ELECTRO-CHEMICAL DEVICES

TC80 Total Chlorine Analyzer

ECD's intelligent TC80 Analyzer eliminates consumables, simplifies installation and reduces maintenance with a self-cleaning design to lower the total cost of instrument ownership over its long life. This versatile, easy-to-use analyzer is a panel-mounted unit that is ready-to-go right out of the box. It is also fully compliant with the U.S. Environmental Protection Agency's (EPA) Method 334.0.

Features & Benefits

Panel Mounted System Plug and Play Design

- Complete System, Easy Installation, Ready to Use

Automatic pH Compensation

- No Expensive Reagents

Automatic Flow Control

- Eliminates Pressure Regulators and Rotameters

T80 Analyzer Capability

- Dual Measurements, (2) 4-20 mA
- (3) Alarm Relays
- 24 VDC
- or 110/220 VAC Power
- Auto Clean Option available

Compliant with EPA Method 334.0

Consult our Technical Support staff for additional configuration options at +1-714-695-0051 or email: sales@ecdi.com

Description

The Model TC80 is a panel mounted, ready to use Total Chlorine Analyzer. It is designed to monitor total chlorine in drinking water, rinse water, cooling water or other fresh water samples from:

- 0.05 – 20 ppm Cl_2 (High Range Sensor)
- 0.005 – 2.000 ppm Cl_2 (Low Range Sensor)

The TC80 features a plug and play design that incorporates the following:

- pH Sensor
- Chlorine Sensor
- T80 Universal Transmitter

All which are conveniently mounted on a PVC Panel. Connect the sample and drain lines, connect the power and outputs and it is ready to use.

The TC80 is calibrated at the factory before shipment, additional calibrations are accomplished by DPD comparison.

Total Chlorine is the combined amount of Free Chlorine, Chloramine, Organic and Bound Chlorine in the sample. The TC Sensor is a three electrode amperometric sensor with a gold cathode, silver halide anode and 305 SS counter electrode.

The Counter Electrode provides a stable base potential that minimizes drift. The Total Chlorine sensor has a micro-porous membrane that allows ions to diffuse in and out of the sensor.

The various chlorine species in the measured solution diffuse into the sensor and react with the acidic potassium iodide electrolyte to form iodine.

The iodine is reduced at the cathode back to iodide and the current flow between the cathode and silver iodide anode is proportional to the Total Chlorine.

The pH sensor provides accurate compensation for samples between pH 4 and pH 12 and eliminates the need for an expensive sample conditioning system. The T80 graphically displays both the Total Chlorine and pH allowing easy trend analysis.

Amperometric Chlorine Sensors are flow sensitive.

The **minimum required flow by the sensor** is 0.5 ft/sec, above this value the output is virtually flow independent. A “Constant Head” Flow controller maintains the optimum flow by the sensor over a wide range of incoming sample flow rates.

The **minimum flow required** is 10 gal/hr and the **maximum flow** is 80 gal/hr with the sample going to drain at atmospheric pressure.

The Auto Clean Option includes a solinoid actuated spray cleaner that uses either 30 psi process water or compressed air to clean the electrode surfaces.

An easily adjusted timer controls the period and duration of the cleaning cycle. (shown above)

Consult our Technical Support staff for additional configuration options at +1-714-695-0051 or email: sales@ecdi.com

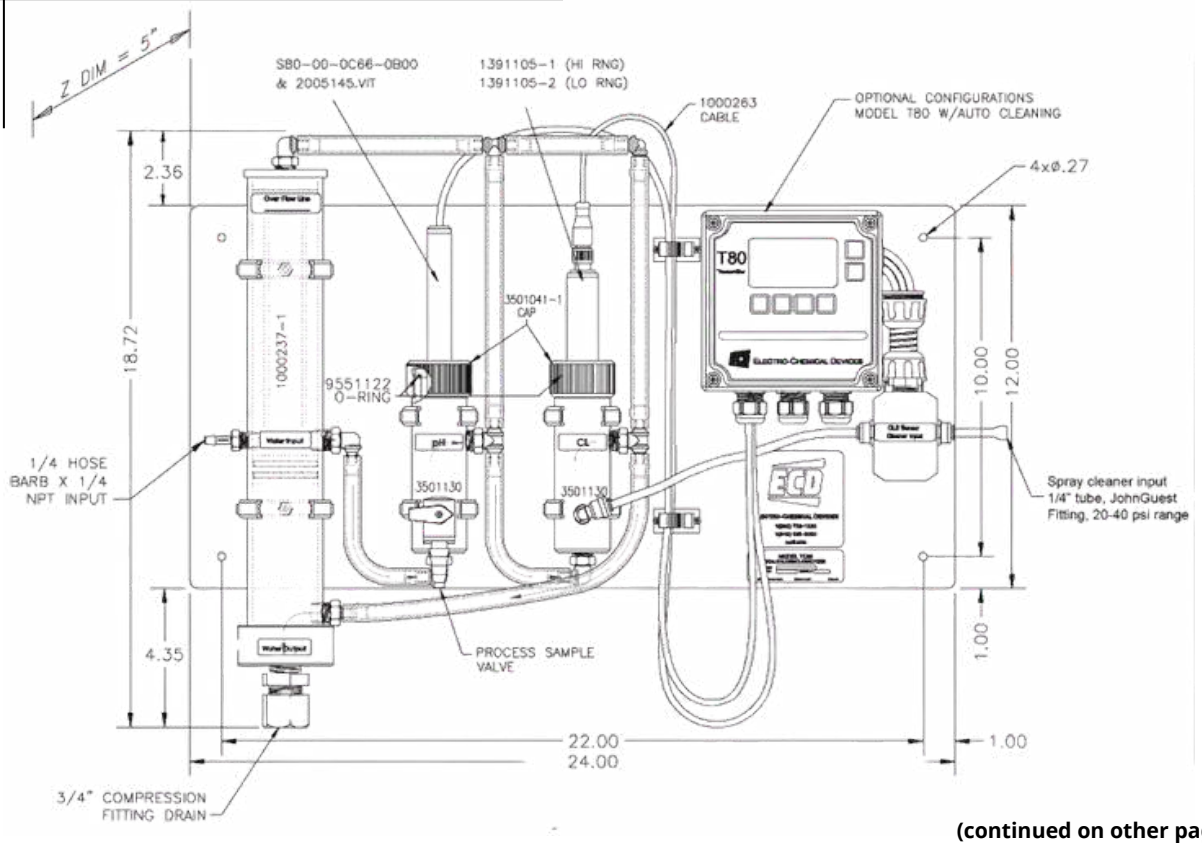
Specifications

Sensor and Flow Train

Sensor	• Amperometric • Silver • Three Electrode • Silver-Halide-Anode • 304 SS Counter Electrode • Digital
Measurement Range	**Chlorine:** 0.05 to 20.00 ppm (High Range) 0.005 to 2.000 ppm (Low Range) **pH:** 4 to 12 pH
Operating Temperature	0°C to 45°C (32°F to 113°F)
Min / Max Flow	38 L/hr to 300 L/hr (10 gal/hr to 80 gal/hr)
Wetted Materials	• PVC • PP • PVDF • PTFE • Glass • 304 & 316 SS
Process Connections	**Input:** ¼" Barb Fitting (¼" FNPT) **Drain:** ¾" FNPT Fitting
Response Time	T90 approximately 2 minutes
Electrolyte Life	Up to 6 months
Dimensions	

T80 Transmitter

Measurement	**Chlorine:** 0.001to 999.9 ppb (auto ranging) **pH:** 0 to 14 pH **Chlorine:** 0°C to 100°C (32°F to 212°F)
pH Compensation	4 to 12 pH
Display	2.5" x 1.75" Backlit LCD (4 Lines for Text & Graphical)
Enclosure	NEMA 4X (LxWxD) : • 5.7" x 5.7" x 3.5"
Outputs	• (1) 4-20 mA for Total Chlorine (Set to Sensors Range) • (1) 4-20 mA for pH (Optional) (Set to 0-14 pH)
Alarm Relays Ratings	(3) SPDT 230 VAC/5A
Input Power	• 110/220 VAC @ 50/60 Hz • Optional 24 VDC (12 to 50 VDC) @ 0.25A



(continued on other page)

Order Information

A	B	C	D	E	F	G	Sample Order
TC80	0	1	2	2	0	0	TC80-01-2200

Ⓐ TC80 Analyzer
Ⓑ 0.05 to 20 ppm Total Chlorine
Ⓒ S80 pH Sensor with Flow Cell and 2nd channel T80 Analyzer
Ⓓ 110-250 VAC
Ⓔ (2) 4-20 mA Output, 3 Configurable Relays (Modbus)
Ⓕ No Spray Cleaner / Standard Constant Head Flow
Ⓖ Standard Panel Mount (No Enclosure)

A. Model TC80

Part No.

TC80	Total Chlorine Analyzer, Panel Mounted, Constant Flow Controller, Total Chlorine Sensor, Flow Cell, pH Sensor, Flow Cell, (2) 4-20 mA, 3 Relays

B. Sensory Type and Range

Part No.

0	0.05 to 20 ppm Total Chlorine (Standard)
1	0.005 to 2.00 ppm Total Chlorine
2	0.05 to 20 ppm Total Chlorine (Seawater)
3	0.005 to 2.00 ppm Total Chlorine (Seawater)

C. pH Sensor

Part No.

0	No pH Sensor
1	S80 pH Sensor with Flow Cell and 2nd channel T80 Analyzer
2	S80 pH Sensor (Titanium) with Flow Cell and 2nd channel T80 (Seawater)

D. Power Supply

Part No.

1	24 VDC
2	110-250 VAC (Standard)

E. Outputs

Part No.

2	(2) 4-20 mA output, 3 configurable relays (Modbus)
3	(2) 4-20 mA output, 3 configurable relays (HART)

F. Spray Cleaner / Constant Head Flow

Part No.

0	No Spray Cleaner / Standard Constant Head Flow
1	110 VAC Spray Cleaner on Chloride Sensor / Standard Constant Head Flow
2	No Spray Cleaner / High Constant Head Flow
3	110 VAC Spray Cleaner on Chloride Sensor / High Constant Head Flow
4	240 VAC Spray Cleaner on Chloride Sensor / Standard Constant Head Flow
5	240 VAC Spray Cleaner on Chloride Sensor / High Constant Head Flow

G. Enclosure

Part No.

0	Standard Panel Mount (No Enclosure)
1	Fiberglass-reinforced Polyester NEMA 4x Enclosure, 24" x 24" x 7", Drain and Tubing holes on bottom panel, Clear Door
2	Fiberglass-reinforced Polyester NEMA 4x Enclosure, 24" x 24" x 7", Drain and Tubing holes on bottom panel, Opaque Door

(continued on other page)

World Headquarters: 1500 North Kellogg Dr. | Anaheim, California, USA 92807
Phone: 714-695-0051 **Fax:** 714-695-0057 **Email:** sales@ecdi.com
www.ecdi.com

Order Information

A	B	C	D	E	F	G	Sample Order
TC80	0	1	2	2	0	0	TC80-01-2200

- (A) TC80 Analyzer
- (B) 0.05 to 20 ppm Total Chlorine
- (C) S80 pH Sensor with Flow Cell and 2nd channel T80 Analyzer
- (D) 110-250 VAC
- (E) (2) 4-20 mA Output, 3 Configurable Relays (Modbus)
- (F) No Spray Cleaner / Standard Constant Head Flow
- (G) Standard Panel Mount (No Enclosure)

TC80 Instruments, Parts & Accessories

Part No.	
	Accessories
1000350-1	Enclosure, Fiberglass, 24" x 24" x 7", Clear Lid (Standard Head Flow)
1000350-2	Enclosure, Fiberglass, 24" x 24" x 7", Opaque Lid (Standard Head Flow)
1000183-X	Junction Box w/ Spray Cleaner Solenoid on Panel (X = Specify Voltage)
1000300-1	4-20 mA USB Data Logger
8700002	Heater for Enclosure
	Chlorine Sensor Parts
1391105-4	Total Chlorine Sensor, 0.05 – 20.0 ppm **(replaces 1391105-1)**
1391105-5	Total Chlorine Sensor, 0.005 – 2.0 ppm **(replaces 1391105-2)**
1391105-14	Total Chlorine Sensor, 0.05 – 20.0 ppm **(Seawater)**
1391105-15	Total Chlorine Sensor, 0.005 – 2.0 ppm **(Seawater)**
1000345-1	Membrane 0 – 2 ppm / 0 – 20 ppm **(1391105-4 and 11391105-5 Sensors)**
1000345-2	Membrane 0 – 2 ppm / 0 – 20 ppm, **Seawater (1391105-4 and 11391105-5 Sensors)**
1000348-1	Kit, Membrane / Electrolyte, 0 – 2 ppm / 0 – 20 ppm **(1391105-4 and 11391105-5 Sensors)**
1000348-2	Kit, Membrane / Electrolyte, 0 – 2 ppm / 0 – 20 ppm, **Seawater (1391105-4 and 11391105-5 Sensors)**
1000245-1	OLD Membrane Cap Replacement, 0 – 2 ppm / 0 – 20 ppm **(for 1391105-1 and 1391105-2 Sensors)**
1000246-1	Total CL2 Sensor Electrolyte Refill / Seawater 100 mL
9550001	Silicone Band (covers bleed hole in membrane cap)
9550002	Viton Band (covers bleed hole in membrane cap)
1000263	Cable, Total Chlorine Sensor, TC80 (2m)
2000250-1	Polish Kit, PION Paper (for Chloride, Silver, Cyanide, Copper, Bromide, Sulfide, Cadmium, Lead)
1000263	Kit, O-Ring Constant Head Flow
	ph Sensor Parts
S80-00-0C66-0b00-001	S80 Flanged Style pH Sensor complete, includes **2005145.VIT** pH electrode
2005145.VIT	pH Replacement Electrode for S80 Sensor
	Spare Parts – System
T80-11-212-00	Total Chlorine Analyzer (TC80), Instrument Only, (2) 4-20 mA output, 3 Relays, 110/250 VAC
T80-11-112-00	Total Chlorine Analyzer (TC80), Instrument Only, (2) 4-20 mA output, 3 Relays, 24 VDC
2000134-7	Solenoid for Spray Cleaner, 110 VAC
3501130	pH Flow Cell with Spray Cleaner Port (No Cap/Fittings)
9370048	Sample Spigot
9130007	Spare Battery for USB Data Logger *Dangerous Goods
	Tubing
1000237-3	Constant Head Flow Controller with Fittings
1000237-4	Constant Head Flow Controller, High Flow with Fittings
2000120	Tube Fitting Set, Complete Set (9) ⅜" Fittings, (1) ¼" Fitting
2000107-3	Kit, Tubing ⅜" PVC
2000107-4	Kit, Tubing ⅜" PVC with Spray Cleaner Tube
	Calibration
1000040-1	Kit, Photometer Tester HCA-2, Free & Total Chlorine
1000040-3	Kit, Photometer Tester HCA-2, Total Chlorine
9260100	Test Strip Reagent, Free Chlorine (100 Test Strips)
9260101	Test Strip Reagent, Total Chlorine (100 Test Strips)

Represented By:

World Headquarters: 1500 North Kellogg Dr. | Anaheim, California, USA 92807
Phone: 714-695-0051 **Fax:** 714-695-0057 **Email:** sales@ecdi.com
www.ecdi.com