



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 M Ω to 10 k Ω . 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 [$@25^{\circ}\text{C}$ (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 [$@ 25^{\circ}\text{C}$ (77°F)] (Standard test solutions)

Electrical

Power: 12 to 24 Vdc $\pm 10\%$, regulated for 4 to 20 mA output (typically called "loop powered")

Accuracy Conductivity: $\pm 2\%$ of reading

Resolution Conductivity: 0.1% of reading

Temperature (For Compensation Only): $<0.2^{\circ}\text{C}/^{\circ}\text{F}$

Update Rate Single Channel Models: <600 ms

Dual Channel Models: <1200 ms



CDTX-2851 shown smaller than actual size.

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: 50 Ω at 12 Vdc, 325 Ω at 18 Vdc, 600 Ω at 24 Vdc

Accuracy: $\pm 2\%$ of output span

Resolution: 7 μA

Update Rate: <600 ms

Error Indication: 22 mA

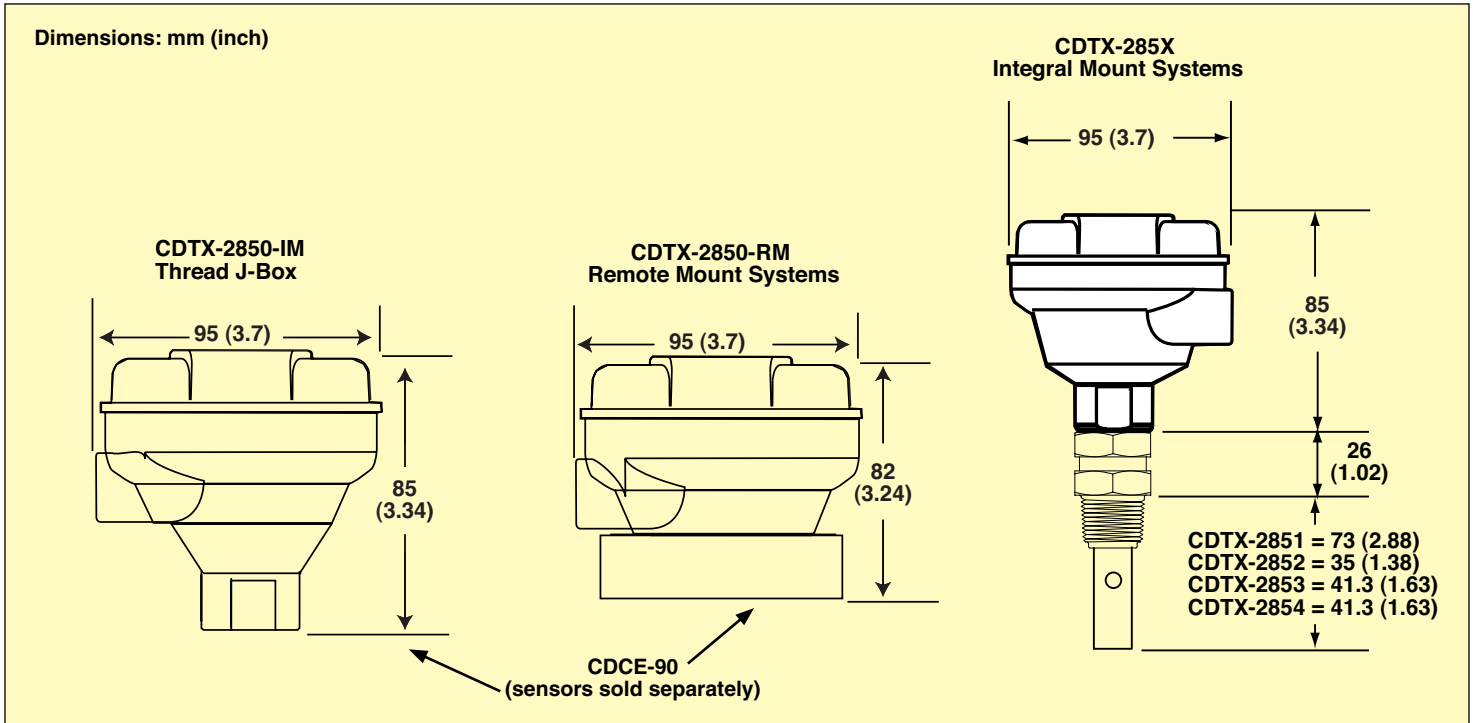
Pure water compensation when using 0.01-cm cell and raw conductivity value <0.5 μS , the CDTX-2850 auto-switches to compensate for non-linear temperature effects found in this low conductivity (high resistivity) range.

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



0.01 Cell	0.10 Cell	1.0 cell	10.0 Cell	20.0 Cell (Remote mount only)
CDTX-2851 or CDTX-2850-RM/IM with CDCE-90-001	CDTX-2852 or CDTX-2850-RM/IM with CDCE-90-01	CDTX-2853 or CDTX-2850-RM/IM with CDCE-90-1	CDTX-2854 or CDTX-2850-RM/IM with CDCE-90-10	CDTX-2850-RM/IM with CDTX-90-20B
10 to 20 MΩ	0 to 2 μS	0 to 20 μS	0 to 200 μS	0 to 400 μS
2 to 10 MΩ	0 to 5 μS	0 to 50 μS	0 to 500 μS	0 to 1000 μS
0 to 2 MΩ	0 to 10 μS	0 to 100 μS	0 to 1000 μS	0 to 2000 μS
0 to 1 MΩ	0 to 50 μS	0 to 500 μS	0 to 5000 μS	0 to 10,000 μS
0 to 5 MΩ	0 to 100 μS	0 to 1000 μS	0 to 10,000 μS	0 to 20,000 μS
0 to 10 MΩ	0 to 200 μS	0 to 2000 μS	0 to 50,000 μS	0 to 100,000 μS
N/A	0 to 500 μS	0 to 5000 μS	0 to 100,000 μS	0 to 200,000 μS
N/A	0 to 1000 μS	0 to 10,000 μS	0 to 200,000 μS	0 to 400,000 μS

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

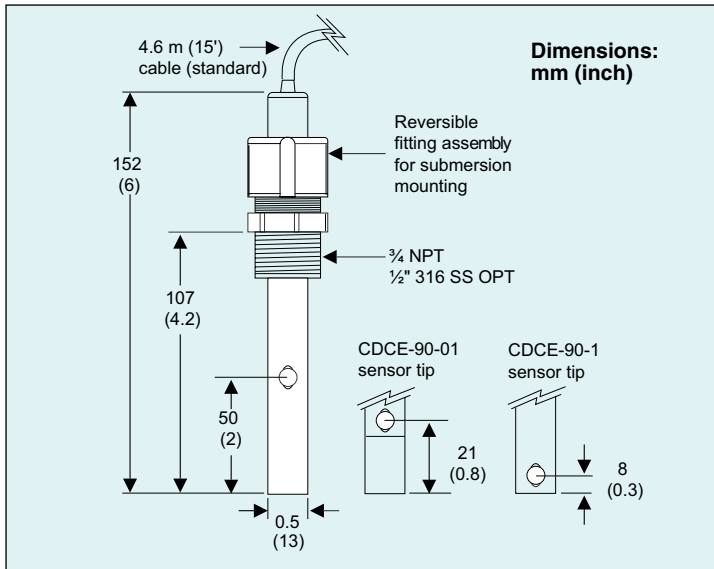
Comes complete with operator's manual (solutions sold separately, see last page).

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 10.0 cell constant and CDSA-4500 μS conductivity solution.



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 psi)

Maximum Temperature:

100°C (212°F)

Optional Fitting:

316 SS ½ NPT

Maximum Pressure:

13.8 bar (200 psi)

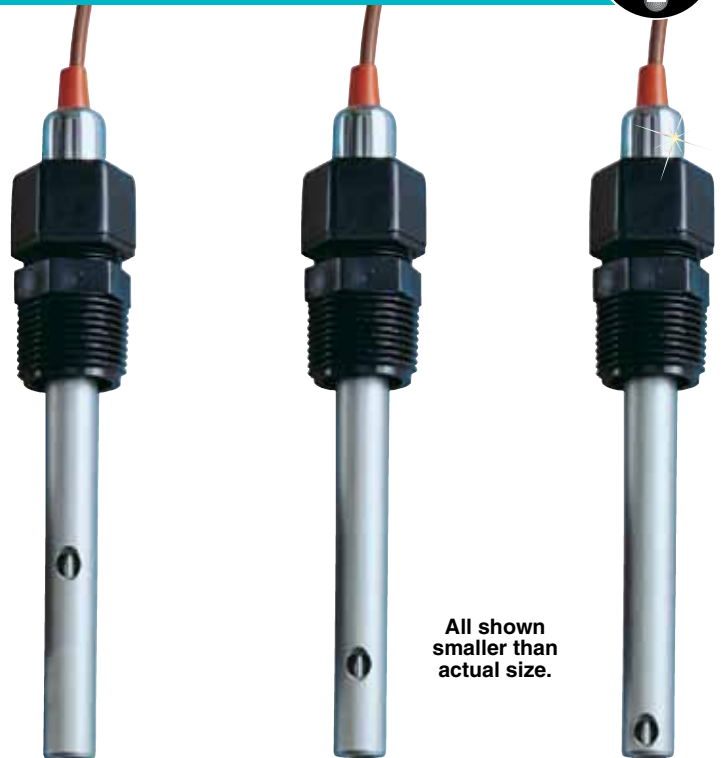
Maximum

Temperature:

120°C (248°F)



CDCE-90-10 (left),
CDCE-90-20 (right),
shown smaller
than actual size.

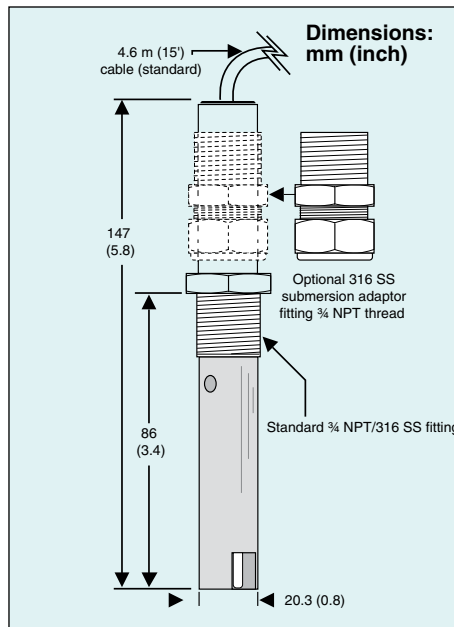


All shown
smaller than
actual size.

CDCE-90-001

CDCE-90-01

CDCE-90-1



CDCE-90-10

Cell Constant: 10.0

Conductivity Range: 100 to 200,000 µS

Temperature Compensation: Pt1000

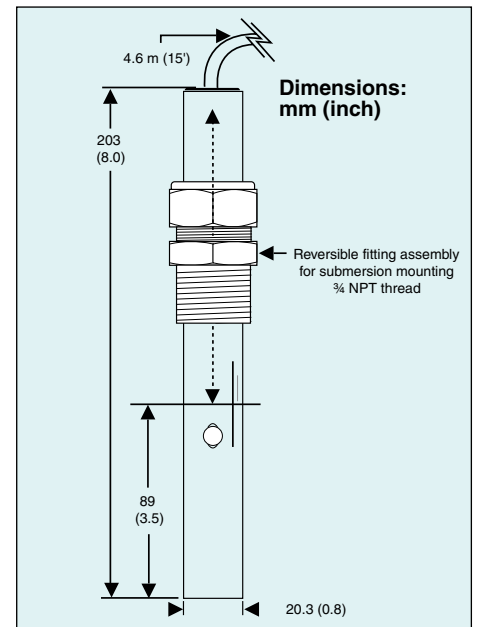
O-Ring: EPR

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 μ S
(10 K Ω to 100 M Ω)
- CDCE-90S-01: 1 to 1000 μ S
- CDCE-90S-1: 10 to 10,000 μ S

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

Temperature Compensation: Pt1000

Wetted Materials:

O-Ring: EPR

Insulator Material: PTFE

Electrodes: 316 SS or titanium

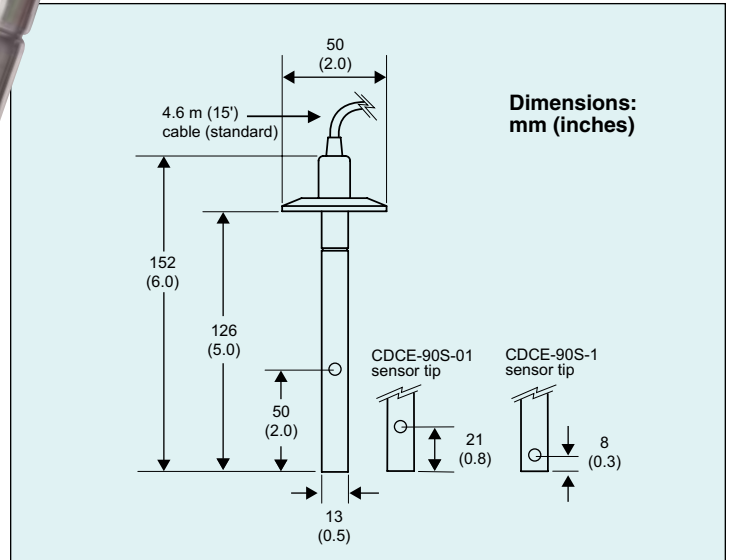
Tri-Grip™ Sanitary Fitting: 316 SS or titanium

Maximum Pressure: 6.9 bar (100 psi)

Maximum Temperature: 120°C (248°F)



CDCE-90S-001-S15,
shown smaller
than actual size.



Note: Dimension shown for 1 and 1½" Tri-Grip™ sanitary fittings.

To Order			
Model No.	Fitting	Cell Constant	Material
CDCE-90-001*	¾ NPT	0.01	316 SS
CDCE-90-01*	¾ NPT	0.1	316 SS
CDCE-90-1*	¾ NPT	1	316 SS
CDCE-90-10*	¾ NPT	10	316 SS
CDCE-90-20-B	¾ NPT	20	316 SS
CDCE-90S-001-S15	1.5" Tri-Grip™ sanitary	0.01	316 SS
CDCE-90S-1-S15	1.5" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-01-S20	2.0" Tri-Grip™ sanitary	0.1	316 SS
CDCE-90S-1-S20	2.0" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-001-T15	1.5" Tri-Grip™ sanitary	0.01	Titanium

* For extended cable add "-100FTCABLE" to model number for additional cost.

Accessories

Model No.	Description
CDSA-45	45 μ S conductivity solution 1 quart
CDSA-450	450 μ S conductivity solution 1 quart
CDSA-1413	1413 μ S conductivity solution 1 quart
CDSA-1500	1500 μ S conductivity solution 1 quart
CDSA-4500	4500 μ S conductivity solution 1 quart
CDSA-45000	45000 μ S conductivity solution 1 quart