Seametrics

INW Panel Meter

Reading an INW PT12 Sensor

PROUDLY MADE IN THE USA

Certified Company ISO 9001:2008

Table of Contents

Introduction

What is an INW Panel Meter for an INW PT12 Smart Sensor?

This is a Modbus® meter that is specially configured to read an INW PT12 Pressure/ Temperature Smart Sensor.

By default, the meter displays pressure in PSI. The meter can also be set to display pressure in feet of water or meters of water or to display temperature in degrees Celsius.

The meter is available in either an 85 - 265 VAC version for wired-in power or in a 12 VDC version for remote or portable usage.

The meter comes installed in a weatherproof Nema 4X enclosure with the PT12 Smart Sensor connected through a wire seal.

An INW PT12 Smart Sensor is a submersible pressure/temperature sensor which can communicate via Modbus, as well as SDI-12. When used with this meter, the sensor communicates via Modbus.

Initial Inspection and Handling

Upon receipt of your meter, inspect the shipping package for damage. If any damage is apparent, note the signs of damage on the appropriate shipping form. After opening the carton, look for concealed damage. If concealed damage is found, immediately file a claim with the carrier.

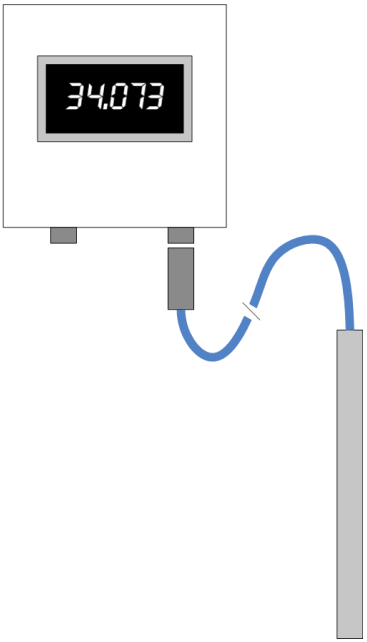
Do's and Don'ts

Do handle the device with care.

Don't install the device so that the box or connector is submerged.
Don't bang or drop the device on hard objects.

Setup

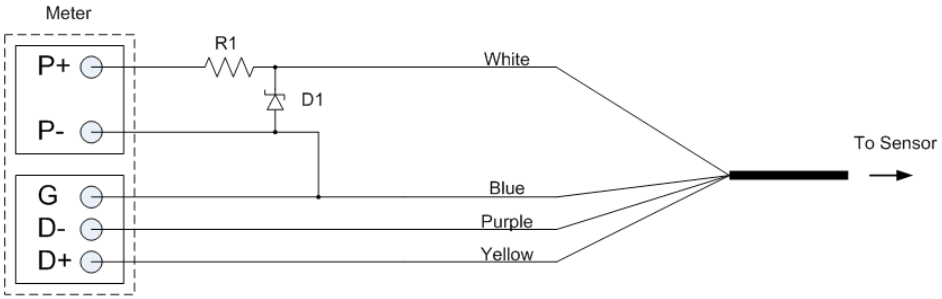
Connecting the Meter



Connecting the Meter

Sensor Connection

The sensor is wired to the meter as shown in Figure 2. The meter supplies 12 VDC power to the sensor through a dropping resistor and voltage regulating zener diode.



R1 = Res, Carbon Film, 1200 ohm, 5%, 1/2W
D1 = Diode, Zener, 12V, 5%, 1W, DO-41, 1N4742A

Direct wiring sensor

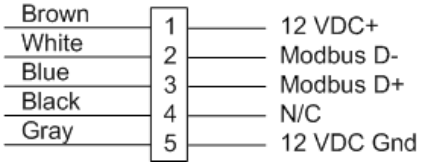
Power Connection

INW does not supply a power connection. It is up to the client and their engineers to wire the power connection.

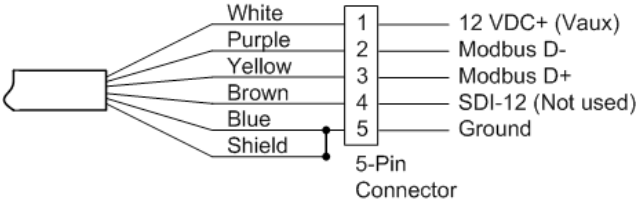
Meter manufacturer power specifications:
AC: 85 - 265 VAC, 50/60 Hz, 15 Watts
Recommended fuse: 1 A, 250V, slow-blow
Wire: Copper with 60° C or 60/75° C insulation

Caution! Observe all safety precautions. To ensure safety and prevent damage to the meter, wiring should be done by a qualified technician in accordance with all local, state, and federal guidelines.

Bulkhead and Sensor Wiring



Bulkhead Wiring



Sensor Wiring

Baud Rate

The panel meter is set to communicate at 19,200 baud. The normal baud rate for the PT12 is also 19,200. The PT12 can communicate at 38,400, 19,200, or 9600 baud. The panel meter can communicate at either 19,200 or 9600 baud, but not at 38,400. If your PT12 has been set to a different baud rate, contact INW for information on how to reset the baud rate.

Operation

Your meter comes preconfigured to read your INW PT12 Pressure/Temperature sensor. Once the meter is powered and the sensor is connected, the meter should immediately begin displaying pressure readings.

Meter Settings

Though your meter comes preconfigured, there may be times when you want to change some of the settings. The meter is controlled via four buttons on the front of the meter face:

Figure 3: Meter control buttons

The most common settings are detailed below. For complete settings, see the Appendix.

Slave ID

The Slave ID is the sensor address assigned to your sensor. You can find this address on the calibration sheet that came with your sensor.

If you need to reset the address in the meter, do so as follows:

Press	Display or Action
	mode
	mASTr
	FunCod
2 times	SLAU.Id
	Id.PU 1
	Change sensor address here
	rEG.nbr
	Sensor begins reading

To change a value on the meter, use the ▶ to select the digit you want to change. Use the ▲ to cycle through acceptable values.

Register Number

The meter reads a particular register (memory) address on the sensor in order to display a reading. The PT12 has three registers - one for pressure, one for temperature, and one for voltage. The meter comes preconfigured to read pressure. If you want to read temperature, you must set the meter to read the correct register, as shown below. (Note, if you are using other than PSI as display units for pressure, see the following section on display units.)

Press		Display or Action
		modE
		mASt r
		FunCod
	3 times	rEG.nbr
		rEG.PU I
		Enter register to read
		400001 for pressure
		400003 for temperature
		400005 for voltage
		dAtA. I
		Sensor begins reading

NOTE: With firmware version 0.13 and higher you can also read from registers:
462593 for pressure
462595 for temperature
462597 for voltage

Display Units

The panel meter comes preconfigured to display readings in the units you have ordered for your PT12. The PT12 default is PSI for pressure and degrees Celsius for temperature, unless something else is specified in your order.

If you need to change units, see Appendix A.

Polling Interval

The polling interval controls how often the meter queries the sensor for a new value. The meter comes preconfigured with a two second polling interval. You can change this interval as follows:

Press		Display or Action
		modE
		mASTr
		FunCod
	5 times	t-Poll
		Change polling interval here
		t-rESP
		Sensor begins reading

Decimal Point Placement

The meter can display a maximum of six digits and comes preconfigured to display three digits followed by three decimal places. For example, 154.925. You can change the number of decimal places as follows:

Press		Display or Action
		modE
	2 times	ProG
		diSP.dP
		Adjust decimal place by pressing  as needed
		FLot.dP
		Adjust decimal place by pressing  as needed
		ScALE
		Sensor begins reading

Appendix A - Display Units

If your PT12 displays pressure readings in PSI and you want to display in feet of water or meters of water, you can change the readout on the meter as shown below. If your PT12 is configured for something other than PSI and you want different units than what is displaying, contact INW for information on changing the units on the PT12.

Units	Input 1	Display 1	Input 2	Display 2
PSI	-10.000	-10.000	299.999	299.999
Feet H2O	-10.000	-23.070	299.999	692.098
Meters H2O	-10,000	-7.031	299.999	210.926

Set these in the meter as follows:

Press		Display or Action
		mode
	2 times	Prog
		disP.dP
	2 times	ScALE
		inP 1
		Enter value for Input 1
		dis 1
		Enter value for Display 1
		inP 2
		Enter value for Input 2
		dis 2
		Enter value for Display 2
		inP 1
		SAVE ? Flashes
		rELAY
		Sensor begins reading

Temperature

You cannot change display units for temperature. They will always display in degrees Celsius. However, if you are using other than PSI for pressure and you later want to read temperature, you must set the display units per the chart below. Failure to do this will result in erroneous temperature readings. If you switch back to pressure, you must reset for pressure units again.

Units	Input 1	Display 1	Input 2	Display 2
Temperature	-10.000	-10.000	100.000	100.000

Default - if only using PSI

If you have been using other than PSI for pressure units and wish to return to using just PSI, then change the display units as shown in this chart.

Units	Input 1	Display 1	Input 2	Display 2
Default	-199.999	-199.999	999.999	999.999

Once these defaults have been reset, you can switch between reading pressure and reading temperature without having to change the display settings.

Appendix B - Meter Reset

On occasion the meter can get into a state where you are unsure what it is doing. This can happen if a mistake is made while changing settings or if someone else has used the meter for some other purpose. It is often easier to set the meter back to factory defaults than to determine exactly what had changed.

Follow the steps below to set the meter back to factory defaults:

Press and hold 

Press  while still holding 

Hold until displays FunC

Press  6 times until says InFo

Press and hold 

When display flashes rESEt, press 

Complete Meter Configuration

The meter is controlled via four buttons on the front of the meter face. Though your meter comes preconfigured, if it should ever need to be completely reset, follow the instructions below:

Complete Reset

Press	Display or Action
	mode
	mASTr
	FunCod
	Fun 03
	PU.nbr
	1
	SLAU.Id
	Id-PU 1
	Change to match sensor address.
	rEG.nbr
	▲ until reads 6 dIG
	rEG.PU 1
	Enter register to read 400001 for pressure 400003 for temperature 400005 for voltage
	dAtA. 1
	▲ until reads FLoAt
	1234
	t-Poll
	Enter 02.0

To change a value on the meter, use the ▶ to select the digit you want to change. Use the ▲ to cycle through acceptable values.

If other than 1, set to 1.

NOTE: With firmware version 0.13 and higher you can also read from registers:
462593 for pressure
462595 for temperature
462597 for voltage

(2 second polling interval)

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Press	Display or Action
	t-rESP
	05.0 (Meter waits 5 seconds for response)
	SErIAL
	bAUd
	 until reads 19200
	PArITY
	 until reads no
	 until reads 1 StoP
	t-bytE
	0.01
	ProG
	diSP.dP
	Adjust decimal place by pressing  until reads ddd.ddd
	FIot.dP
	Adjust decimal place by pressing  until reads ddd.ddd
	ScALE
	InP 1
	- 199.999
	diS 1
	- 199.999

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Press	Display or Action
	inP 2
	999.999
	dIS 2
	999.999
	inP 1
	SAVE ? Flashes
	rELAY
	Sensor begins reading

Further Information:

If you need further information on the meter capabilities or settings, you can download the meter manual from www.predig.com/download.asp?File=360

The limited warranty set forth below is given by Seametrics, with respect to Seametrics and INW brand products purchased in the United States of America.

Seametrics warrants that products manufactured by Seametrics, when delivered to you in new condition in their original containers and properly installed, shall be free from defects in material and workmanship. **Seametrics products are warranted against defects for a period of two (2) years from date of installation, with proof of install date. If no proof of install date can be provided, warranty period will be two (2) years from date of shipment from Seametrics, as defined on Seametrics' invoice.** Seametrics' obligation under this warranty shall be limited to replacing or repairing the part or parts, or, at Seametrics' option, the products, which prove defective in material or workmanship. The following are the terms of Seametrics' limited warranty:

a. Buyer must give Seametrics prompt notice of any defect or failure and satisfactory proof thereof.

b. Any defective part or parts must be returned to Seametrics' factory or to an authorized service center for inspection.

c. Buyer will prepay all freight charges to return any products to Seametrics' factory, or another repair facility. as designated by Seametrics.

d. Defective products, or parts thereof, which are returned to Seametrics and proved to be defective upon inspection, will be repaired to factory specifications.

e. Seametrics will deliver repaired products or replacements for defective products to the buyer (ground freight prepaid) to the destination provided in the original order.

f. Products returned to Seametrics for which Seametrics provides replacement under this warranty shall become the property of Seametrics.

g. This limited warranty covers all defects encountered in normal use of Seametrics products, and does not apply to the following cases:

   i. Loss of or damage to Seametrics product due to abuse, mishandling, or improper packaging by buyer

   ii. Failure to follow operating, maintenance, or environmental instructions prescribed in Seametrics' instruction manual

   iii. Products not used for their intended purpose

   iv. Alterations to the product, purposeful or accidental

   v. Electrical current fluctuations

   vi. Corrosion due to aggressive materials not approved for your specific product

   vii. Mishandling, or misapplication of Seametrics products

   viii. Products or parts that are typically consumed during normal operation

   ix. Use of parts or supplies (other than those sold by Seametrics) which cause damage to the products, or cause abnormally frequent service calls or service problems

h. A new warranty period shall not be established for repaired or replaced material, products, or supplied. Such items shall remain under warranty only for the remainder of the warranty period on the original materials, products, or supplies.

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Seametrics • 19026 72nd Avenue South • Kent, Washington 98032 • USA
(P) 253.872.0284 • (F) 253.872.0285 • 1.800.975.8153 • inwusa.com

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