Quick Start Manual

SS316L

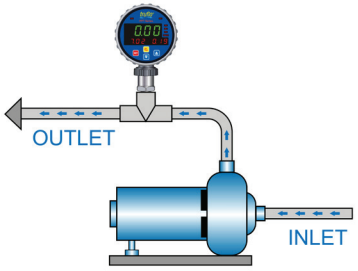
PP | PVDF

ICON PROCESS CONTROLS™ Corrosion-Free Instrumentation Equipment

Read the user's manual carefully before starting to use the unit.
Producer reserves the right to implement changes without prior notice.

Safety Information

- De-pressurize and vent system prior to installation or removal
- Confirm chemical compatibility before use
- **DO NOT** exceed maximum temperature or pressure specifications
- **ALWAYS** wear safety goggles or face-shield during installation and service
- **DO NOT** alter product construction

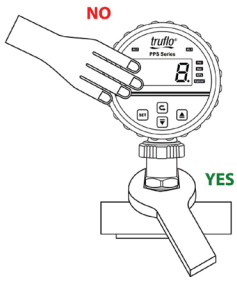


Warning | Caution | Danger

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

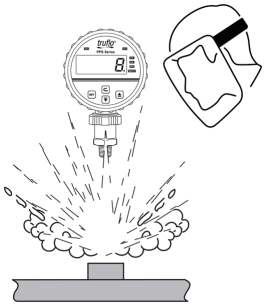
Note | Technical Notes

Highlights additional information or detailed procedure.



Installation Instructions

Do not tighten by grasping the case of the transmitter as this may cause damage. Always pressure test connections for leaks with water prior to use on chemical service. The user shall ensure that the correct transmitter pressure range and the correct materials of construction are selected.



Personal Protective Equipment (PPE)

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

Pressurized 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 serious injury.

Please ensure that the Instruments are not to be subject to water hammer or pressure spikes! Always Pressure Test System with H2O Prior to Initial Start-Up

Before Before installation be certain the appropriate instrument has been selected considering operating pressure, full scale pressure, wetted material requirements, media compatibility, operating temperature, vibration, pulsation, desired accuracy and any other instrument 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, failure and/or personal injury. Ensure only qualified personnel personnel are permitted to install and maintain this instrument.

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.

Please Ensure Full Pipe

PPT Series can be installed in a horizontal or vertical direction.

Technical Specifications

Sensor Diaphragm	Ceramic (AL_2O_3 96%) | SS316L
Measured Fluids	H_2O | Liquid Chemicals | Gases
Storage Temperature	-4 - 176°F | -20 - 80°C
Accuracy	Ceramic : ± 1.0% of FS @ 25°C Max. | SS316L : ± 0.3% of FS @ 25°C Max.
Repeatability	Ceramic : ≤± 1.0% FS Max. | SS316L : ≤± 0.3% FS Max.
Operating Voltage	10-30VDC
Current Consumption	60mA max.
Pressure Unit	Psi | Bar | KPa | Kg/cm²
Display	0-9999 | Green | Red
Transmitter Output	4-20mA | 0-10V*
Relay Outputs	2 X (5A) Relays or 2 PNP | 2 NPN
Current Output	150mA Max.
Communication	Modbus RTU | ASCII
Thermal Drift	Ceramic : ± 0.1% FS/°C | SS316L : ± 0.05% FS/°C
Materials	PP | PVDF | SS316L
Process Connection	¼" - ½" MNPT | ½" FNPT
Operating Temperature	-40 - 120°C
Protection Class	IP67 | NEMA 4X
Approval	cCSAus | cULus | CE | RoHS

*Optional

Legend

CV - Current Value | **R1** - Relay 1 | **R2** - Relay 2 | **AL1** - Alarm 1 | **AL2** - Alarm 2 | **H** - Hysterisis

Display

Alarm Status	Alarm OFF	Alarm 1 | Alarm 2 ON
Home Screen	Green	Red

Display Navigation

Settings	Function
Relay Set Points	SET 3 SEC
Communication Settings | RS485	SET + ▼ 3 SEC
Zero Point Reset	▲ + ▼ 3 SEC
Transmitter Range	↵ 3 SEC

Transmitter Range Settings

SET Select/Save/Continue | ↵ Move selection left | ▲ ▼ Change digit value

STEPS	DISPLAY	OPERATION
1 Home Screen ▸ ↵ 3 SEC		Home Screen
2 4mA Value Setting ▸ SET		4mA Value = 0 (Factory Default)
3 20mA Value Setting ▸ SET		20mA Value | Max Pressure

Programming

SET Select/Save/Continue | Move selection left | Change digit value

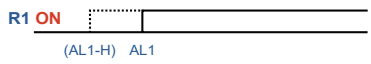
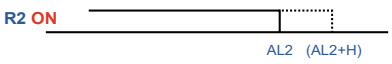
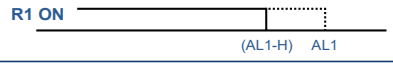
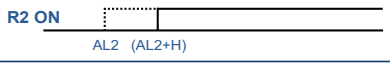
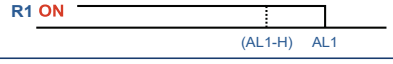
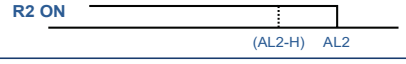
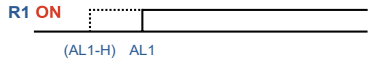
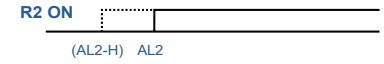
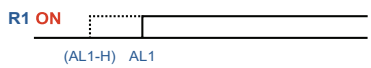
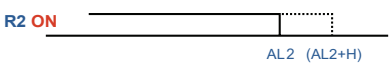
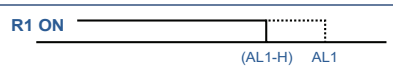
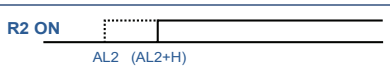
STEPS	DISPLAY	RANGE	OPERATION
1 Home Screen SET + ▲ 3 SEC			Home Screen
2 Lock Settings SET		0-99	Factory Default: Lock = 10 (All Settable) Otherwise meter will enter **Lockout Mode**
3 Pressure Unit Selection SET		0-3	Unit.0 = Bar | Unit.1 = Kg/cm² Unit.2 = Psi (Factory default) | Unit.3 = KPa
4 Decimal Point SET		0-3	dP.0 = No Decimal Point | dP.1 = 1 Decimal Point dP.2 = 2 Decimal Point | dP.3 = 3 Decimal Point
5 Response Speed SET		0-9	rt.00 = 1/4 | rt.01 = 1/8 | rt.02 = 1/16 | rt.03 = 1/32 rt.04 = 1/64 | rt.05 = 1/128 | rt.06 = 1/256 | rt.07 = 1/512 rt.08 = 1/1024 | rt.09 = 1/2048
6 Alarm Mode Selection SET		0-6	Refer to Alarm Mode (Next Page)
7 Alarm Delay Mode Selection SET		0-2	dn.0 = Power On Delay dn.1 = Alarm On Delay dn.2 = Power On + Alarm On Delay
8 Alarm Time Delay SET		0-99	Delay Time (Sec.)

Alarm Settings

SET Select/Save/Continue | Move selection left | Change digit value

STEPS	DISPLAY	OPERATION
1 Home Screen SET 3 SEC		Home Screen
2 Programming Alarm AL1 SET		Relay 1 Set Point
3 Programming Alarm AL2 SET		Relay 2 Set Point Note: **AL2** must be higher that **AL1** If **AL2 ≤ AL1**, PV will display **Error** while press SET Key
4 Alarm Hysterisis SET		Relay Output Hysterisis

Alarm Mode

Mode	Description	
ALt.0	No Alarm	
ALt.1		
	CV ≥ (AL1) → R1/AL1 **ON** ; CV < (AL1 - H) → R1/AL1 **OFF**	CV ≤ (AL2) → R2/AL2 **ON** ; CV > (AL2+H) → R2/AL2 OFF
ALt.2		
	CV < (AL1 - H) → R1/AL1 **ON** ; CV ≥ AL1 → R1/AL1 **OFF**	CV > (AL2 + H) → R2/AL2 **ON** ; CV ≤ AL2 → R2/AL2 **OFF**
ALt.3		
	CV ≥ AL1 → R1/AL1 **OFF** ; CV < (AL1 - H) → R1/AL1 **ON**	CV ≥ AL2 → R2/AL2 **OFF** ; CV < (AL2 - H) → R2/AL2 **ON**
ALt.4		
	CV ≥ (AL1) → R1/AL1 **ON** ; CV < (AL1 - H) → R1/AL1 **OFF**	CV ≥ AL2 → R2/AL2 **ON** ; CV < (AL2 - H) → R2/AL2 **OFF**
ALt.5		
	CV ≥ (AL1) → R1 **ON** / AL1 **OFF**; CV < (AL1 - H) → R1 **OFF** / AL1 **ON**	CV ≤ AL2 → R2 **ON** / AL2 **OFF** ; CV > (AL2 + H) → R2 **OFF** /AL2 **ON**
ALt.6		
	CV < (AL1 - H) → R1 **ON** / AL1 **OFF** ; CV ≥ AL1 → R1 **OFF** / AL1 **ON**	CV > (AL2 + H) → R2 **ON** / AL2 **OFF** ; CV ≤ AL2 → R2 **OFF** /AL2 **ON**

Communication Settings

SET Select/Save/Continue | Move selection left | Change digit value

STEPS	DISPLAY	RANGE	OPERATION
1 Home Screen SET + ▼ 3 SEC			Home Screen
2 Id No. SET		1-255	Range = 1-255
3 Communication Protocol SET		rtu | ASCI	rs=rtu : Modbus-RTU rs=ASCI : Modbus-ASCII
4 Communication Speed SET		96 | 192 | 384 | 115	bPS=96 : 9600 bps bPS=192 : 19200 bps bPS=384 : 38400 bps bPS=115 : 115200 bps
5 Data Configuration SET		8n1 | 8o1 | 8E1 | 8n2 | 7o1 | 7E1	blt=8N1 : 8 bit non parity | blt=8O1 : 8 bit odd parity blt=8E1 : 8 bit even parity | blt=8N2 : 8 bit non parity blt=7O1 : 7 bit odd parity | blt=7E1 : 7 bit even parity

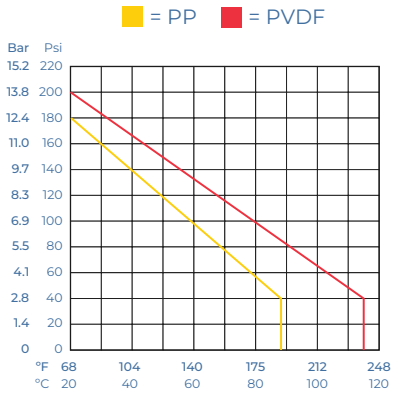
Address of Data

Address	Description	Read/ Write
00 00H	**CV** : Current Pressure Value	R
00 01H	**CV** : Current Pressure Value	R
00 02H	**AL1** : AL1 Alarm Preset Value	R/W
00 03H	**AL2** : AL2 Alarm Preset Value	R/W
00 04H	**HYS** : Alarm Hysterisis	R/W
00 05H	Output Status	R
00 06H	Zero Point Reset	R/W
00 07H	Display Correction	R/W
00 08H	**Lck** : Lock	R/W
00 09H	**Ut** : Pressure Unit Selection	R/W

Address	Description	Read/ Write
00 0AH	**ALt** : Alarm Mode Selection	R/W
00 0BH	**dn** : Alarm Delay Mode Selection	R/W
00 0CH	**dt** : Delay Time Setting	R/W
00 0DH	**dP** : Decimal Point Selection	R/W
00 0EH	**rt** : Response Speed Setting	R/W
00 0FH		
00 10H	**Peak** : High Pressure Hold Value	R
00 11H	**Val** : Low Pressure Hold Value	R
00 12H	**Peak** Value Reset : bit.0 = 1	R/W
00 13H	**Val** Value reset : bit.0 = 1	R/W

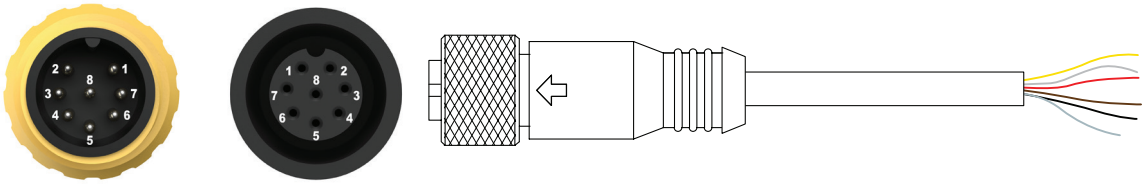
[Alarm Output Status (Output Status): 00 05H [0000 0000] bit.0=1 : R1 ON | bit.1=1 : R2 ON
Display Error Correction : **00 07H** is the address of CV bias
Ex: CV = 4.98 to be corrected to 5.00, the data of **00 07H** must be written **2**

Temperature | Pressure Graphs | Non-Shock



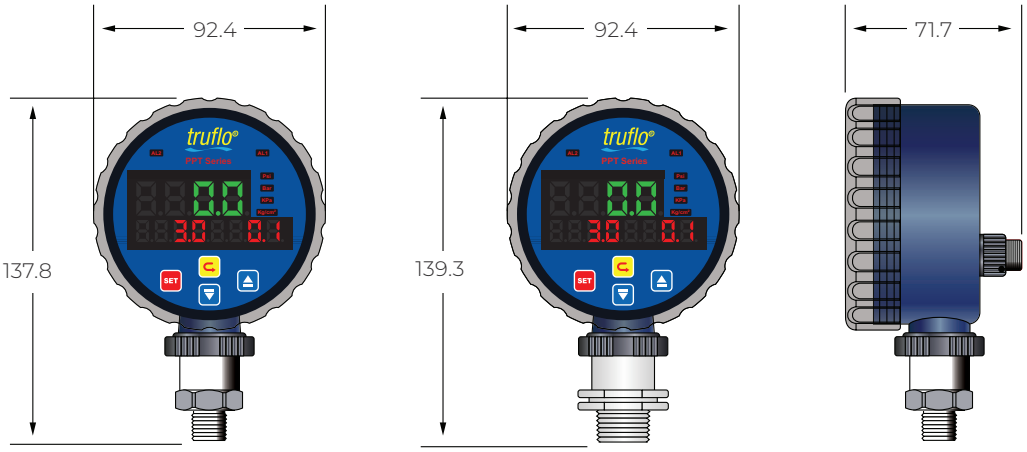
Note: The Pressure/Temperature graphs are specifically for the Truflo® PPT Pressure Transmitter. During system design the specifications of all components must be considered.

Wiring Diagram



PNP | NPN Output		Relay Output		PNP | NPN Output RS485		PNP | NPN Output 4-20mA | 0-10V		Relay Output 4-20mA | 0-10V	
Color	Description	Color	Description	Color	Description	Color	Description	Color	Description
Brown	+ 10-30 VDC	Brown	+ 10-30 VDC	Brown	+ 10-30 VDC	Brown	+ 10-30 VDC	Brown	+ 10-30 VDC
White	PNP or NPN	Black	R1	White	PNP or NPN	White	PNP or NPN	Black	R1
Blue	- VDC	Blue	- VDC	Blue	- VDC	Blue	- VDC	Blue	- VDC | -mA
Black	PNP or NPN	White	R2	Black	PNP or NPN	Black	PNP or NPN	White	R2
		Gray	Relay Com	Gray	RS-	Gray	0V	Gray	Relay Com
				Yellow	RS+	Yellow	+mA or +V	Yellow	+mA or V

Dimensions (mm)



Warranty, Returns and Limitations

Warranty

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 year 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 **Icon 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.

Returns

Products cannot be returned to **Icon Process Controls Ltd** without prior authorization. To return a product that is thought to be defective, go to www.iconprocon.com, and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to **Icon Process Controls Ltd** must be shipped prepaid and insured. **Icon Process Controls Ltd** will not be responsible for any products lost or damaged in shipment.

Limitations

This warranty does not apply to products which: 1) are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above; 2) have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use; 3) have been modified or altered; 4) anyone other than service personnel authorized by **Icon Process Controls Ltd** have attempted to repair; 5) have been involved in accidents or natural disasters; or 6) are damaged during return shipment to **Icon Process Controls Ltd** reserves the right to unilaterally waive this warranty and dispose of any product returned to **Icon Process Controls Ltd** where: 1) there is evidence of a potentially hazardous material present with the product; or 2) the product has remained unclaimed at **Icon Process Controls Ltd** for more than 30 days after **Icon Process Controls Ltd** has dutifully requested disposition. This warranty contains the sole express warranty made by **Icon Process Controls Ltd** in connection with its products. **ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED**. The remedies of repair or replacement as stated above are the exclusive remedies for the breach of this warranty. **IN NO EVENT SHALL Icon Process Controls Ltd BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON. THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF Icon Process Controls Ltd**. This warranty will be interpreted pursuant to the laws of the province of Ontario, Canada.

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For additional product documentation and technical support visit:

www.iconprocon.com | e-mail: sales@iconprocon.com or support@iconprocon.com | Ph: 905.469.9283

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