TIB SERIES

Battery Operated Flow Meter

Operating Manual

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment

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ICON™ PROCESS CONTROLS

Corrosion-Free
Instrumentation Equipment

Safety Information

1. De-pressurize and Vent System Prior to Installation or Removal.
2. Confirm Chemical Compatibility Before Use.
3. DO NOT exceed Maximum Temperature or Pressure Specifications.
4. ALWAYS Wear Safety Goggles or Face-shield During Installation and/or Service.
5. DO NOT Alter Product Construction.

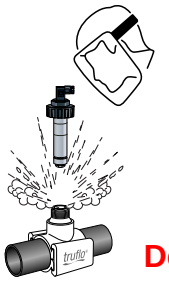
Warning | Caution | Danger
Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death

Hand Tighten Only
Overtightening may permanently damage product threads and lead to failure of the retaining nut.

Note | Technical Notes
Highlights additional information or detailed procedure.

Do Not Use Tools
Use of tool(s) may damage product beyond repair and potentially void product warranty.

WARNING!



Failure to follow these instructions may result in the sensor being ejected from the pipe!

If leaking is observed from the retaining cap, it indicates defective or worn o-rings on the sensor. Do not attempt to correct by further tightening.

Do Not Remove Under Pressure

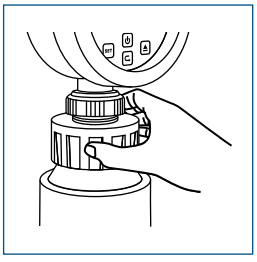
Gauges are not to be subject to water hammer or pressure spikes!

Before installation be certain the appropriate gauge has been selected considering operating pressure / full scale pressure / proof pressure, wetted material requirements, media compatibility, operating temperature, vibration, pulsation, desired accuracy and any other gauge component related to the service application (including the potential need for protective attachments and/or special installation requirements). Failure to do so could result in equipment damage, gauge failure and / or personal injury. Only qualified personnel should be permitted to install and maintain pressure gauges

Installation Safety Information

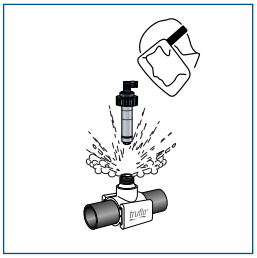
When installing the gauge connection into the application, use the wrench area to thread in and tighten the gauge. Do not use the gauge case to install the gauge.

This could result in loss of accuracy, excessive friction, or mechanical damage to the pressure element or gauge case. The gauge connection must be compatible with the mating connection and must be assembled appropriately. If the mating parts do not seal completely, a sealing material may be considered.



Pressurize System Warning

Sensor may be under pressure, take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury



Personal Protective Equipmet (PPE)

Always utilize the most appropriate PPE during installation and service of Truflo products.

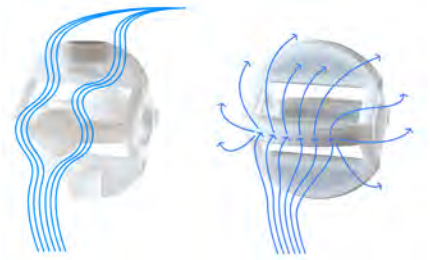
TIB SERIES

Battery Operated - Paddle Wheel Flow Meter

truflo®

New ShearPro® Design

- Superhydrophobic Design
- Contoured Flow Profile
- Reduced Turbulence
- Reduced Friction
- 78% Less Drag than Old Flat Paddle Design*



ShearPro® Competitor 'A'

Zirconium Ceramic Rotor | Bushings

- Industry's Highest Impact and Chemical Resistant Properties
- Up to 15x the Wear Resistance vs. Regular Ceramic
- Nano-Polished Mirror Finished vs. Regular Ceramic - Less Friction
- Integral Rotor Bushings, Reduce Wear & Fatigue Stress

*Ref: NASA "Shape Effects on Drag" **

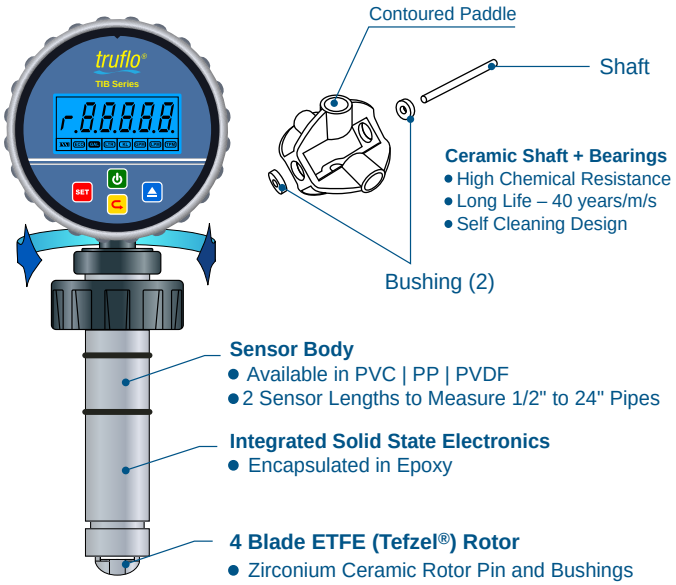
Technical Specifications

Operating Voltage	<1.5 mA @ 3.3 to 6 VDC
Battery	Lithium Battery
Life of Battery	> 7 Years
Current Consumption	60mA max.
Flow Rate GPM | LPM	0.0 ~ 999.9
Fluid	H_2O or Liquid Chemicals
Accuracy	± 0.5% of F.S. @ 25°C
Response Frequency	5K Hz
Max Flow Rate	10m/s | 33ft/s
Min Flow Rate	0.1m/s | 0.3ft/s
Material of Constrction	Paddle | Tefzel® Rotor | Busings | Zirconium Ceramic Sensor Body | PVC | PP | PVDF
O-Ring Material	Viton (std) | EPDM*
Operating Temperature	PVC < 60°C | PP < 80°C | PF < 100°C
Protection Class	IP-65 | General Purpose
Approval	CE | RoHS

*Optional

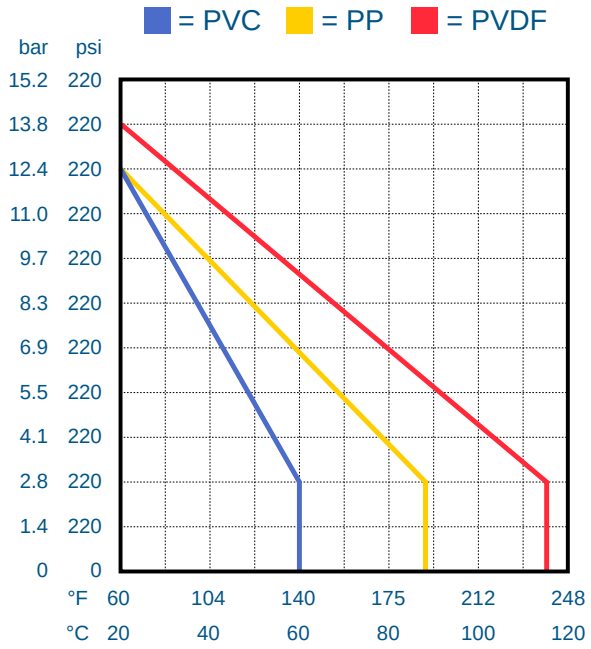
Long Service Life

The TI Series is equipped with a Zirconium Ceramic Rotor Pin and 2 Bushings. The TI Series also incorporates a contoured, 'Low Drag' Paddle Wheel leading to reduced drag, longer wear and a higher accuracy.

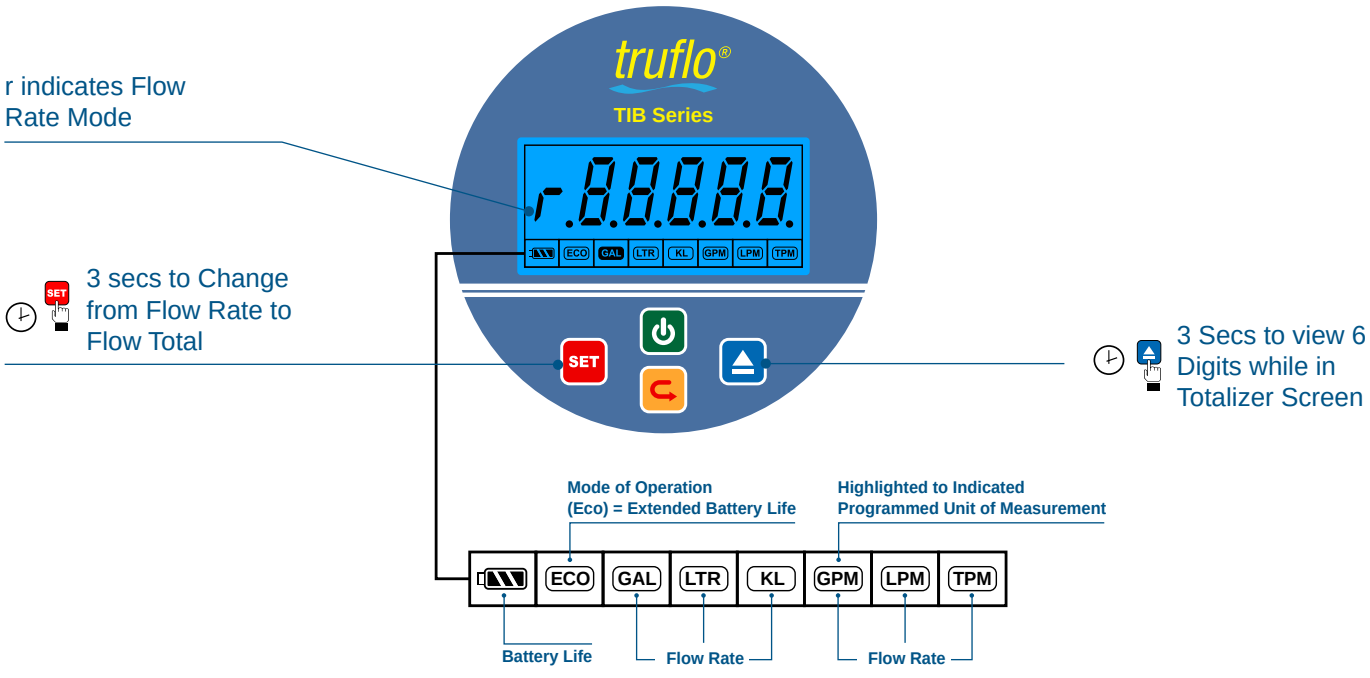


Pressure vs. Temperature

Note : During system design the specifications of all components must be considered. | Non-Shock



Display Functions



Programming

Press ▲ to Increase Value	Press ⏻ to Decrease Value
Press SET to Save Value	Press ⊂ to Change Value

STEPS	DISPLAY	RANGE	OPERATION
Step-1 Home Screen Press SET & ⊂ (HOLD) 3 sec		Display Flashing	**Current Flow Rate | Total**
Step-2 Screen Lock Press SET Key		0-1	**Programming Lock Out Feature** LCK= '0' Unlocked : Factory Default LCK= '1' Locked
Step-3 K Factor Press SET Key		0.1-9999	**Enter K Factor Value** **See Chart on Page 7 for K-Factor Value**
Step-4 Display Mode Press SET Key		non | Eco	**dSP.non** - LED back light | Default is set to 5 seconds **dSP-Eco** - Back Light Function is not Active | Extended Battery Life
Step-5 Light - On Press SET Key		1-9999	**Time on for Back Light | Secs** *Longer Time = Shorter Battery Life
Step-6 Flow Alarm Delay Press SET Key		1-9999	**Time Delay for Visual Alarm**
Step-7 Reset Totalizer Press SET Key		Programming Totalizer Password	**rESEt.0** - Flow Totalizer Reset Disabled **rESEt.1** } **Default**) - Flow Totalizer Reset Enabled

Programming Display Units

STEPS	DISPLAY	SELECTION	OPERATION
Step-1 Display Units Press SET (HOLD) 3 sec		Diplay Units Flow Rate/ Total	**Press ▲ to Select & Press SET To Confirm** **1. Flow Rate** - GPM | LPM | TPM **2. Flow Total** - GAL | LTR | KL

1. Totalizer Reset → Press Both ⏻ ▲ Together for 3 Seconds

2. Sleep Mode → Press ⏻ for 3 Seconds to Reduce Power Consumption

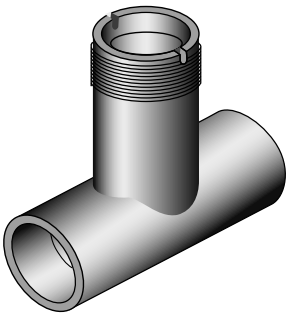
3. Alarm Setup → Press Both SET ▲ Together for 3 Seconds

Min | Max Flow Rates

Pipe Size	Flow Rate (LPM) / USGPM	
	0.3m/s min.	10m/s max.
2" | DN50	40.0 | 10.5	357.0 | 1350.0
2 ½" | DN60	60.0 | 16.0	1850 | 357
3" | DN80	90.0 | 24.0	2800 | 739
4" | DN100	125.0 | 33.0	4350 | 1149
6" | DN150	230.0 | 60.0	7590 | 1997
8" | DN200	315.0 | 80.0	10395 | 2735

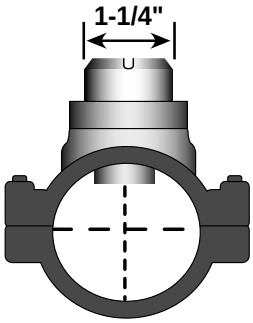
K- Factors

TEE FITTINGS



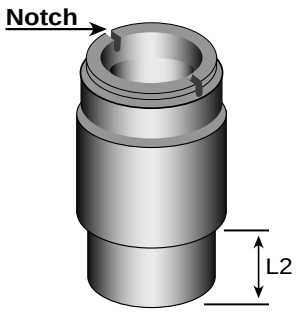
Tee Fitting (Unit:inch)			K-Factor	Sensor Length
Size	DN	Id	CPVC | SCH80	
½"	15	0.55	**1013.04**	S
¾"	20	0.74	**604.80**	S
1"	25	0.96	**408.24**	S
1-¼"	32	1.30	**250.40**	S
1-½"	40	1.50	**139.86**	S
2"	50	1.90	**81.65**	S
2-½"	65	2.30	**54.43**	S
3"	80	2.90	**34.96**	S
4"	100	3.83	**19.80**	S

CLAMP SADDLES



Tee Fitting (Unit:inch)			K-Factor	Sensor Length
Size	DN	Id	CPVC | SCH80	
2"	50	1.9	**81.65**	S
2-½"	65	2.3	**54.43**	S
3"	80	2.9	**34.96**	S
4"	100	3.8	**19.80**	S
6"	150	5.7	**9.18**	L
8"	200	7.0	**5.21**	L
10"	250	9.5	**3.43**	L
12"	300	11.3	**2.45**	L
14"	350	12.4	**1.77**	L
16"	400	15.1	**1.36**	L

CPVC SOCKET WELD-ON ADAPTERS



Tee Fitting (Unit:inch)			K-Factor	Sensor Length
Size	DN	Id	CPVC | SCH80	
2"	50	1.9	**81.65**	S
2-½"	65	2.3	**54.43**	S
3"	80	2.9	**34.96**	S
4"	100	3.8	**19.80**	S
6"	150	5.7	**9.18**	L
8"	200	7.0	**5.21**	L
10"	250	9.5	**3.43**	L
12"	300	11.3	**2.45**	L
14"	350	12.4	**1.77**	L
16"	400	15.1	**1.36**	L
20"	500	19.0	**0.86**	L
24"	600	21.0	**0.60**	L

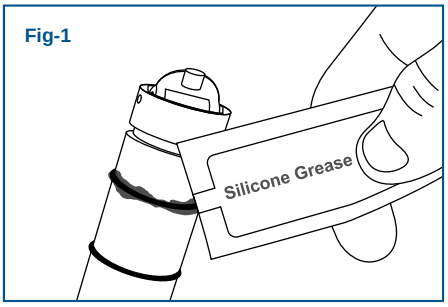
Installation Information

Very Important

- Lubricate O-rings with a Viscous Lubricant Compatible with the Materials of Construction.
- Using an Alternating | Twisting Motion Carefully Lower the Sensor into the Fitting. | Do Not Force | Fig 5
- Ensure Tab | Notch are Parallel to Flow Direction | Fig-2

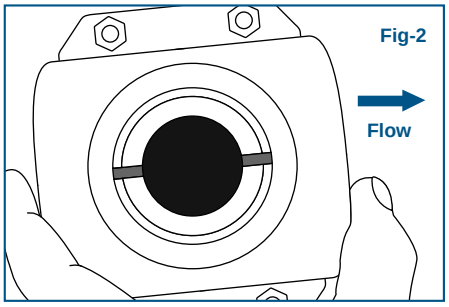
Hand Tighten the Sensor Cap. **DO NOT** use any tools on the sensor cap or the cap threads or fitting threads may be damaged, See Fig-3

Fig-1



Ensure Silicone Grease (Supplied) is Applied Prior to Insertion

Fig-2



Ensure Location Tabs Are Parallel to Direction of Flow

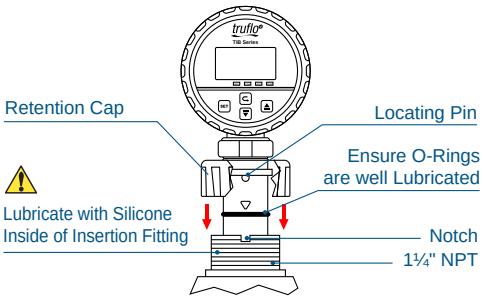


Fig-3

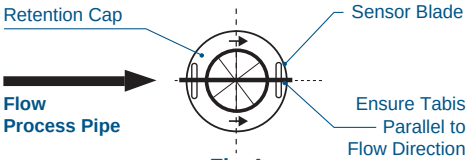


Fig-4

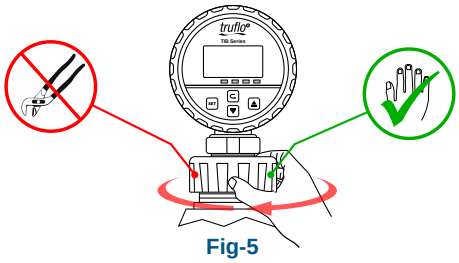
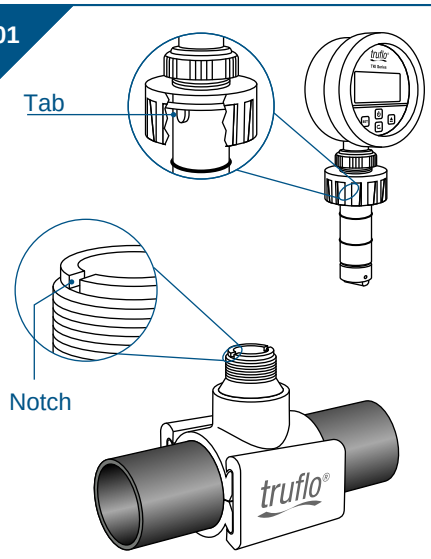


Fig-5

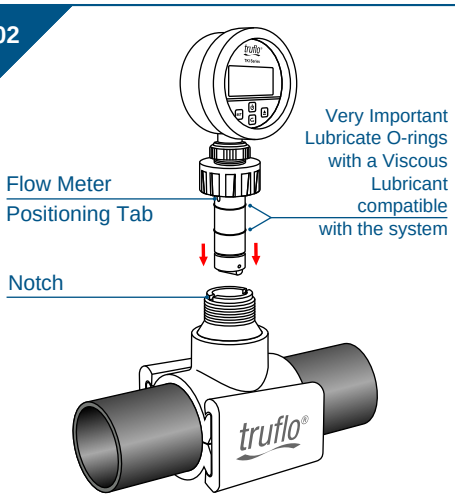
Sensor Installation

01



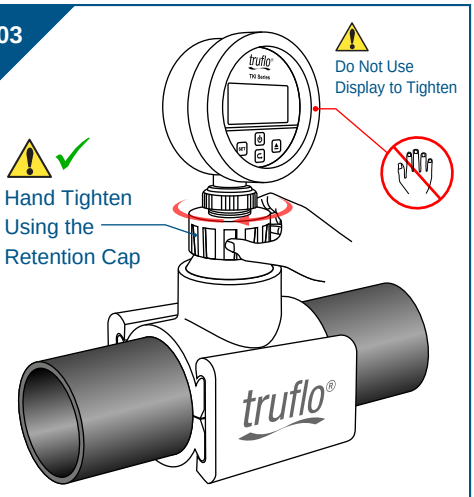
Flow Meter Positioning Tab and Clamp Saddle Notch

02



Engage one Thread of the Sensor Cap then turn the Sensor until the Alignment Tab is Seated in the Fitting Notch, Ensure Tab is Parallel to Flow Direction.

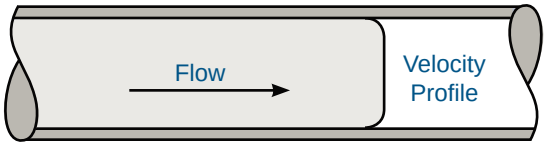
03



- Hand Tighten the Sensor Cap.
- DO NOT use any tools, Threads may be Damaged.
- Ensure Meter is Firmly in Place.

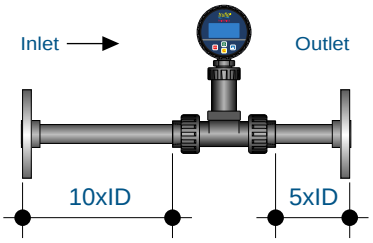
Correction Sensor Position

TI Series Flow Meters measure liquid media only. There should be no air bubbles and the pipe must always remain full. To ensure accurate flow measurement the placement of the flow meters needs to be adhered .This requires a straight run pipe with a minimum number of pipe diameters distance upstream and downstream of the flow sensor.

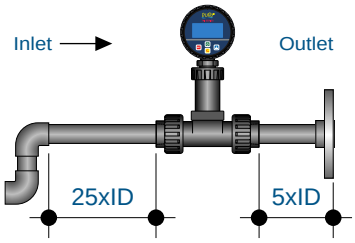


Developed Turbulent Flow

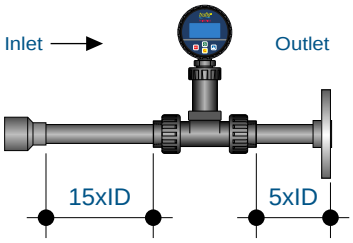
Flange



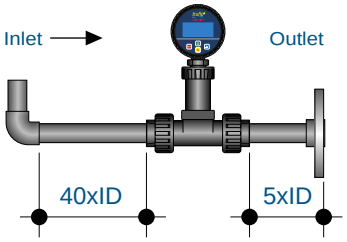
2x 90 Elbow



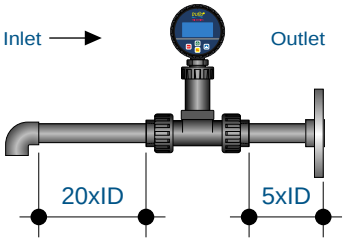
Reducer



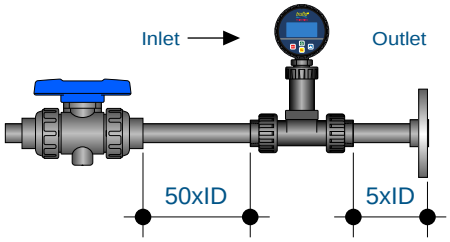
90 Elbow Downward flow

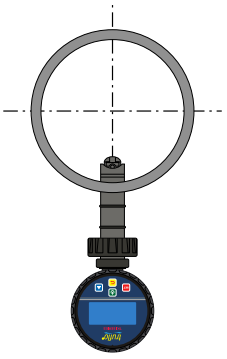


90 Elbow Downward flow Upward

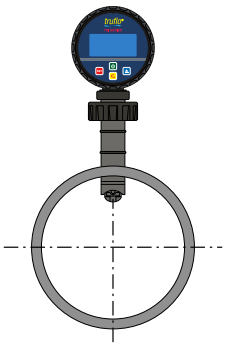


Ball Valve

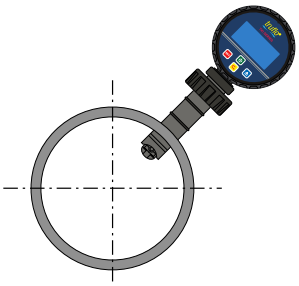




Good if NO Sediment Present



Good if NO Air Bubbles Present

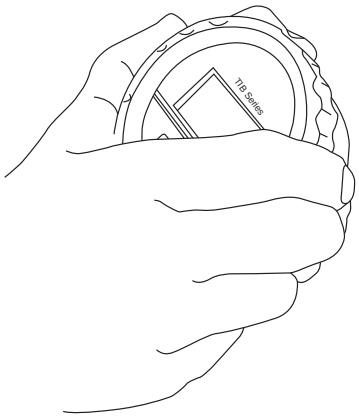


Preferred Installation if Sediment* or Air Bubbles may be Present

* Maximum % Solids: 10% with particle size not exceeding 0.5 mm cross section or length.

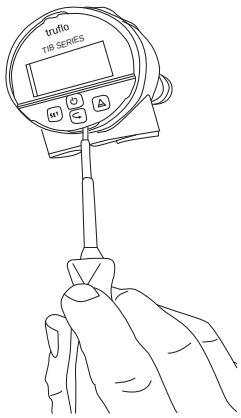
Battery Replacement V Series

01



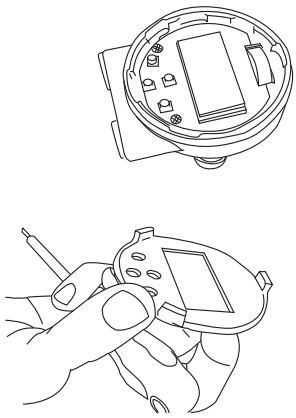
Remove Polycarbonate Lid

02



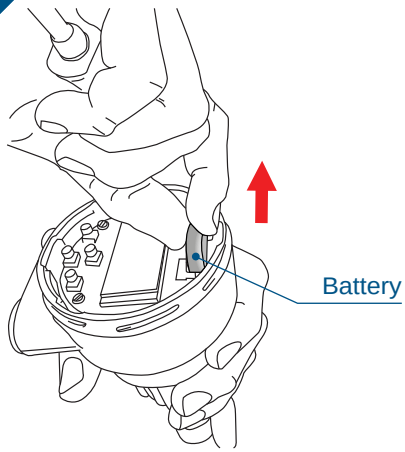
Insert Screw Driver into Slot

03



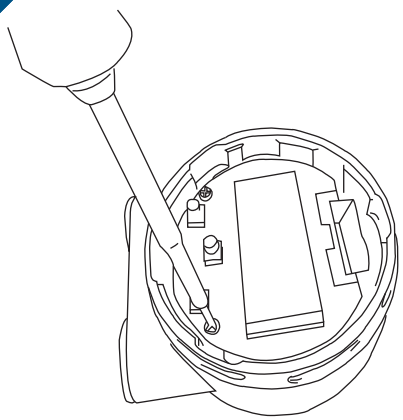
Remove Cover

04



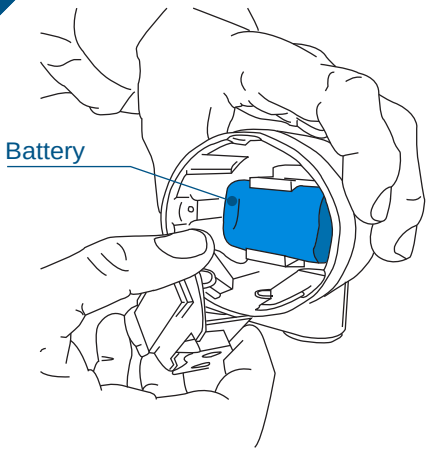
Remove 1st Battery

05



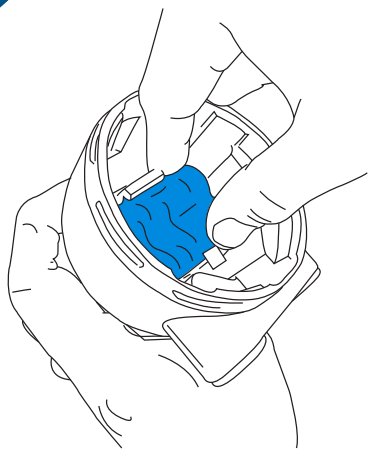
Remove Screws

06



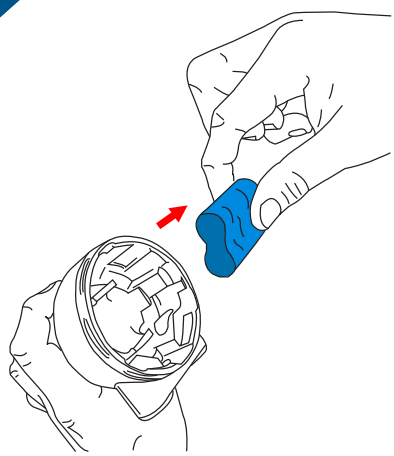
Carefully Remove Display Module

07



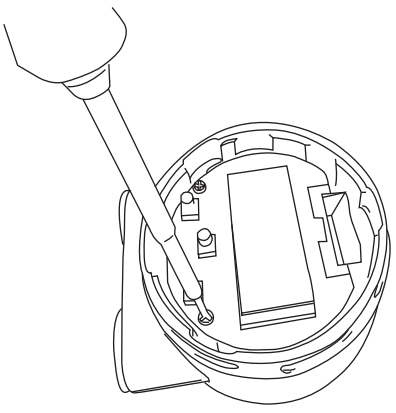
Remove Battery Pack

08



Replace Battery Pack

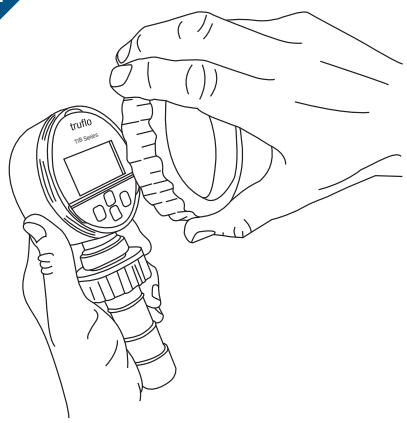
09



Reassemble

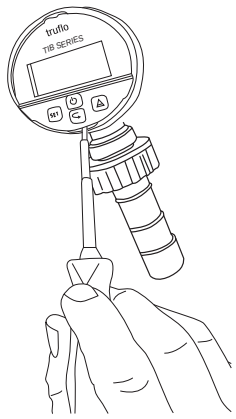
Battery Replacement H Series

01



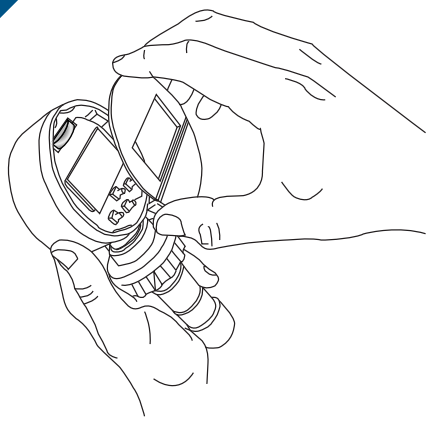
Remove Polycarbonate Lid

02



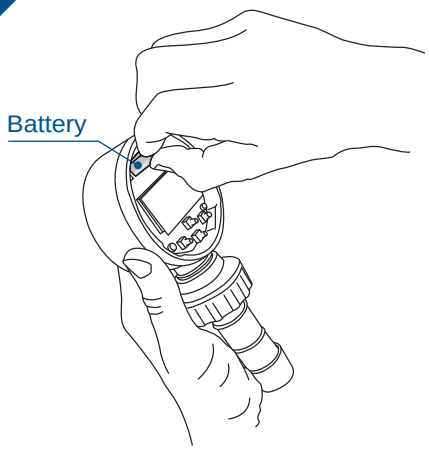
Insert Screw Driver into Slot

03



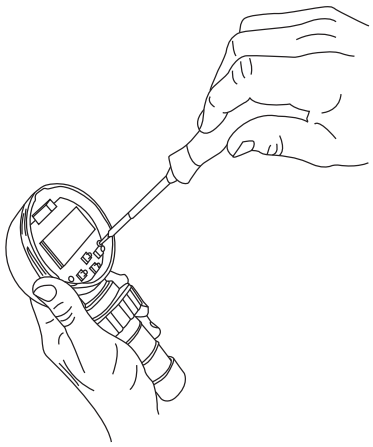
Remove Cover

04



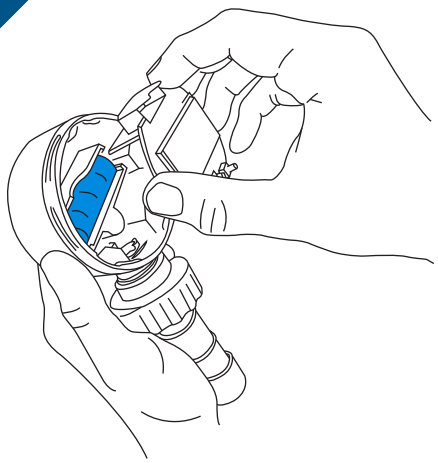
Remove 1st Battery

05



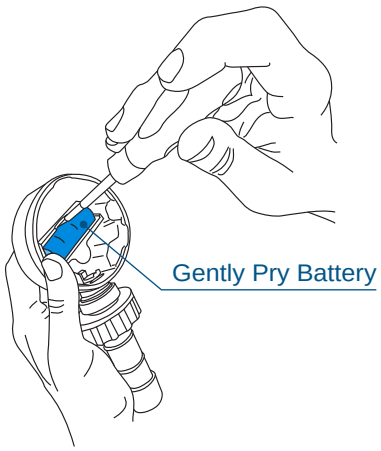
Remove Screws

06



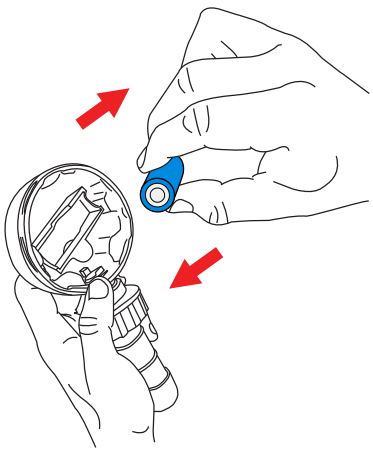
Carefully Remove Display Module

07



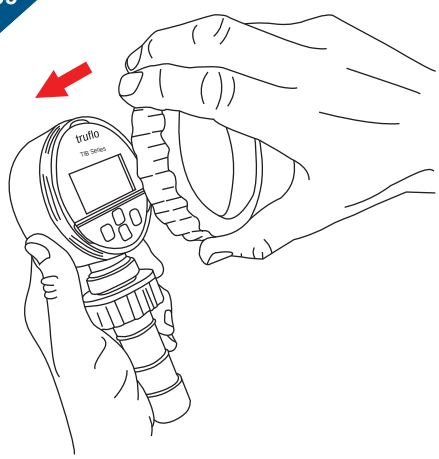
Remove Battery Pack

08



Replace Battery Pack

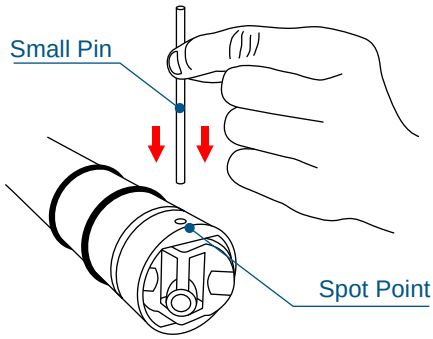
09



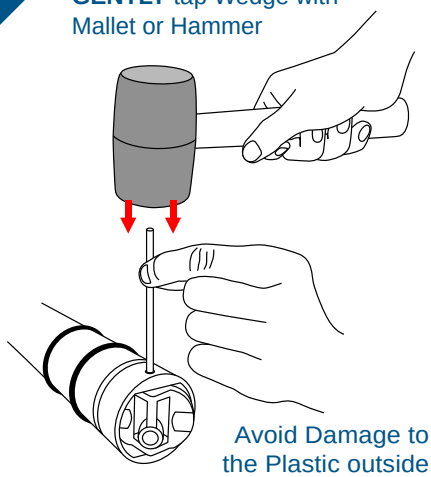
Reassemble

Rotor Pin | Paddle Replacement

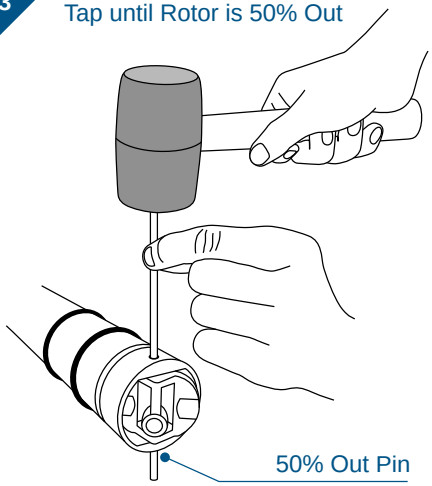
01 Line up Pin with Rotor Hole



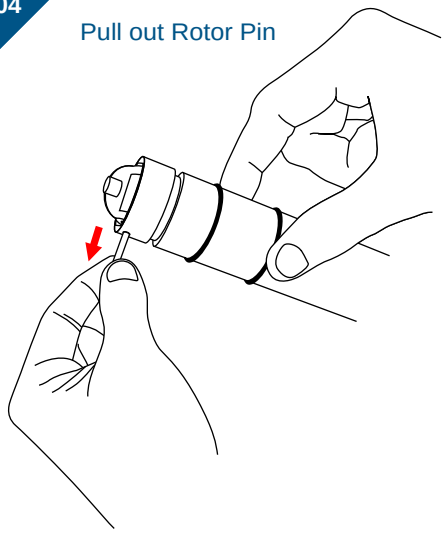
02 **GENTLY** tap Wedge with Mallet or Hammer



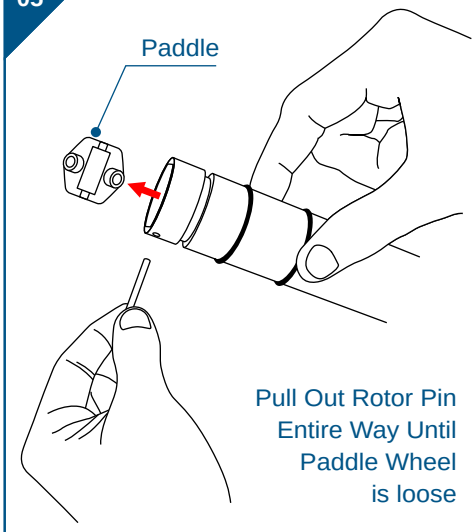
03 Tap until Rotor is 50% Out



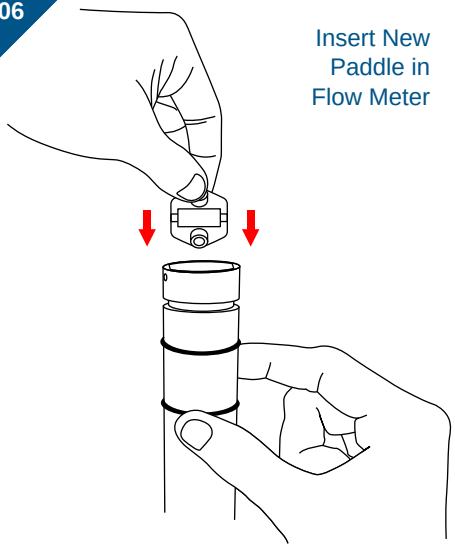
04 Pull out Rotor Pin



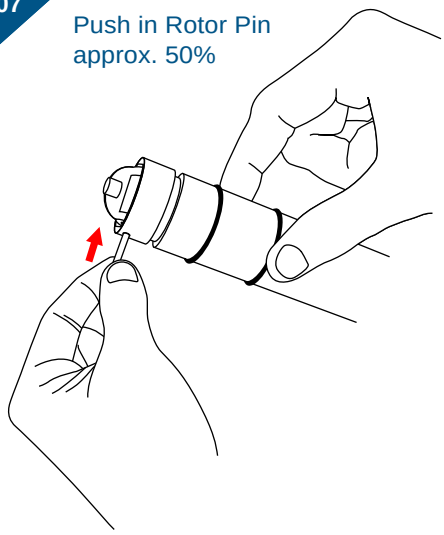
05



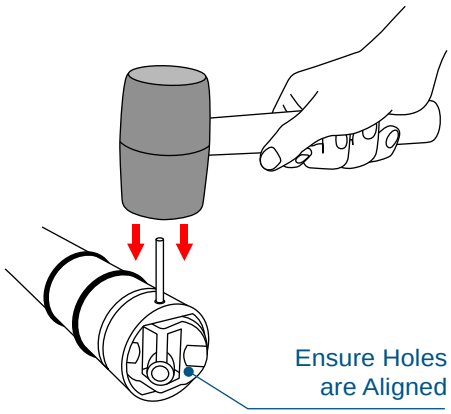
06 Insert New Paddle in Flow Meter



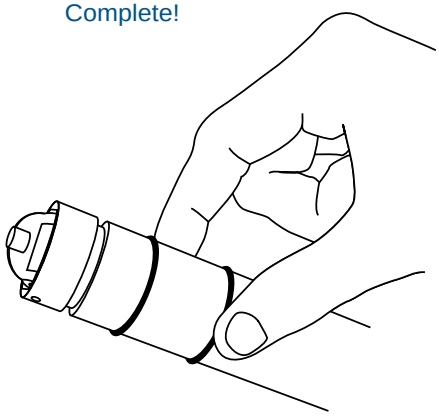
07 Push in Rotor Pin approx. 50%



08 GENTLY tap Rotor Pin with Mallet or Hammer

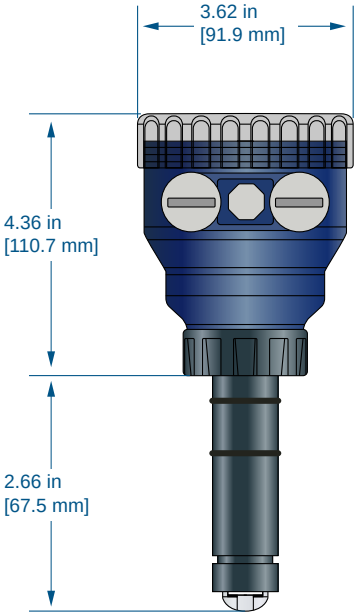


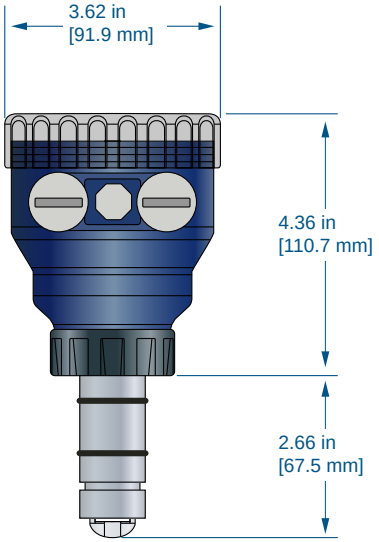
09 Congratulation! Replacement Procedure Complete!



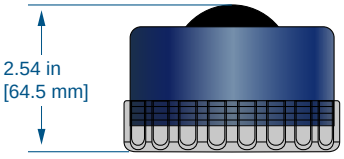
Dimensions

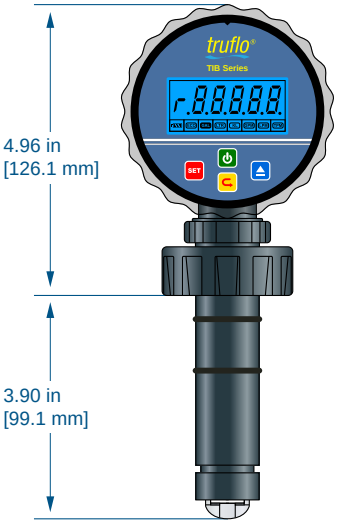
V Series

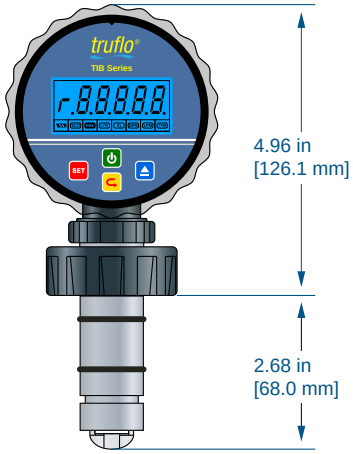




H Series







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Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by Icon Process Controls Ltd for a period of one years from the date of sale of such products. **Icon Process Controls Ltd** obligation under this warranty is solely and exclusively limited to the repair or replacement, at **Icon Process Controls Ltd** option, of the products or components, which I**con Process Controls Ltd** examination determines to its satisfaction to be defective in material or workmanship within the warranty period. Icon Process Controls Ltd must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

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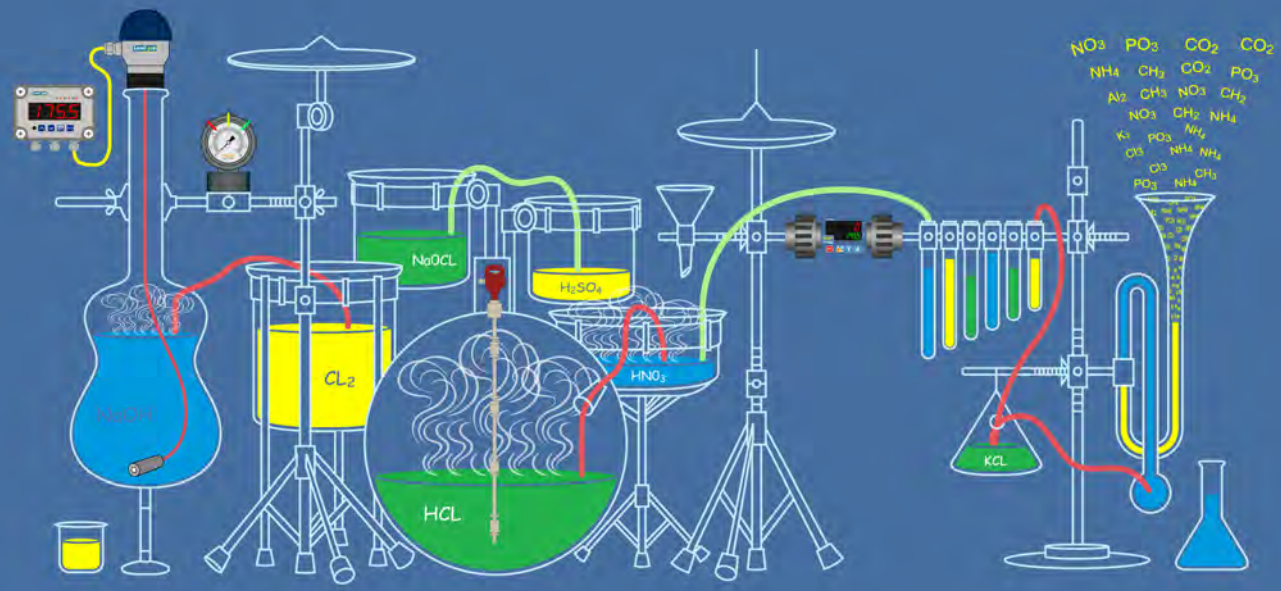

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