Integral Or Remote Mount Conductivity/Resistivity Transmitters

CDTX-2850 Series

- Compact Design
- Two-Wire 4 to 20 mA Output
- Automatic Test Solution Recognition

Applications
- Water Treatment and Water Quality Monitoring
- Reverse Osmosis
- Deionization
- Demineralizer, Regeneration and Rinse
- Scrubber, Cooling Tower and Boiler Protection
- Aquatic Animal Life Support Systems

Electronics are available in various configurations for maximum installation flexibility. The universal-mount version is for pipe, wall, or tank mounting and uses the CDCE-90 Series conductivity/resistivity sensor (sold separately). It is also available as a combined integral system configuration for in-line mounting and includes a conductivity electrode in a choice of 0.01, 0.1, 1.0, 10.0 or 20.0 cm–1 cell constants. The CDTX-2850 is ideal for applications with a conductivity range of 0.055 to 400,000 μS or a resistivity range of 18.2 MΩ to 10 kΩ. All CDTX-2850 units are built with NEMA 4X (IP65) enclosures which allow output wiring connections with long cable runs of up to 305 m (1000 feet). The two-wire 4 to 20 mA output has eight 4 to 20 mA output ranges for each electrode cell constant. Each range can be inverted and is field selectable. Standard calibration automatically recognizes conductivity test solution values for simple field calibration. A certification tool is available for validation of the sensor electronics according to USP requirements.

Specifications

Materials
- NPT Mount: Junction box for integral mount PBT
- Universal/Remote Mount: PBT, PVDF

Automatic Solution Recognition: Conductivity values 146.93 μS, 1408.8 μS, 12856 μS [@25°C (77°F)] (test solutions per ASTM D1125-95) 10 μS, 100 μS, 200 μS, 500 μS, 1000 μS, 5000 μS, 10,000 μS, 50,000 μS, 100,000 μS [@ 25°C (77°F)]

(Standard test solutions)

Electrical
- Power: 12 to 24 Vdc ±10%, regulated for 4 to 20 mA output (typically called “loop powered”)
- Accuracy Conductivity: ±2% of reading
- Resolution Conductivity: 0.1% of reading
- Temperature (For Compensation Only): <0.2ºC/ºF
- Update Rate Single Channel Models: <600 ms
- Dual Channel Models: <1200 ms

Maximum Temperature/Pressure Rating
- Operating Temperature: -10 to 85°C (14 to 185°F)
- Storage Temperature: -20 to 85°C (-4 to 185°F)
- Relative Humidity: 0 to 95%, non-condensing
- Enclosure: NEMA 4X (IP65)

Current Output
- Field-Selectable Ranges
  - Factory Set Span 4 to 20 mA:
    - 0.01 Cell: = 0 to 100 μS (Integral mount only)
    - 0.10 Cell: = 0 to 1000 μS
    - 1.0 Cell: = 0 to 10,000 μS
    - 10.0 Cell: = 0 to 200,000 μS
    - 20.0 Cell: (CDCE-90-20B, not for integral mount)
      = 0 to 400,000 μS
- Maximum Loop Resistance: 50Ω at 12 Vdc, 325Ω at 18 Vdc, 600Ω at 24 Vdc
- Accuracy: ±2% of output span
- Resolution: 7 μA
- Update Rate: <600 ms
- Error Indication: 22 mA

Pure water compensation when using 0.01-cm cell and raw conductivity value <0.5 μS, the CDTX-2850 auto-switches to compensate for non-linear temperature effects found in this low conductivity (high resistivity) range.

Shipping Weight
- NPT Mount Junction Box: 1.75 lb (0.75 kg)
- Universal Mount: 1.75 lb (0.75 kg)

Standards and Approvals: Manufactured under ISO 9001 for quality and ISO 14001 for environmental management
### Dimensions: mm (inch)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>0.01 Cell</th>
<th>0.10 Cell</th>
<th>1.0 cell</th>
<th>10.0 Cell</th>
<th>20.0 Cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDTX-2851</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>CDTX-2852</td>
<td>CDTX-2853</td>
<td>CDTX-2854</td>
<td>CDTX-2850-RM</td>
<td></td>
</tr>
<tr>
<td>CDTX-2852</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>0.01 to 20 MΩ</td>
<td>0 to 2 μS</td>
<td>0 to 20 μS</td>
<td>0 to 200 μS</td>
<td>0 to 400 μS</td>
</tr>
<tr>
<td>CDTX-2853</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>0 to 5 MΩ</td>
<td>0 to 5 μS</td>
<td>0 to 50 μS</td>
<td>0 to 500 μS</td>
<td>0 to 1000 μS</td>
</tr>
<tr>
<td>CDTX-2854</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>0 to 2 MΩ</td>
<td>0 to 10 μS</td>
<td>0 to 100 μS</td>
<td>0 to 10,000 μS</td>
<td>0 to 20,000 μS</td>
</tr>
<tr>
<td>CDTX-2850-IM</td>
<td>Threaded J-box conductivity transmitter</td>
<td>0 to 10 MΩ</td>
<td>0 to 100 μS</td>
<td>0 to 100 μS</td>
<td>0 to 10,000 μS</td>
<td>0 to 20,000 μS</td>
</tr>
<tr>
<td>CDTX-2850-RM</td>
<td>Remote mount conductivity transmitter</td>
<td>N/A to 50 MΩ</td>
<td>0 to 500 μS</td>
<td>0 to 100 μS</td>
<td>0 to 100,000 μS</td>
<td>0 to 200,000 μS</td>
</tr>
</tbody>
</table>

The 4 to 20 output ranges shown in this chart can be inverted using the internal switch resistivity ranges are listed above in **BOLD**

### To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Cell Constant</th>
<th>Insertion Length mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDTX-2851</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>0.01</td>
<td>73 (2.88)</td>
</tr>
<tr>
<td>CDTX-2852</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>0.1</td>
<td>35 (1.38)</td>
</tr>
<tr>
<td>CDTX-2853</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>1</td>
<td>41.3 (1.63)</td>
</tr>
<tr>
<td>CDTX-2854</td>
<td>Integrimally mounted conductivity transmitter with sensor</td>
<td>10</td>
<td>41.3 (1.63)</td>
</tr>
<tr>
<td>CDTX-2850-IM</td>
<td>Threaded J-box conductivity transmitter</td>
<td>CDCE-90 sensors sold separately</td>
<td></td>
</tr>
<tr>
<td>CDTX-2850-RM</td>
<td>Remote mount conductivity transmitter</td>
<td>CDCE-90 sensors sold separately</td>
<td></td>
</tr>
</tbody>
</table>

Comes complete with operator’s manual (solutions sold separately, see last page).

**Ordering Example:** CDTX-2852, integrally mounted 0.1 cell constant conductivity transmitter with CDSA-1500 μS conductivity solution.

CDTX-2850-RM, remote mount conductivity transmitter with CDCE-90-10 conductivity sensor with 1.0 cell constant and CDSA-4500 μS conductivity solution.

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**E-2**
Conductivity Cells for CDTX-2850-IM/RM Series

**CDCE-90-001, CDCE-90-01, CDCE-90-1**

**Cell:**
- CDCE-90-001: 0.01
- CDCE-90-01: 0.1
- CDCE-90-1: 1.0

**Conductivity Range:**
- CDCE-90-001: 0.010 to 100 μS (10 KΩ to 100 MΩ)
- CDCE-90-01: 1 to 1000 μS
- CDCE-90-1: 10 to 10,000 μS

**Temperature Compensation:** Pt1000

**Wetted Materials:**
- O-Rings: EPR
- Insulator Material: PTFE
- Electrodes: 316 SS

**Standard Fitting:** Polypropylene

**Maximum Pressure:**
- 6.9 bar (100 psig)

**Maximum Temperature:**
- 100°C (212°F)

**Optional Fitting:**
- 316 SS ½ NPT

**Maximum Pressure:**
- 13.8 bar (200 psig)

**Maximum Temperature:**
- 120°C (248°F)

**CDCE-90-010**

**Cell Constant:** 10.0

**Conductivity Range:** 100 to 200,000 μS

**Temperature Compensation:** Pt1000

**O-Ring:** EPR

**Insulator Material:** CPVC

**Electrodes:** 316 SS

**Fitting Material:** 316 SS

**Maximum Pressure/Temperature:**
- 100 psig @ 95°C (203°F)

**CDCE-90-20**

**Cell Constant:** 20.0

**Conductivity Range:** 200 to 400,000 μS

**Temperature Compensation:** Pt1000

**O-Ring:** EPR

**Insulator Material:** PTFE

**Electrodes:** 316 SS

**Fitting Material:** 316 SS

**Maximum Pressure/Temperature:**
- 100 psig @ 150°C (302°F)
CDCE-90S-001, CDCE-90S-01, CDCE-90S-1

Cell:
CDCE-90S-001: 0.01
CDCE-90S-01: 0.1
CDCE-90S-1: 1.0

Conductivity Range:
CDCE-90S-001: 0.010 to 100 μS (10 kΩ to 100 MΩ)
CDCE-90S-01: 1 to 1000 μS
CDCE-90S-1: 10 to 10,000 μS

Tri-Grip™ Sanitary Fitting Size: 1, 1½, 2"

Temperature Compensation: Pt1000

Wetted Materials:
O-Ring: EPR
Insulator Material: PTFE
Electrodes: 316 SS or titanium
Tri-Grip™ Sanitary Fitting: 316 SS or titanium

Maximum Pressure: 6.9 bar (100 psi)
Maximum Temperature: 120°C (248°F)

To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fitting</th>
<th>Cell Constant</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDCE-90-001*</td>
<td>¾ NPT</td>
<td>0.01</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90-01*</td>
<td>¾ NPT</td>
<td>0.1</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90-1*</td>
<td>¾ NPT</td>
<td>1</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90-10*</td>
<td>¾ NPT</td>
<td>10</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90-20-B</td>
<td>¾ NPT</td>
<td>20</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90S-001-S15</td>
<td>1.5&quot; Tri-Grip™ sanitary</td>
<td>0.01</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90S-01-S15</td>
<td>1.5&quot; Tri-Grip™ sanitary</td>
<td>1</td>
<td>316 SS</td>
</tr>
<tr>
<td>CDCE-90S-01-S20</td>
<td>2.0&quot; Tri-Grip™ sanitary</td>
<td>0.1</td>
<td>316 SS</td>
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<tr>
<td>CDCE-90S-1-S20</td>
<td>2.0&quot; Tri-Grip™ sanitary</td>
<td>1</td>
<td>316 SS</td>
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<tr>
<td>CDCE-90S-001-T15</td>
<td>1.5&quot; Tri-Grip™ sanitary</td>
<td>0.01</td>
<td>Titanium</td>
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* For extended cable add “-100FTCABLE” to model number for additional cost.

Accessories

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDSA-45</td>
<td>45 μS conductivity solution 1 quart</td>
</tr>
<tr>
<td>CDSA-450</td>
<td>450 μS conductivity solution 1 quart</td>
</tr>
<tr>
<td>CDSA-1413</td>
<td>1413 μS conductivity solution 1 quart</td>
</tr>
<tr>
<td>CDSA-1500</td>
<td>1500 μS conductivity solution 1 quart</td>
</tr>
<tr>
<td>CDSA-4500</td>
<td>4500 μS conductivity solution 1 quart</td>
</tr>
<tr>
<td>CDSA-45000</td>
<td>45000 μS conductivity solution 1 quart</td>
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