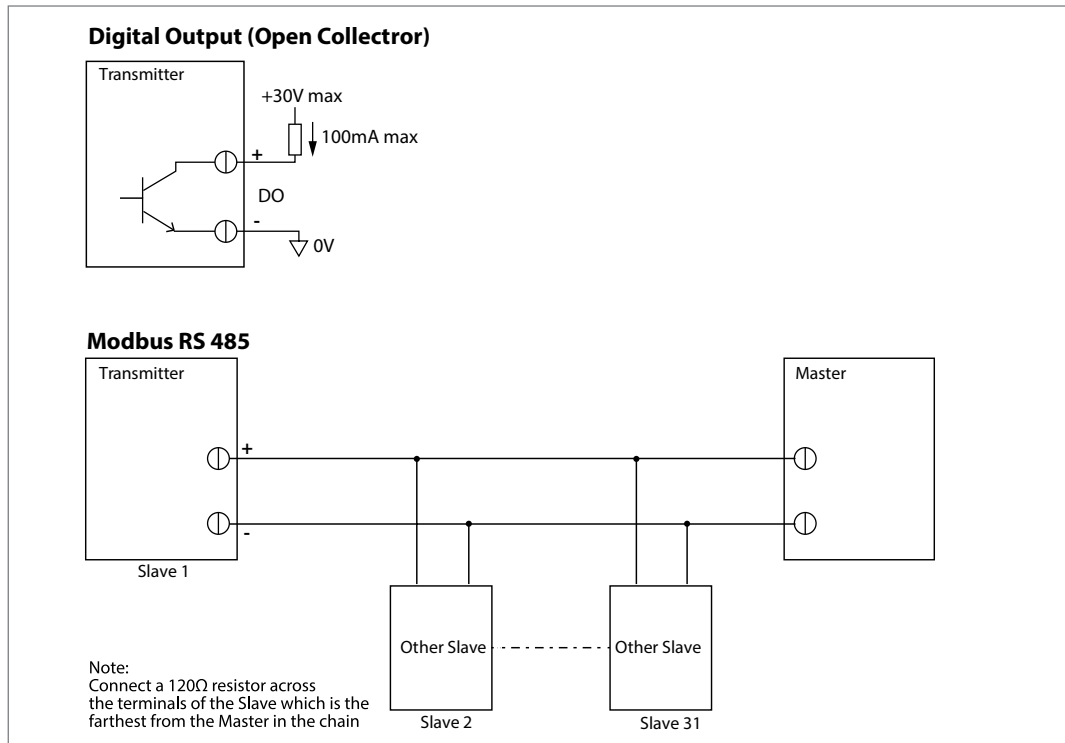


Fig 4: Connection Diagram

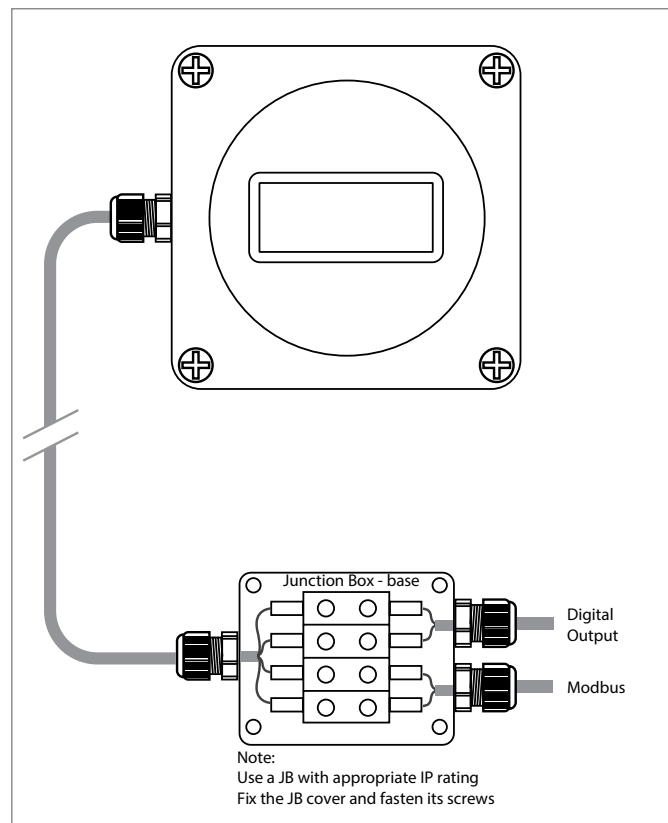


Fig 5: Junction Box

Table 1: Connection Description

Colour	Signal
Red	Open Collector
Black	0V
Yellow	RS485+
Green	RS485-



## 6. Installations

Flow tube must be full of liquid to avoid erratic measurement results. Ensure the Electrodes axis is horizontal within  $\pm 15$  degrees. Ensure straight pipe lengths on both sides of the flow tube (5D at upstream and 3D at downstream from the center of the flow tube).

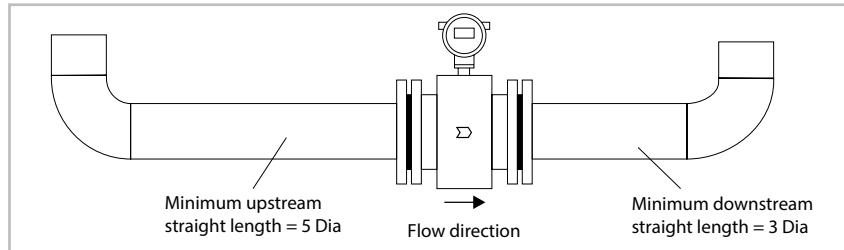


Fig 6: Straight Run Requirement

Flow tube may be installed in horizontal pipelines preferably, with a slight upward gradient in the direction of flow.

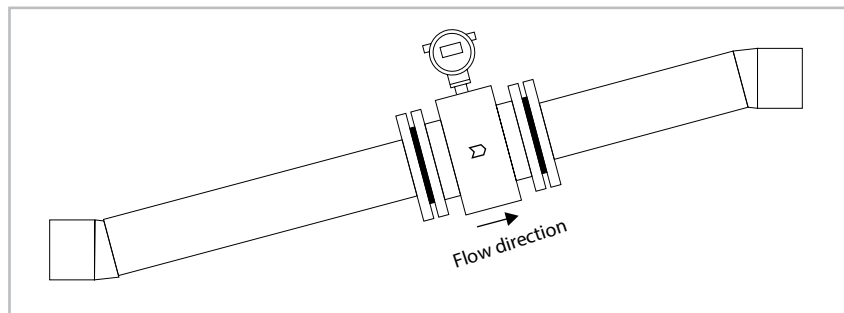


Fig 7: Horizontal Installation

Never install the flow tube in an empty or partially full pipeline. Never install the flow tube in vertical pipelines, where the liquid flow direction is downward.

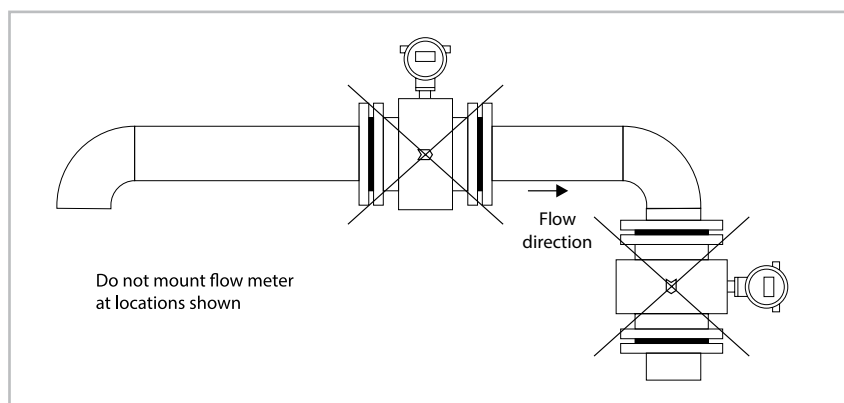
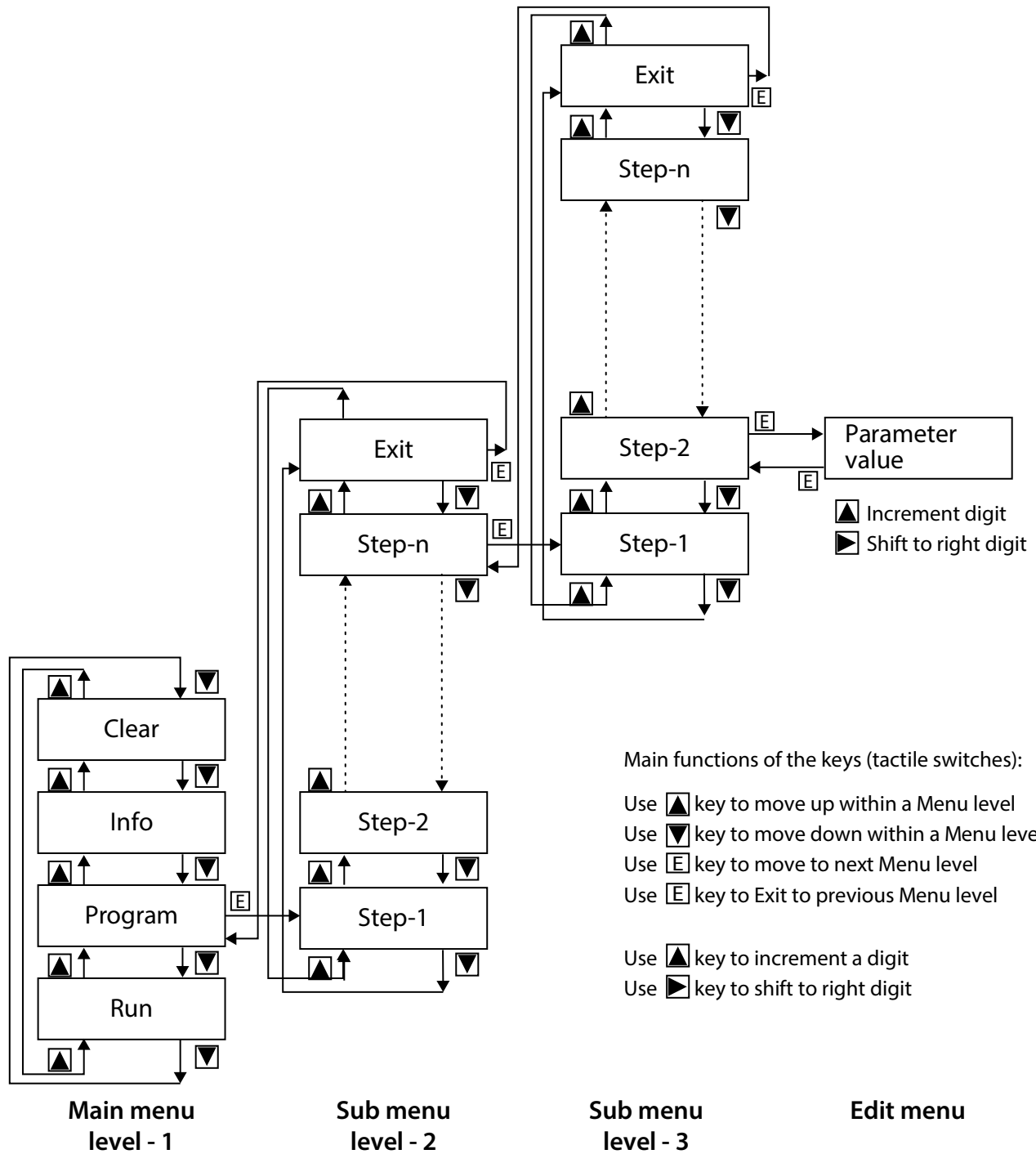


Fig 8: Vertical Installation with Liquid in the Downward Direction

# Quick Start Guide

## 7. Menu Tree

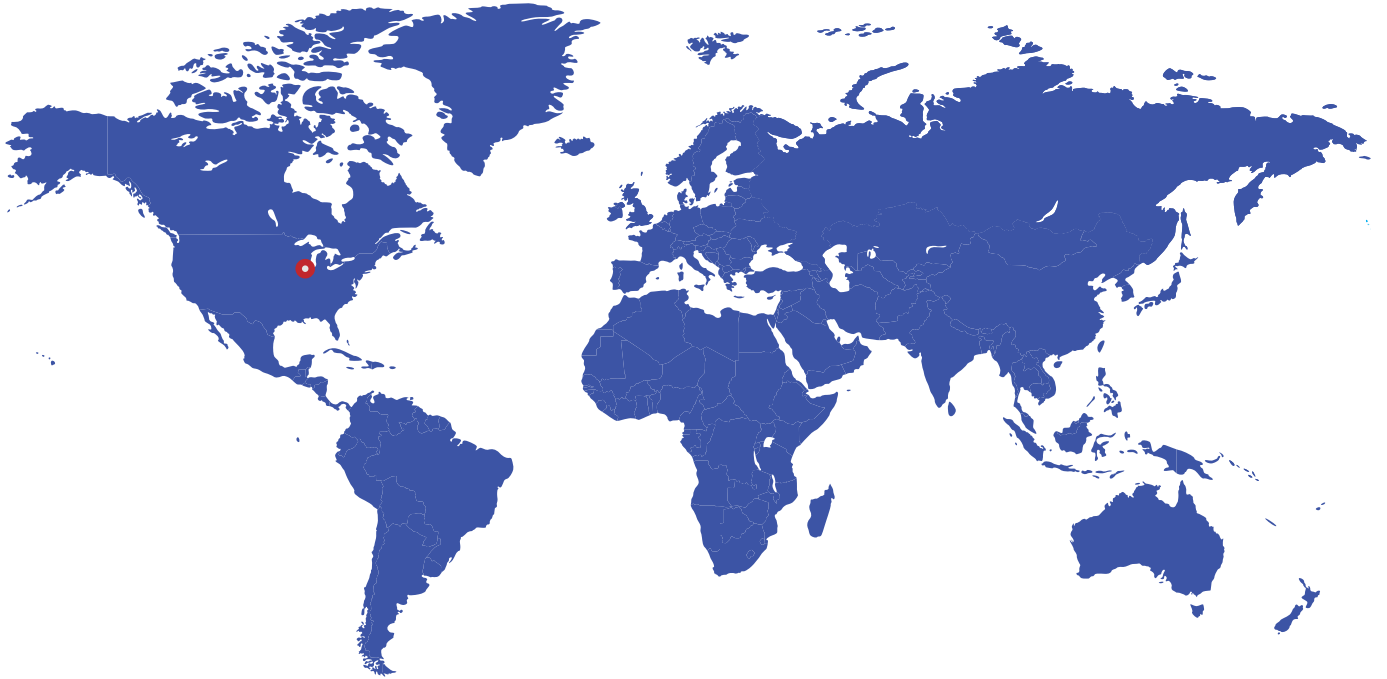


## 7. Troubleshooting

No.	Problem observed	Possible cause	Corrective action
1	Transmitter does not power up.	<ul style="list-style-type: none"> <li>a. Fuse has blown.</li> <li>b. The mains power supply is not as specified.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ensure the mains power supply is within <math>\pm 15\%</math> of the value specified on the nameplate.</li> <li>b. Replace the fuse if found to be blown.</li> </ul>
2	The output current is not 4mA DC under zero flow condition.	<ul style="list-style-type: none"> <li>a. The flow is not essentially zero. There exists a small amount of trickle flow.</li> <li>b. Grounding is not proper.</li> </ul>	<ul style="list-style-type: none"> <li>a. Force the flow to zero by completely shutting off the downside valve and check.</li> <li>b. Correct the grounding.</li> </ul>
3	Output current is not steady.	<ul style="list-style-type: none"> <li>a. Flow itself is not steady but pulsating or irregular.</li> <li>b. Gas or air bubbles are present in the flowing liquid.</li> <li>c. The flowing liquid has a varying conductivity.</li> <li>d. Grounding is not proper.</li> </ul>	<ul style="list-style-type: none"> <li>a. Allow the flow to stabilize and then check.</li> <li>b. Identify and eliminate the cause of the air or gas bubbles or wait until liquid is free of bubbles.</li> <li>c. Allow to flowing liquid to attain a stable conductivity.</li> <li>d. Correct the grounding.</li> </ul>
4	Output current not proportional to flow.	Qmax values may not be set properly.	Set the Qmax to values correctly corresponding to 20mA.
5	Display alternates between High Flow and Empty pipe.	Grounding is not proper.	Correct the grounding.
6	Modbus communication issues	<ul style="list-style-type: none"> <li>a. Wiring is not correct.</li> <li>b. Communication settings are incorrectly set.</li> </ul>	<ul style="list-style-type: none"> <li>a. Correct wiring as per diagram.</li> <li>b. Set correct communication parameters</li> </ul>
7	Pulse is not available.	<ul style="list-style-type: none"> <li>a. Pulse settings are not correct.</li> <li>b. Pulse type is not known.</li> </ul>	<ul style="list-style-type: none"> <li>a. Correct Pulse settings in respective DO section.</li> <li>b. Check your ordering for Active or Open Collector Output.</li> </ul>



Technology Solutions




796 Tek Drive  
Crystal Lake, IL 60014  
USA

Fax: +1 847 655 6147

Email: [tektrol@tek-trol.com](mailto:tektrol@tek-trol.com)

[www.tek-trol.com](http://www.tek-trol.com)

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 +1 847-857-6076

 [tektrol@tek-trol.com](mailto:tektrol@tek-trol.com)

 [www.tek-trol.com](http://www.tek-trol.com)

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