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Chlorine 3017M

DPD CHLORINE ANALYZER

Quick Start Guide

330027-01e

WTW
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Table of Contents

1. What's Included?

Item	Part #	Qty.
3017M Chlorine Analyzer	860151	1
Sample Pump Tube*	860181 (set)	1
Reagent Pump Tubes*	860181 (set)	2
Silicone Lubricant	860181 (set)	1
Reagent Bottle Cap Assembly*	860187	2
1/2" ID Drain Tube	119836	1
1/8" OD Sample Inlet Tube	119806	1
3017M Operators Manual	332271	1
3017M Quick Start Guide	330027	1

*Installed on the 3017M

2. Inspection

Remove the analyzer and Sample Inlet Device from the shipment boxes. Inspect the shipment for any damage or missing parts.

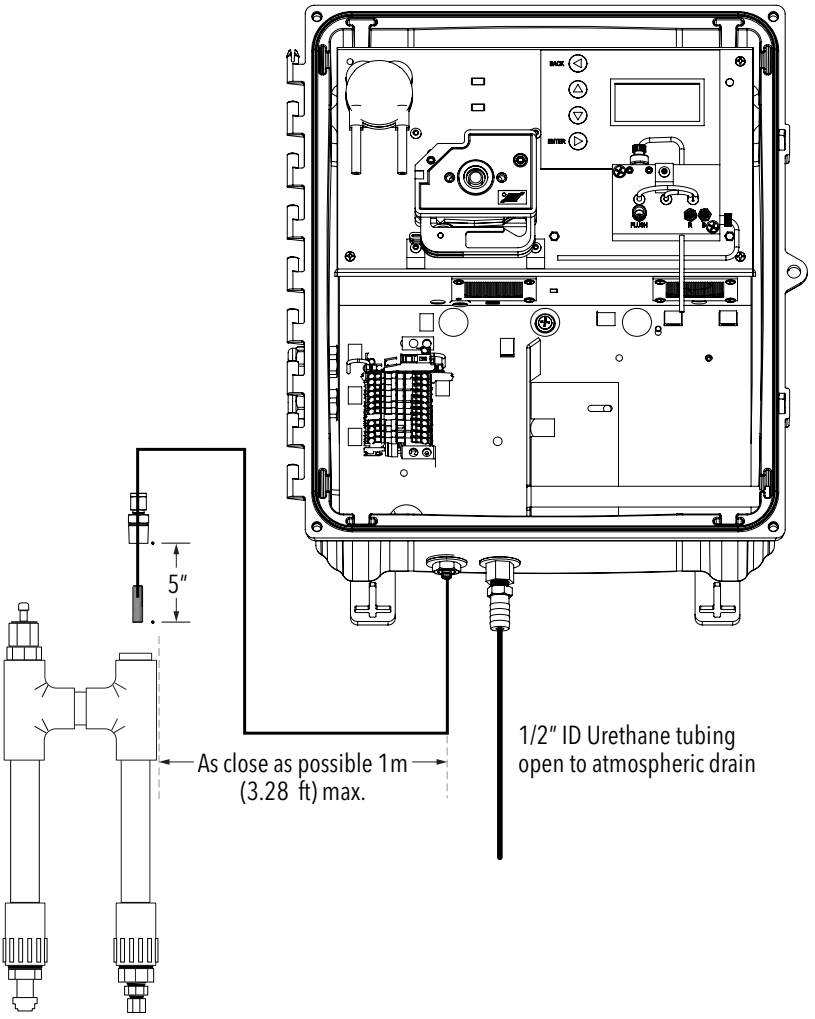

Figure 1: WTW 3017M DPD Chlorine Analyzer and Sample Inlet Device shown in the recommended installation configuration.

CAUTION: Do not apply power to the unit until **all** of the following steps have been completed.

- Attach the mounting tabs
- Mount the analyzer
- Mix the reagents
- Position the sample pump tube
- Tension the reagent pump tubes
- Connect analyzer to the sample

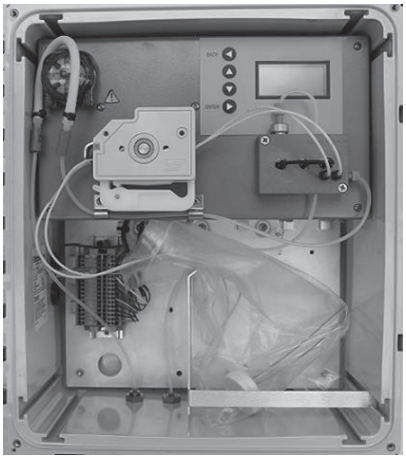

Figure 2: The Chlorine 3017M analyzer as it is shipped from the factory

3. Materials Required

- #1 Phillips screwdriver
- 1/16" (or smaller) flat-head screwdriver
- 3/8" drive ratchet
- 7/16" socket
- 7/16" wrench
- Scissors
- Rag or paper towels

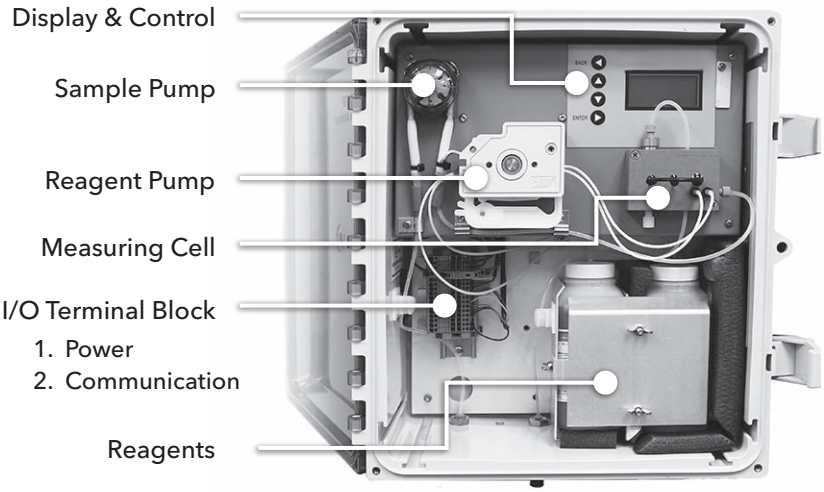

Figure 3: The components of the Chlorine 3017M

4. Mounting Instructions

1. Attach the enclosure's 4 mounting tabs to the back of the 3017M.
2. Mount the 3017M in the desired location with user supplied mounting hardware.
3. Install the Sample Inlet Device in its designated location (if applicable). Below and to the left of the analyzer is an ideal position. See Figure 1.
4. Power and RS 485/4 to 20 mA connections are made through the cable glands that are supplied with the analyzer. The cable glands can be found on the left-hand side of the analyzer.
5. Wire the main power and any other signal or alarm connections.
6. The terminal block connectors are opened by pushing the 1/16" screwdriver into the small, square opening adjacent to the opening for the wire. See Figure 4.

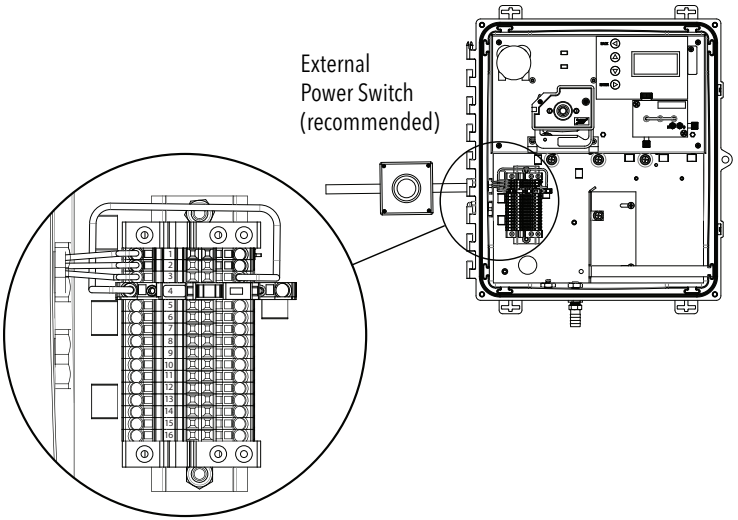

Figure 4: 3017M terminal block and external power switch
(Wiring reference table on next page)

Position	Connection/Purpose	Wire Color
1	AC Earth	Green/Green Yellow
2	AC Neutral (Line 2)	White/Blue
3	AC Line (Line 1)	Black/Brown
4	Fusible Link (0.5A)	Brown
5	RS 485-A	White
6	RS 485-B	Grey
7	RS 485 RTN	Purple
8	4-20 mA (-)	Blue
9	4-20 mA (+)	Green
10	ALARM1 (NC)	Yellow
11	ALARM1 (COM)	Orange
12	ALARM1 (NO)	Red
13	ALARM2 (NC)	Brown
14	ALARM2 (COM)	Black
15	ALARM2 (NO)	Pink
16	SPARE	---

7. Attach the 1/2" ID drain tube to the barbed fitting on the bottom of the analyzer. Refer to **Figure 5**.
8. Attach the 1/8" OD tubing to the sample inlet fitting (quick connect) on the bottom of the analyzer and connect the other end to the Sample Inlet Device or any other sample spot.

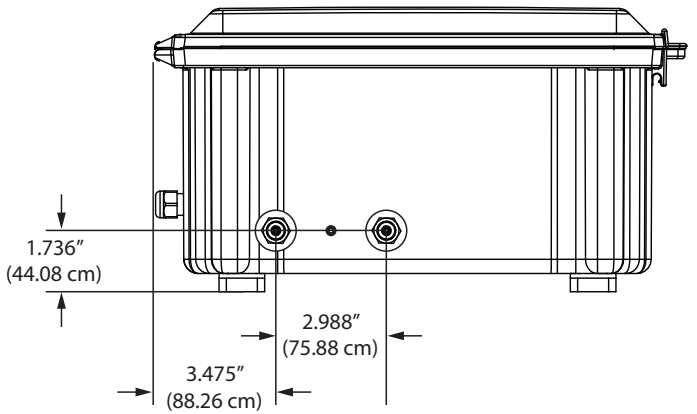

Figure 5: 3017M plumbing connections, bottom view

5. Reagent Preparation

NOTE: Only high purity, chlorine-free water should be used for the reagents. Deionized (DI) water, at a minimum, is acceptable. After mixing, the reagents have a shelf life of 30 days at room temperature and 90 days refrigerated at 5 °C.

1. **Buffer:** Add approximately half of the required DI water to the buffer bottle, capping the bottle, and shaking vigorously until the dry powder inside has completely dissolved. Once no solids are visible, carefully fill the bottle to the fill line, re-cap it, and mix it again by shaking vigorously for approximately 1 minute, then let stand until the bubbles clear. The buffer is ready for use.
2. **Indicator:** Add approximately one-third of the required water to the indicator reagent bottle, cap the bottle securely, and mix it by shaking for approximately 1 to 2 minutes. It is likely there will still be solid material in the bottle. Add a second one-third of the required water and mix again for 1 to 2 minutes. There should be little-to-no solid material left in the bottle. If necessary, mix for an additional 1 to 2 minutes, or until all solid material is in solution.

   Transfer the contents of the **DPD (brown glass) bottle** into the indicator reagent bottle, minimizing the amount of material left in the brown bottle. Cap securely and shake the indicator bottle, at which time the color should begin to darken slightly.

   Carefully add the final amount of water to reach the fill line of the indicator reagent bottle, cap securely and mix again, then let stand until bubbles clear. The indicator reagent is ready for use.

   After mixing, the reagents have a shelf life of 30 days at room temperature and 90 days refrigerated at 5 °C. Install a reagent bottle cap assembly (WTW order number:860187) to the reagent containers.
3. Place the indicator reagent on the right-hand side of the enclosure (closest to the wall of the enclosure) and connect it to the red labeled tube that go into the port labelled with “R”.
4. Place the buffer next to it (left-hand side) and connect it to the blue labeled tube that go into the port labelled with “B”. Refer to **Figure 6**.

6. Sample Pump Tube Installation

1. Refer to **Figure 6**.
2. Remove the cover from the sample pump by gently pulling on the bottom of the pump cover.
3. Position the tube so that the barbed fittings on each end are even. They will be adjusted in a later step.
4. Locate the package of silicone grease and cut a small opening across one corner of the package.
5. Apply a thin layer of the silicone grease to the section of the tube that will mount on the roller in the pump. A small bead of approximately 3 mm in diameter should be sufficient. Spread the grease along the section of the tube that will contact the pump tube rollers. Do not apply the grease in excess. There is sufficient grease in the startup kit for multiple pump tube installations. Remove any excess with a rag or paper towel.
6. Hold the pump tube over the roller, and gently push the roller onto the drive shaft of the pump motor.
7. Refer to **Figure 7**.
8. Snap the cover into place so that the roller stays in place.
9. Gently position the sample pump to remove slack on each tube.

Figure 6: Sample pump shown with cover off

Figure 7: Completed pump tube installation

7. Reagent Tube Installation

1. Refer to Figure 8.
2. Tension the reagent pump tubes by depressing the tensioning levers downward three “clicks”.
3. This completes the installation of the reagent pump tubes.

NOTE: Do not overtighten the reagent pump tubes. This will lead to permanent failure.

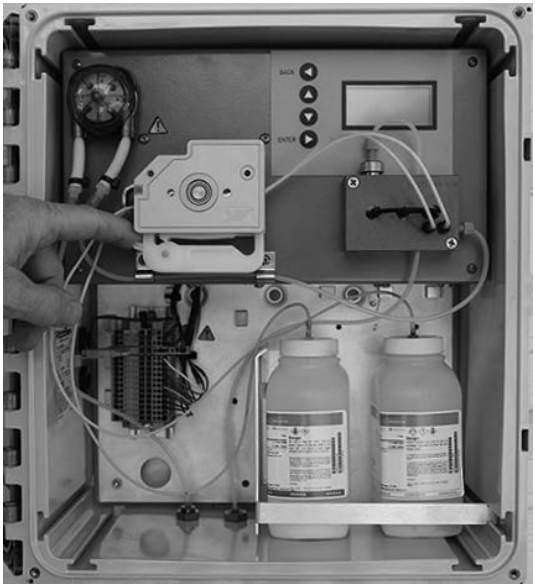

Figure 8: Tension lever - complete reagent pump tube installation

8. Startup and Operation

1. Ensure that the main power and the desired aqueous sample are available to the instrument.
2. Close the fusible link on the terminal block.
   The analyzer will power on and initiate a self-test. Once the self-test is completed, the analyzer will come to SHUTDOWN mode. Power is not removed from the analyzer.

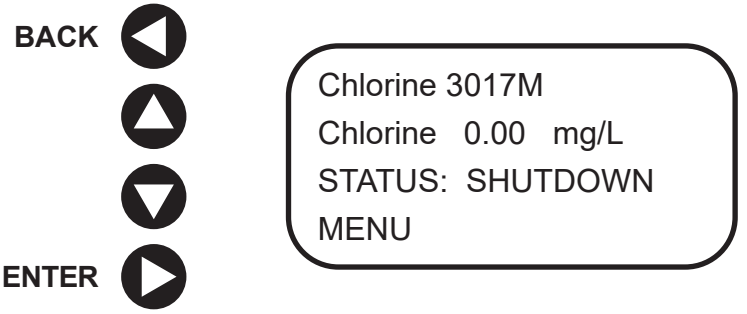

Figure 9: 3017M display showing analyzer in SHUTDOWN mode

Language Setting

English is set by default. Spanish, Italian, French and German are also available. To switch to one of these languages, follow these steps.

1. On the touchpad, select: MENU>SETUP>LANGUAGE.
2. Use the ▲ or ▼ arrows to select your language. To exit and save the selection, use the ◄ arrow (BACK).
3. All texts should now be displayed in the selected language.

Measuring Mode

1. Using the ▲ or ▼ button, navigate to the PRIME function and press ► (ENTER). The sample pump and reagent pump will turn at a higher than normal speed to fill the sample and reagent lines with liquid.
2. Observe the outlet (waste) line of the measuring cell. If chlorine is present in the water, the water at the outlet of the measuring cell should turn pink when the sample and reagents begin to mix in the flowcell. When no bubbles are present at the outlet of the measuring cell, the lines are fully primed with liquid.
3. Using the ▲ or ▼ button, select STANDBY and ► (ENTER).
4. When you are ready for the routine sample analysis, select STARTUP and ► (ENTER). The STARTUP sequence consists of the following steps and will take several minutes:
    1. **PRIME**: The sample and reagent pumps will turn at a high speed to prime the lines with liquid.
    2. **RINSE:** The reagent pump will stop, and the sample pump will continue to turn and rinse the flowcell with sample.
    3. **AUTOGAIN SET:** The zero point, sample without reagent, is determined.
    4. **RUN:** The sample pump will return to the speed for normal operation.
    5. **INJECT REAGENT:** The reagent pump will start and run for the predetermined amount of time.
    6. **INTEGRATE:** The analyzer measures the absorption of light that corresponds to the concentration of the sample flowing through the flowcell.
    7. **CALCULATE VALUE:** The concentration of the sample is calculated against the calibration curve stored on the analyzer.
    8. **DISPLAY VALUE:** The concentration of the sample is displayed on the screen.
9. The analyzer should cycle for 15 – 20 minutes (6 – 8 cycles) before making comparisons with reference methods and adjusting the analyzer output.

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1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

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