TECHNICAL BULLETIN

TOROIDAL CONDUCTIVITY LOOP POWERED SENSOR Rev M

Models TC10/TC100 non-contact sensor

The TC10 and TC100 toroidal conductivity monitoring system consists of a loop powered transmitter and an electrodeless conductivity sensor in a single package. Temperature compensation is accomplished with an RTD Pt100 built-in to the sensor. Application includes water treatment, cooling tower and water monitoring.
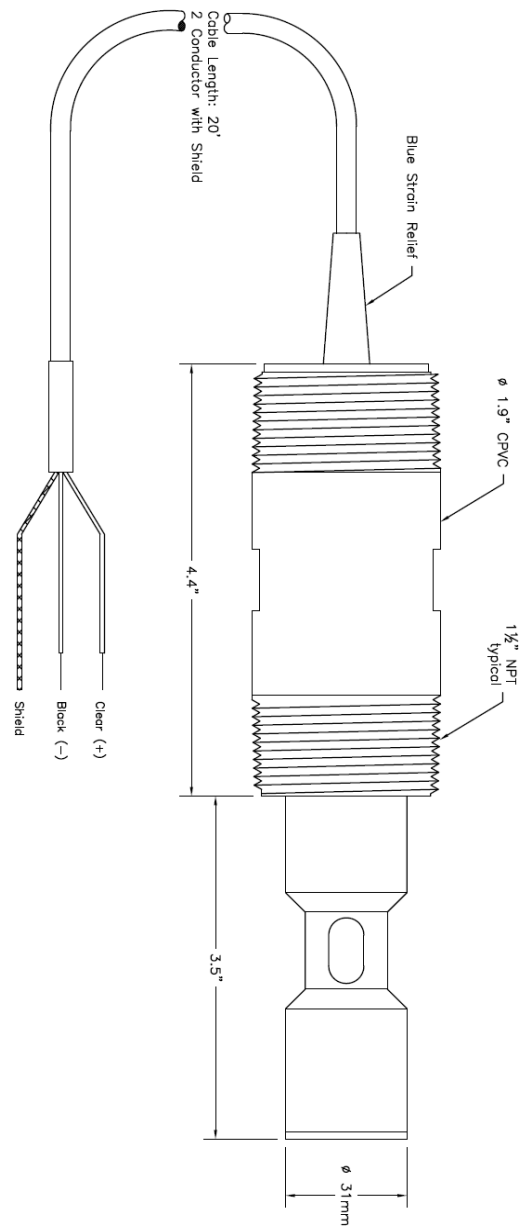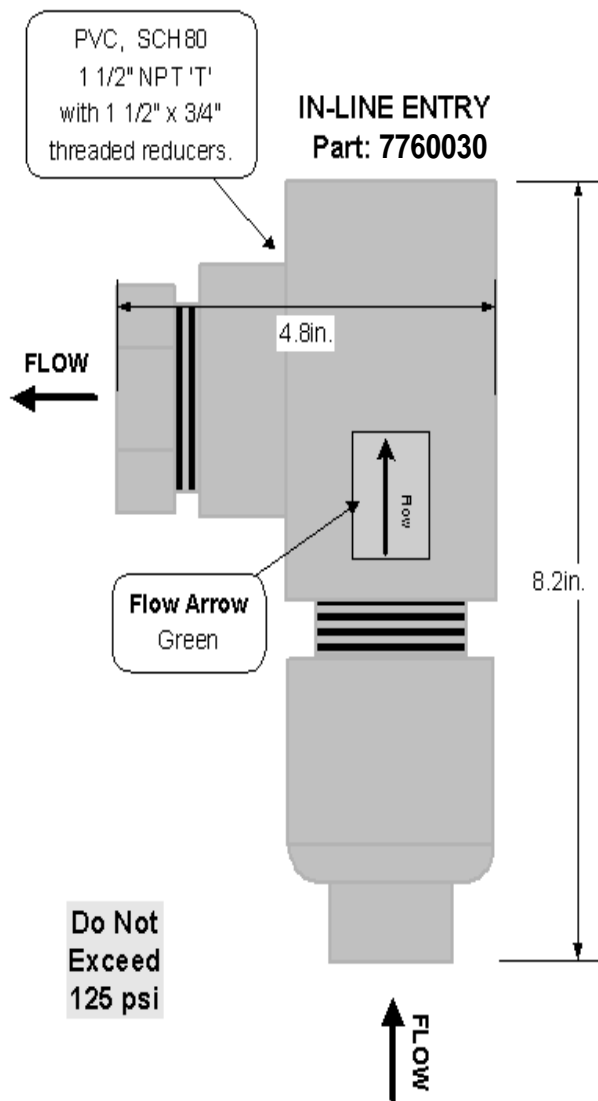
PRINCIPLE OF OPERATION:

When the electrodeless conductivity sensor is immersed in the solution to be measured, a conductive loop is created through the two toroidally wound coils. An alternating current is applied to one of the coils, which includes a current in the conductive loop. The second coil is used to measure the conductivity, which is proportional to the induced current in the solution. The advantages of the electrodeless method are more apparent in measurement applications in which electrode contamination and polarization of a conventional system can lead to erroneous readings.

SPECIFICATIONS:	TC10	TC100
Range: 4-20mA out =	0/10,000uS	0/100,000uS
Part number:	**7760318**	**7760317**
Kit with sensor entry	**7760743**	**7760744**
Sensor Entry for either sensor	**7760030**	

Common Attributes:

Temperature Coefficient:	TC of the liquid + 0.3%/° C
Installation:	In-Line or submersible
Cell:	Non-contact - Toroidal
Temperature Sensor:	Pt100, Internal compensation
Length:	207mm (Overall), 86mm (Insertion)
Thread:	1½" MNPT on either end
Body:	CPVC
Maximum Temperature:	122° F (50° C)
Maximum Pressure:	10 Bar at 25° C (145 psi @ 75F)
Power supply:	11 to 24VDC
Cable length:	Standard length, 3 meters
Max Loop Load	600 ohm max @ 24VDC
Input card (See page 5)	Driver CI 7760250 Driver CII 7760707 Aegis input 'G'

PVC, SCH 80
1 1/2" NPT 'T'
with 1 1/2" x 3/4"
threaded reducers.

IN-LINE ENTRY
Part: 7760030

FLOW

4.8in.

Flow

Flow Arrow
Green

8.2in.

Do Not
Exceed
125 psi

FLOW

Cable Length: 20'
2 Conductor with Shield

Blue Strain Relief

Shield   Black (−)   Clear (+)

∅ 1.9" CPVC

1½" NPT
typical

4.4"

3.5"

∅ 31mm

Calibration

Set the gain and offset: The sensor can connect as shown above. The Gain and Offset are different when using the Aegis G input than the driver card inputs.

DRIVER CARD	TC10	TC100	AEGIS 'G' INPUT	TC10	TC100
Gain Multiplier	12.5	125	Gain Multiplier	6.25	62.5
Offset Adjust	-2,500	-25,000	Offset Adjust	-2,500	-25,000

If the reading is within ±100uS, adjust the offset until calibrated. If the reading is not close, call technical support. 412/787-2484.

METRIC VERSION/PART NUMBERS

METRIC ADAPTER PART NUMBER 1043752

The Tee is DN40 with one leg and the middle reduced to DN20 socket. The other leg has a threaded insert to accommodate the probe

DN40 to DN20 socket; 1 leg and center   Threaded leg

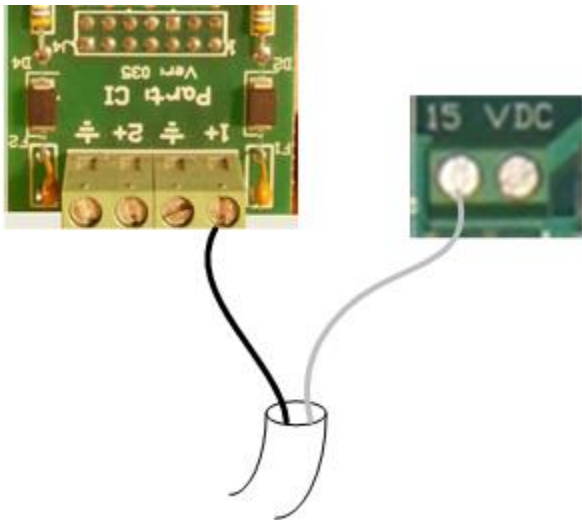The 0 to 10,000 uS Metric Kit is PN 7500812 and includes the 0 – 10.000 uS sensor (7760318) and the metric adapter, above (1043752).

The 0 – 100.000 uS sensor Metric kit is PN 1048440 and includes the 0 – 100,000 uS sensor(7760317) and the metric adapter (1043752).

Cable Description

Controller Terminal	Sensor Wire Color	Function
15 VDC	White	4-20mA Loop Power, 15VDC
1+	Black	4-20mA Loop Return
	Clear/Shield	Shield, controller and electrical ground

Termination (Shield not used)

On a driver CI card: 7760250

On a driver CII card: 7760707

On the Aegis 'G' input: