



Toroidal Conductivity System

CDTX-45T Series



- ✓ Concentration or Conductivity Models
- ✓ Loop-Powered, AC, or Battery Versions
- ✓ Dual Alarm Relays/Analog Outputs
- ✓ Large, 2-Line Display

The CDTX-45T toroidal conductivity system is designed for online monitoring of chemically aggressive process solutions, water applications and plating bath operations. The sensor consists of 2 metallic ribbon coils that are fixed in place by the sensor jacket material. The drive coil is used to induce a current in the process solution. The second sensing coil is used to measure the current in the process solution; the magnitude of this current is proportional to the conductivity of the process solution. Toroidal sensor is available in Noryl. The sensor material is non-conductive, thereby isolating the sensor from electrical noise and ground loops that can influence the integrity of the measurement. This material also makes the sensor resistant to electrode coating. Sensors can be submersion mounted for easy installation in open tanks or pipe mounted in the optional 2" tee fitting, which is keyed to the sensor for proper alignment. Tee fitting material contains polypropylene. For larger pipe diameters, the sensor can be insertion mounted through a 1½ NPT ball valve for easy retraction. The CDTX-45TC is the concentration monitor. The monitor comes with concentration/temperature tables for sodium hydroxide, potassium hydroxide, hydrochloric acid, nitric acid, and sulfuric acid. A configurable table allows the user to enter data points for a custom concentration curve.

Common Specifications

Main Parameter Ranges: Automatic or manual selection of one of the following display ranges; 0 to 2000 µS, 0.0 to 2.000 mS, 0.00 to 20.00 mS, 0.0 to 200.0 mS, 0 to 2000 mS, 0.000 to 2.000 S

Accuracy: 0.5% range (± 2 µS)

Repeatability: 0.2% range (± 2 µS)

Sensitivity: 0.05% range (± 2 µS)

Stability: 0.2% range per 24 hours

Warm-up Time: 7 sec to rated performance

Supply Voltage Effects: ± 0.05% of user range (dc version only)

Response Time: 6 sec to 90% of step input at lowest setting

Temperature Drift: Span or zero, 0.04% of span/°C

Display: Large, high-contrast, super-twist (STN) LCD; 4-digit main display with sign, 19.1 mm (0.75") seven-segment characters 12-digit secondary display, 7.6 mm (0.3") 5 x 7 dot matrix characters

Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating

Weight:

DC Transmitter Configuration: 0.45 kg (1 lb)

Line Powered Unit: 0.68 kg (1.5 lb)

Operating Ambient: -20 to 60°C (-4 to 140°F); 0 to 95% RH, non-condensing

EMI/RFI Influence: Designed to EN 61326-1

Output Isolation: 600V galvanic isolation

Filter: Adjustable 0-9.9 minutes additional damping to 90% step input

Temperature Input: Pt1000 RTD with automatic compensation



CDTX-45T1, shown smaller than actual size.

Sensor:

Type: Fully isolated, toroidal electrode sensor design for direct measurement; ¾ NPT process connection

Wetted Material: Noryl

Pressure Limit: 10 bar (150 psig) maximum

Temperature Range: 0 to 105°C (32 to 221°F)

Sensor Cable: 6.1 m (20'); 6-conductor cable

CDTX-45T1 Loop-powered Transmitter

Power: 18 to 35 Vdc, 2-wire

Enclosure: NEMA 4X (IP66), polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 112 mm x 89 mm D (4.4 x 3.5")

Mounting: Wall or pipe mount bracket standard. Bracket suitable for either 1.5 or 2" ID U-Bolts for pipe mounting. Conduit openings two PG-9 openings with gland seals, one 1 NPT opening with plug

Cable: Belden twisted-pair, shielded, 22 AWG or larger

Insertion Loss: 18 Vdc

CDTX-45T2 and CDTX-45T3 Dual Relay Models

Power: 115/230 Vac ±10%, 50/60 Hz, 10 VA max

Enclosure: NEMA 4X (IP66), polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 124 x 139 mm D (4.9 x 5.5")

Mounting: Wall or pipe mount bracket standard; bracket suitable for either 1.5 or 2" ID U-Bolts for pipe mounting; panel mount adaptor optional



Conduit Openings: Three M16 openings; gland seals plus two ½" conduit adaptors, supplied but not installed

Relays, Electromechanical: Two SPDT, 6 A @ 250 Vac, 5 A @ 24 Vdc contacts; programmable for setpoint, phase, delay, deadband, hi-lo alarm, and failsafe; A-B indicators on main display

Analog Outputs: Two 4 to 20 mA outputs; output one programmable for conductivity or PID; output 2 programmable for conductivity, temperature, or TDS. Max load 500 Ω for each output
Outputs ground isolated and isolated from each other

CDTX-45T4 and CDTX-45T5 Battery Powered Models

Power: 9 Vdc alkaline battery, low battery indication at 6.75 Vdc. Lithium 9 Vdc battery recommended for max performance

Battery Life: Approx 100 hrs, alkaline; use of lithium cell increases life to approx 300 hrs

Enclosure: NEMA 4X (IP66), polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 112 x 2 x 89 mm D (4.4 x 2 x 3.5"); mounting options supplied with carrying handle and cable glands installed

Analog Outputs (CDTX-45TC4): Two 0 to 2.5 Vdc isolated outputs

Data Logger (CDTX-45TC5): Removable data module holds 32,000 points from two user configured channels, time of logging is user configurable; software supplied for data download and display

Weight:

Loop-Powered Transmitter: 0.45 kg (1 lb)

Other Configurations: 0.68 kg (1.5 lb)

Display: Large, high-contrast, super-twist (STN) LCD 4-digit main display with sign, 19.1 mm (0.75") 7-segment characters; 12-digit alphanumeric second-line display, 7.6 mm (0.3") 5 x 7 dot matrix characters

Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating, integral EMI/static shield and conductively coated window

Ambient Temperature:

Operating: -20 to 60°C (-4 to 140°F)

Storage: -30 to 70°C (-22 to 158°F)

Ambient Humidity: 0 to 95% RH, non-condensing

Location: Designed for hazardous and non-hazardous areas

EMI/RFI Influence: Designed to EN 61326-1

Output Isolation: 600V galvanic isolation

Filter: Adjustable, 0 to 9.9 minutes additional damping to 90% step input

Temperature Input: Selectable Pt1000 or Pt100 RTD with automatic compensation



CDE-45T2, Noryl® electrode, shown actual size.

To Order

Model No.	Description
Conductivity Analyzer	
CDTX-45T1	Loop powered 16 to 35 Vdc, 2-wire (4 to 20 mA output)
CDTX-45T2	120 Vac, 2 relays, two 4 to 20 mA outputs
CDTX-45T3	230 Vac, 2 relays, two 4 to 20 mA outputs
CDTX-45T4	Battery operated (9V), two 0 to 2.5 Vdc outputs
CDTX-45T5	Battery operated (9V), internal data logger
Concentration Analyzer	
CDTX-45TC1	24 Vdc, 2-wire (single output only)
CDTX-45TC2	120 Vdc, 2 relays
CDTX-45TC3	230 Vdc, 2 relays
CDTX-45TC4	Battery operated, two 0 to 2.5 Vdc outputs
CDTX-45TC5	Battery operated, internal data logger
Sensor with 6.1 m (20') Cable**	
CDE-45T2	Noryl® electrode

Accessories

Model No.	Description
CDTX-45T-JB	NEMA 4X (IP66) junction box
CDTX-45T-C(*)	Sensor-interconnect cable; *specify length in feet, 180' max
CDTX-45T-PT	51 mm (2") keyed slip-fit flow cell for use with polypro sensors
CDTX-45T-SMK	Submersible mounting kit for PEEKTM sensor
CDTX-45T-PMK	Panel mount kit for analyzer

Comes complete with operator's manual.

** For cable lengths over 6.1 m (20'), order CDTX-45T-JB junction box and CDTX-45T-C(*) interconnect cable of desired length.

Example: CDTX-45T-C100, 30.5 m (100') cable.

Ordering Examples: CDTX-45T2, 120 Vac conductivity analyzer, and CDE-45T2, toroidal conductivity cell.

CDTX-45T1, 16 to 35 Vac powered conductivity analyzer and CDE-45T2 toroidal conductivity cell.