2-Wire Isolated Conductivity Transmitter System

CDTX-45 and CDE-45P System

1 YEAR WARRANTY C E

- ✔ **PEEK™ Sensor Body Construction**
- ✔ **4-Electrode Sensor Type**
- ✔ **Electrode Coating Rejection Diagnostic**
- ✔ **Universal Mounting Configurations**
- ✔ **Microprocessor-Based System**
- ✔ **Large Dual Display Format**
- ✔ **Loop Powered, Fully Isolated**

Sensor Features

The sensor housings are constructed of PEEK, a high performance thermoplastic that provides outstanding mechanical strength and chemical resistance. Multiple sealing materials are used to preserve sensor integrity over a wide range of applications.

The four electrodes used in the cell are made of titanium for greater chemical resistance. Two of these electrodes are used to establish the sensor drive potential. The other two electrodes sense the flow of current between the drive electrodes and maintain the proper drive potential. The current that flows between the two drive electrodes is directly proportional to solution conductivity.

With conventional two-electrode sensors, as the process solution begins to coat the electrode surfaces, the sensor output signal begins to decrease. This produces an artificially low conductivity measurement.

The CDTX-45 four-electrode system uses electrode diagnostics to compensate for the effects of fouling. As the two drive electrodes become coated by the process solution, a feedback mechanism involving the two sensing electrodes detects the decrease in drive potential and automatically re-establishes the proper drive potential. When the degree of coating reaches a limit where compensation is no longer possible, the diagnostic actuates an alarm to signal that the sensor requires cleaning.

The unique drive/control scheme of this system allows a single sensor configuration to be used reliably over a wide conductivity range. This system eliminates the requirement for multiple sensors with varying cell constants that are restricted to narrow operating ranges.

Transmitter Features

The microprocessor-based transmitter is loop-powered and fully isolated for high service reliability. The transmitter includes devices to protect the system from power surge and brownout events.

CDTX-45, meter/transmitter, shown smaller than actual size.

CDE-45P, electrode, shown smaller than actual size.

Meter and electrode sold separately.

To Order

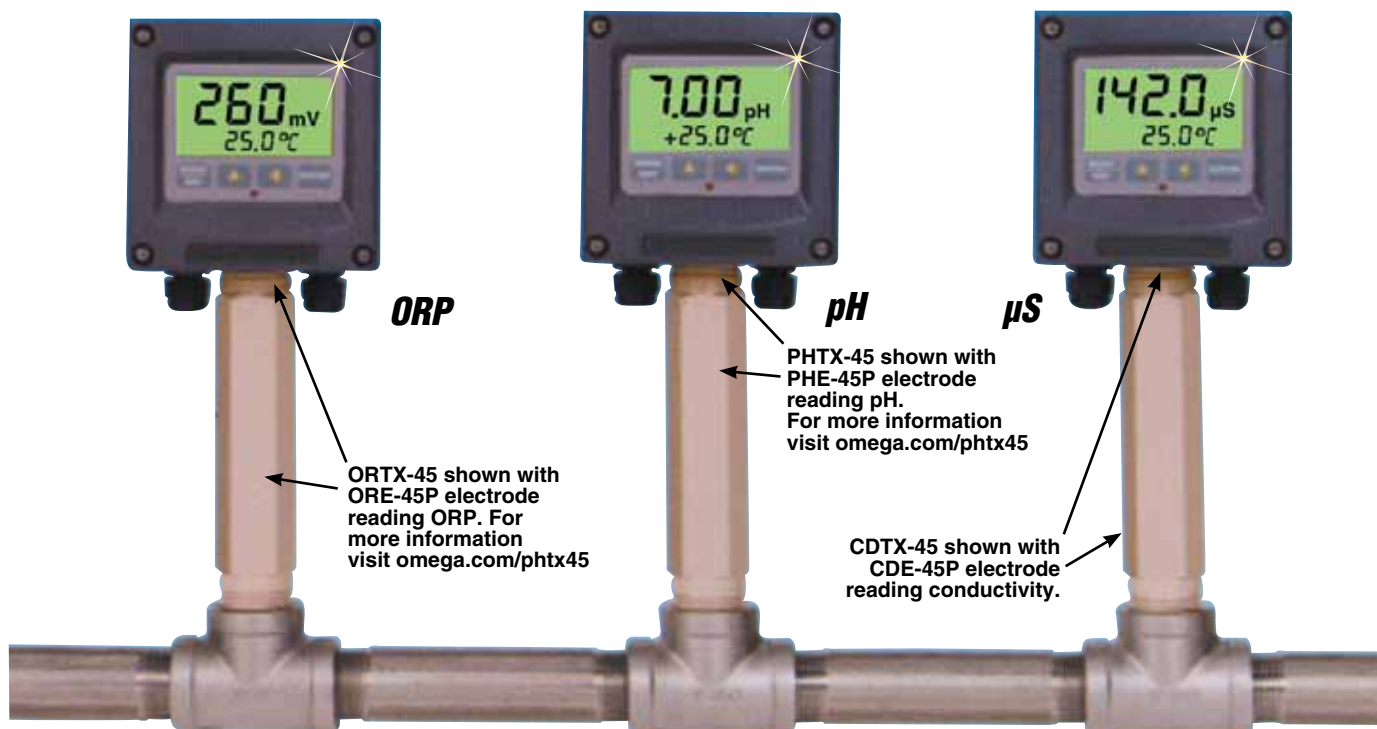| Model No.	Description
CDTX-45	Conductivity meter/transmitter, electrode sold separately
CDE-45P	Conductivity electrode
CDTX-45-115VAC-R2	Conductivity meter/transmitter, 115/230 Vac power, 2-relay outputs, electrode sold separately
PSU-93	Unregulated power supply, 16 to 23 Vdc
PHTX-45-SMH	Submersion mounting hardware, 1.8 m (6')

Comes complete with operator's manual.

***Ordering Examples: CDTX-45,** conductivity transmitter, and **CDE-45P** electrode.*

***CDTX-45,** conductivity transmitter, and **CDE-45P,** electrode, **PHTX-45-SMH,** submersion mounting hardware.*

CDTX-45 An In-Line Application Solution

ORP

pH

µS

PHTX-45 shown with
PHE-45P electrode
reading pH.
For more information
visit omega.com/phtx45

ORTX-45 shown with
ORE-45P electrode
reading ORP. For
more information
visit omega.com/phtx45

CDTX-45 shown with
CDE-45P electrode
reading conductivity.

The large, high contrast, super-twist display provides excellent readability over a wide operating temperature range, even in low light conditions. The main display line consists of large, segmented characters with measurement units. The secondary display line utilizes easily readable dot matrix characters for clear display of calibration and diagnostic messages. Two of four measured parameters may be displayed simultaneously.

Four-button programming provides intuitive navigation through the menu-driven user interface. The 4 to 20 mA transmitter output can be configured to represent any portion of the measurement range. Output HOLD, ALARM and SIMULATION features provide the user with complete control of the system output under any condition.

Diagnostic messages provide a clear description of system condition, which eliminates confusing error codes that must be looked up in the operator's manual.

The flexible calibration method includes stability monitors that check temperature and main parameter stability before accepting data.

Specifications

CDE-45P Sensor

Accuracy: 0.3% of span (± 0.1 µS)
Repeatability: 0.3% of span (± 0.1 µS)
Sensitivity: 0.05% of span (± 0.1 µS)
Stability: 0.1% of span per 24 hours, non-cumulative
Warm-up Time: 7 sec
Supply Voltage Effects: ± 0.05% span
Instrument Response Time: 12 sec
Temperature Drift: Span or zero, 0.03% of span/°C
Max Cable Length: 18.3 m (60')

CDTX-45 Transmitter
Analog Outputs:
  CDTX-45: Loop powered 4 to 20 mA output for conductivity
  CDTX-45-115VAC-R2: Dual 4 to 20 mA outputs, second output programmable for temperature or conductivity outputs isolated

Relay Outputs:
  Two SPDT, 6 Amp@250 Vac, 5 Amp @24 Vdc (CDTX-45-115VAC-R2 only)

Displayed Parameters: Main input, 0.0 µS to 2000 mS, % Concentration, sensor temperature [-10.0 to 110.0°C (14 to 230°F)], loop current (4.00 to 20.00 mA)

Main Parameter Ranges: Automatic or manual; 0.0 to 2.0 µS, 0.0 to 20.0 µS, 0 to 200 µS, 0 to 2000.00 µS, 0.00 to 2.00 µS

Display: Large, high-contrast, Super-Twist (STN) LCD; 4-digit main display with sign, 19.1 mm (0.75") 7-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, integral EMI/static shield and conductively coated window

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 to 9.9 minutes additional damping to 90% step input

Temperature Input: Selectable Pt1000 or Pt100 RTD

Power: 16 to 35 Vdc (2-wire device)

Enclosure: NEMA 4X, polycarbonate, stainless steel hardware, weatherproof and corrosion resistant

Conduit Openings: Three PG-9 openings with gland seals

Dimensions: 112 H x 112 W x 89 mm D (4.4 x 4.4 x 3.5")

Mounting Options: Wall, panel, pipe/header

Weight: 0.45 kg (1 lb)