

PendoTECH Single Use Conductivity Sensors™

PendoTECH's Single-Use Conductivity Sensors™ and Conductivity Monitor are used for highly accurate conductivity and temperature measurements without the need for sensor calibration. All sensors have a pre-determined cell constant which is entered into the monitor. The sensor monitor reads conductivity and temperature for two sensors. The monitor has a mS/cm temperature adjustment value that normalizes conductivity readings to 25°C. Additionally, it has 4–20mA outputs for both conductivity and temperature that can transmit the readings to a higher level control system such as a PLC or DeltaV and an RS-232 output for data collection to a PC.

Sensor Details:

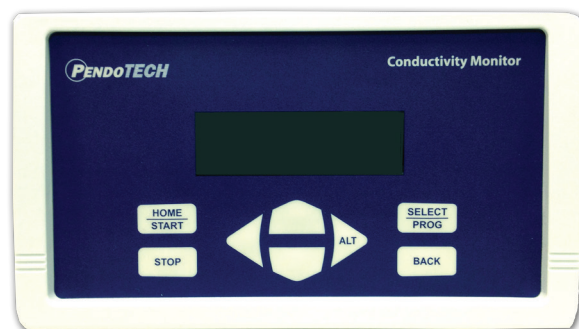
- Measure conductivity and temperature
 - Conductivity Range: 0.1 to 100mS/cm
 - Temperature Range: 2°C to 50°C
- Fluid path materials
 - Gamma & X-ray irradiation compatible
 - NaOH resistant
 - USP Class VI
- Temperature measurement used by the monitor to perform normalization to 25°C
- No calibration required because of pre-determined cell constant and also optional one-point calibration by user
- Low cost for single use applications; may be repeatedly cleaned and re-used



Options to Read the Sensor

Conductivity Monitor Features Include (Model: CMONT)

- Reads conductivity and temperature from sensor
- Reads two sensors; including ability to read temperature only
- User is prompted to enter cell constant when new sensor is connected
- Performs temperature normalization to 25°C
 - User adjustable mS/°C factor
 - Default factor of 2.1% per °C
- Analog 4-20mA outputs for both conductivity and temperature to enable integration to a control system
- RS-232 output for data collection to a PC
- Panel mount kit, DIN rail kit, and benchtop stand available



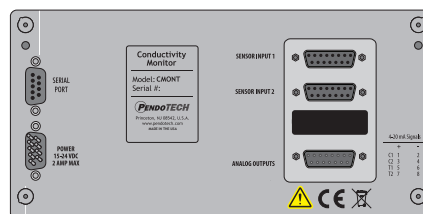
Conductivity Monitor Includes:

- Conductivity Monitor Unit
- Cables for connection of conductivity sensors - 10ft / 3.0meters
- Power Supply with country specific plug blades
- Connector for field wiring

**OPTIONAL
DIN RAIL KIT**



**MOUNTED IN
OPTIONAL STAND**



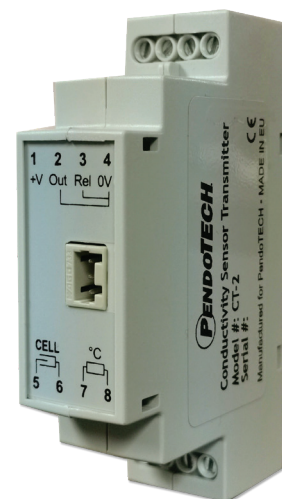
**BACK PANEL
SCHEMATIC**

PendoTECH Conductivity Sensor Transmitter

The PendoTECH Conductivity Sensor Transmitter model CT-2 connects to the PendoTECH Single Use Conductivity Sensor™ and produces a 4-20milliamp signal that is linear with conductivity. It reads the raw conductivity and the temperature value from the sensor and calculates the normalized value at 25°C. The normalized conductivity value is transmitted via the 4-20mA signal in the range of 0-150mS. It has a convenient DIN rail mounting design.

For complete technical details see:

https://www.pendotech.com/products/Conductivity_Sensor/Conductivity_Sensor_transmitter.pdf

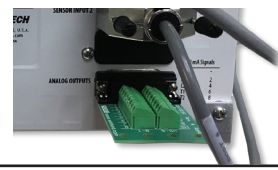


Sensor Specifications

Detail	Specifications
Accuracy	From 0.1 to 2mS/cm +/- 0.1mS/cm; 2 to 50mS/cm +/- 5% of reading; 50 to 100mS/cm typically +/- 5% of reading
Pressure Range	75psi max
Biocompatibility	All materials in contact with product fluid path meet USP Class VI requirements, both pre and post gamma exposure
Manufacturing Environment	FDA Registered, ISO 13485 certified facility; Class 5
Operating Temperature	2°C to 50°C (other ranges with process qualification because thermistor reads to 70°C)
Temperature Accuracy	Better than +/- 0.2°C (typical better than 0.1°C)
Temperature Element	Thermistor with resistance @ 25°C of 2252ohm
Gamma Irradiation	Up to 50 kiloGrays
X-ray Irradiation	Up to 50 kiloGrays
ADCF Status	All fluid path materials are animal derived component free
Connector	Custom molded water-tight 4 pin connector Rating: IP67 when connected to reusable cable and dust cover
Shelf life	3 years
Packaging	Sealed in vapor barrier bag inside polybag

Conductivity Monitor Details

System Component	Specifications
Enclosure	WxHxD: 7.86inch x 4.47inch x 2.25inch (19.96 x 11.35 x 5.72cm) Approximate weight: 1.34lbs (0.61kg), Material: ABS Plastic NEMA 4X front panel; panel and wall mount optional
Keypad	8 button keypad with LEXAN® overlay
Display	4 line backlit LCD
Power Inlet	D9 15-24volts DC, 4watts (powered by wall supply) Pin 1- ground; Pin 4- +24V
Sensors Input (s)	D15 female; Temperature Pin 7 (-), Pin 2 (+); Conductivity Pin 9 (high), Pin 12 (low)
Analog Output(s)	D15 male (screw terminal adaptor included as shown on right) Conductivity 4-20mA Range: 0-100mS Temperature 4-20mA Range: 0-70°C Accuracy: 0.1% of full scale Sourcing with Maximum Load: 400ohms
RS-232 Output	Data output to a PC at frequency up to 1/sec.
Regulatory Compliances	RoHS and REACH Compliant CE Mark EN613261:2013; EN61010-1:2010



4-20 mA Signals		
	+	-
C1	1	2
C2	3	4
T1	5	6
T2	7	8

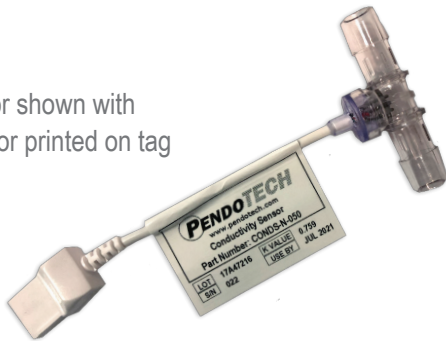



Ordering Information

CMONT-650-298



Sensor shown with
K-factor printed on tag






Certificate of Analysis

Product: PendoTECH Single Use Conductivity Sensor™
 Part Number: CONDS-N-050 Lot #: 0223846760 Serial #: 021

NIST TRACEABLE TEST RESULTS

Calculated Cell Constant (K): 0.718				
CMONT Serial #: 3270		Last Calibration Date: 1/17/2022		
NIST Conductivity Standard @ 25°C (mS)	Conductivity Reading (mS)	Allowable Deviation (mS)	Sensor Specification	NIST Conductivity Standard Information
2.0	2.08	± 0.10	± 5% of Reading	Mfg.: RICCA Lot #: L308-04 Exp. Date: NOV 2023
30.1	30.40	± 1.50		Mfg.: RICCA Lot #: 1202A77 Exp. Date: FEB 2024
50.0	47.86	± 2.50		Mfg.: RICCA Lot #: 2189J54 Exp. Date: FEB 2024

Note: The above conductivity readings are normalized to 25°C with a compensation factor of 2.15%/°C. Temperature measurements are made using the conductivity sensor's internal NTC 2252Ω thermistor. Extensive testing is performed in manufacturing to ensure that every thermistor is within the sensor's temperature accuracy specification (± 0.2°C from 2 to 50°C). Therefore, the temperature accuracy of the sensor is taken into consideration as part of the conductivity reading relative to the allowable deviation.

Test Performed by: Chelsea Morand Signature:  Date: 4/13/2022

COND2-COA Rev. 1

Sample of Certificate of Analysis
(PART #: CONDS2-COA)

CMONT	PendoTECH monitor and transmitter for 2 conductivity sensors (4 analog outputs, 2 temp, 2 conductivity)
CONDS-N-012	Single Use Conductivity Sensor, non-sterile, polysulfone 1/8inch hose-barb
CONDS-N-025	Single Use Conductivity Sensor, non-sterile, polysulfone 1/4inch hose-barb
CONDS-N-050	Single Use Conductivity Sensor, non-sterile, polysulfone 1/2inch hose-barb
CMONT-TKS	PendoTECH Conductivity Monitor test kit for conductance and temperature verification
CONDS2-COA	Individual Certificate of Analysis for single use conductivity sensor (ea.)
CT-2	PendoTECH Conductivity Sensor Transmitter with 4-20mA output, 0-100mS operating range, 24VDC, with quality certificate and 10ft sensor cable
PMAT-STAND	Benchtop Stand
PMATP-GUI	Data Acquisition and Trending Software for PressureMAT and CMONT with 2 USB/serial cables to connect to a PC
CMONT-IQ/OQ	CMONT Installation Qualification/Operation Qualification (Protocol documentation includes Breakout Board, CMONT-TKS test kit)
CMONT-PANEL	CMONT Panel Mount Upgrade Kit-2 gaskets (one and a spare), 4 mounting brackets, 2 sensor cables (CN-650-298), 2 sensor connectors (one for each input), and power input connector
CMONT-DIN	DIN rail mounting kit for CMONT
CMONT-650-298	Cable adaptor with D15 male for Single Use Conductivity Sensor for CMONT (10ft/3.04M)

NOTICE: Each prospective user must test the sensor for its proposed application to determine its suitability for the purpose intended prior to incorporating the sensor to any process or application. The sensors are not intended for use as components in life support. The sensors are not designed for any application in which the failure of the product could result in personal injury or death or property damage. Proper safeguards must be put into place for the process in which the sensors are used.