DCA-23 Seawater Dechlorination Analyzer

ELECTRO-CHEMICAL DEVICES

Features	Benefits
• Dual Input Potentiometric Design	• No Added Chemicals No Flow sensitivity Measures TRO
• 0.00 - 2.00 ppm Chlorine Range	• Optimal Seawater Range
• MDL of 0.014 ppm	• Minimum Detection Limit
• Complete Uni-Strut Rack Mounted System	• Easy Installation, Connect Power, Feed and Drain Lines
• separately as Analyzer, Sensors and Tees	• Design Custom Installations

Model DCA-23
Seawater Chlorination Dechlorination Analyzer

Description

The Model DCA-23 is a single purpose analyzer designed to monitor the chlorination and dechlorination of sea water from 0.00 - 2.00 ppm.

Sea water is used for cooling in power plants, refineries and SWAC systems (salt water air conditioning). The heat exchangers on LNG terminals use large quantities of sea water in the regasification process. Sea water is also chlorinated and de-chlorinated at desalination plants. The chlorination of sea water inhibits the growth of marine life on the various filters, screens and heat exchange surfaces that the sea water passes over.

Sea water contains 68 mg/L of bromide. When chlorine is added to sea water, the bromide ion is oxidized to hypobromous acid (HOBr) and hypobromite (OBr^-) by the Free Chlorine (HOCl and OCl^-). This is a very rapid reaction and essentially all of the chlorine is instantaneously converted into bromine and bromamines. The DCA-23 displays Chlorine ppm in order to conform with existing regulations, it actually measures the Total Residual Oxidant (TRO) and converts it into an equivalent ppm of chlorine. TRO is defined as the total oxidizing capacity (free and combined) of the sea water that is available after chlorination.

The DCA-23 measures the pH, temperature and the TRO potential of the sea water and then displays an equivalent chlorine concentration as Cl ppm. The measurement range of the analyzer is limited to 0.00 ppm to 2.00 ppm Cl in seawater and it is not suitable for fresh water service.

The DCA-23 is easily calibrated by comparison to a Free Chlorine Grab Sample test. Simply set the observed TRO potential to agree with the Standard Potential from the TRO Calibration Chart.

The DCA-23 has a minimum detection limit (MDL) of 0.014 ppm and a limit of quantification (LOQ) of 0.044 ppm making it suitable for monitoring in environments with the most stringent dechlorination regulations.

The DCA-23 is available as a Complete Uni-Strut Rack Mounted System as shown above or as seperate components. There are five variations of the analyzer: (1) Loop Powered, 4-20 mA = 0.00 to 2.00 ppm Cl (2) 24VDC powered with two 4-20 mA outputs,Cl and pH , (3) 24VDC powered with two 4-20 mA outputs and two alarm relays, (4) 110 VAC powered with two 4-20 mA outputs and two alarm relays, (5) 220 VAC powered with two 4-20 mA outputs and two alarm relays.

DCA-23 Seawater Dechlorination Analyzer

Specifications

Sensors

pH Model #

PHS10-T23-CBL-EG-75PP

TRO Model #

MVS10-T23-CBL-EG-75PP

Measurement Range

pH Sensor: 0 to 14 pH
0 - 80˚C
0 - 100 psig

TRO Sensor: ± 1500 mV
0 - 80˚C
0 - 100 psig

Temperature: 0˚ - 100˚ C

Wetted Materials

PHS10: 316 SS, PES, Teflon, Glass, Viton
TRS10: 316 SS, PES, Teflon, Platinum, Viton
Flow Train and Process Fittings
¾" Compression Fitting: PP, Viton
¾" pipe & 1"pipe tee: Schedule 80 PVC

Rack Mounted System

Plumbed with ¾" schedule 80 pipe, slip fittings for input and drain. The T-23 Analyzer, (2) sensors, pH flow cell, TRO flow cell are rack mounted using 1⅝"x 1⅝" Uni-Strut rail. Maximum System Pressure & Temperature rating: 50 psig @ 60˚C

Dimensions

26"length x 20" high x 8.5" deep

T-23 Transmitter

Measurements

pH, TRO, Temperature

Display

4" X 1" LCD, 2 x 16 character

Enclosure

NEMA 4X, LxWxD: 5.7" x 5.7" x 3.5"
Membrane switch keypad, (2) ½" Cable Glands

Input Power

1290220-1 Loop Powered
1290200-2 24 VDC (12 to 36 VDC) @ 0.05 A
1290200-3 24 VDC (12 to 36 VDC) @ 0.10 A
1290200-4 110 VAC 50/60 hz
1290200-5 220 VAC 50/60 hz

Outputs

4-20 mA 525 Ω max. load
DCA-23 analyzers, All
mA 1: Chlorine 0.00-2.00 ppm
DCA Analyzers 1290200-2, -3, -4, -5
mA 2: pH 0 - 14 pH

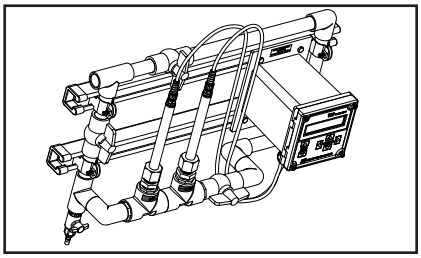
Alarm Relay Ratings

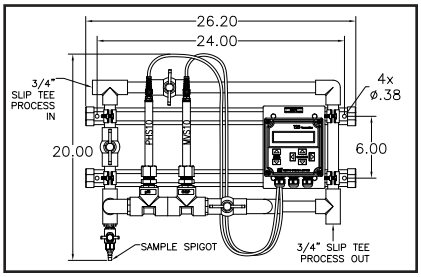
Optional (2) SPDT 230 VAC/5A or 30 VDC/5A resistive max.

Shipping Weight

T-23 Transmitter 4.8 lbs.
PHS10 or TRS10 2.5 lbs.
Rack Mounted Complete 18 lbs.

Part#	Model / Description
1290220-1	DCA-23 System, Loop Powered, (1) 4-20 mA
1290220-2	DCA-23 System 24VDC-50 mA powered (2) 4-20 mA
1290220-3	DCA-23 System 24VDC-100 mA powered (2) 4-20 mA, (2) Relays
1290220-4	DCA-23 System 110 VAC powered (2) 4-20 mA, (2) Relays
1290220-5	DCA-23 System 220 VAC powered (2) 4-20 mA, (2) Relays
140406J.30G0	PHS10 pH sensor, PHS10-T23-CBL4-EG-75PP (no electrode cartridge)
141406J.30G0	MVS10 TRO sensor, MVS10-T23-CBL4-EG-75PP (no electrode cartridge)
1900120.1527	DCA-23 Transmitter, Loop Powered, (1) 4-20 mA
1900130.1527	DCA-23 Transmitter, 24VDC-50 mA powered (2) 4-20 mA
19R0130.1527	DCA-23 Transmitter, 24VDC-100 mA powered (2) 4-20 mA, (2) Relays
19E0130.1527	DCA-23 Transmitter, 110 VAC powered (2) 4-20 mA, (2) Relays
19F0130.1527	DCA-23 Transmitter, 220 VAC powered (2) 4-20 mA, (2) Relays
2005145.VIT	Replacement pH cartridge **(recommended spare part)**
2005167.VIT	Replacement TRO cartridge **(recommended spare part)**





Specifications subject to change without notice.

Represented by:

Electro-Chemical Devices
1500 North Kellogg Dr.
Anaheim, California, USA 92807
Phone: +1-714-695-0051
+1-800-729-1333
Fax: +1-714-695-0057
email: sales@ecdi.com
web: www.ecdi.com

CERTIFIED ISO9001 QUALITY SYSTEM