

CHEMSCAN UV-SERIES ANALYZERS

GRAPHIC USER INTERFACE



USER GUIDE

**Note: This is the user guide for the UV-Series
Graphic User Interface.**

**Contact your ChemScan Regional Manager to obtain
a ChemScan UV-Series Analyzer manual.**



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1. Safety

To safely operate or maintain this analyzer, all instructions in this manual must be read and fully understood by a trained/qualified technician.

Failure to follow safety procedures could result in serious injury or equipment damage.

The following symbols will be observed throughout this manual.



Protective Eye wear



Safety Gloves



Electrical Shock Hazard



Corrosive Hazard



UV Radiation Inside
Rayonnement ultraviolet à l'intérieur

2. ChemScan UV-Series Analyzer Description

The ChemScan UV-Series Analyzer is an on-line process-monitoring instrument. It has the capability of measuring multiple parameters in a sample. The precise measurement of these parameters is critical for optimizing today's advanced water treatment processes. It has been designed to minimize maintenance time and reagent costs.

The analyzer has a built-in manifold to accept samples from multiple locations. The analyzer is equipped with automatic zeroing and cleaning capability. Periodically the analyzer will pump zeroing solution into the flow cell. The analyzer tests for the need for cleaning the flowcell and zero stability. Once the diagnostic parameter is satisfied, the analyzer will return to the on-line sequence. If any abnormal operation is detected, the analyzer will alert the operator by displaying a "Maintenance Required" message.

2.1. Analyzer Analysis Modes

2.1.1. Flush Cycle

To begin the analysis the analyzer uses the new sample to flush the previous sample.

2.1.2. Scanning Sample

The analyzer flashes the xenon flash lamp that produces ultraviolet and visible light passing through the sample and detected in the spectrometer.

2.1.3. Reagent Addition

When reagent assisted analysis is required, the analyzer adds reagent to the sample cell.

2.1.4. Mixing Sample

The Analyzer uses air pumped through the cell to mix the sample

2.1.5. Idle or Reacting

The Analyzer is idle during the chemical reaction in the cell.

3. Operation

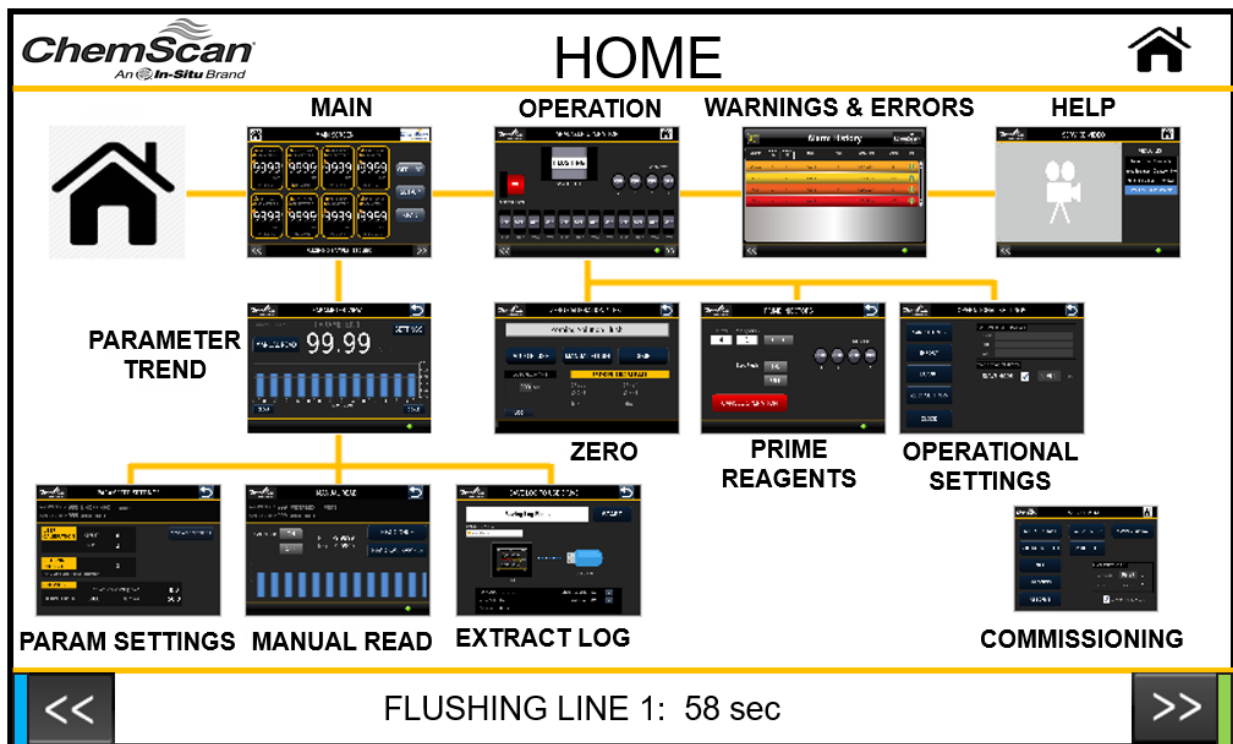
3.1. HMI Definition

3.1.1. HMI Components

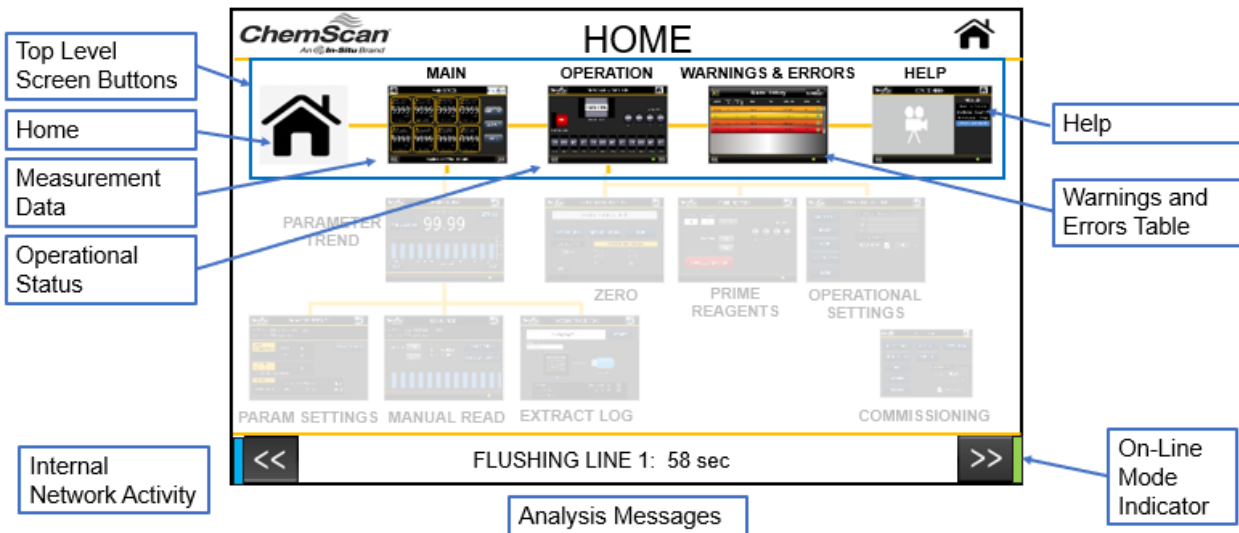
Hardware Definition

3.2. Home Screen

The ChemScan Graphical User Interface provides access to analyzers operation, settings, diagnostics and help.



3.2.1. Home Screen – Top Level Buttons



Home

This screen displays the overall HMI menu structure. *Tip: Press the ChemScan Log from any screen to return to the Home Screen.*

Measurement Data

Displays the most recent concentration data

Operational Status

Displays the Analyzer lower-enclosure operation and current analysis status

Warnings and Errors Screen

The warnings and errors screen contain analyzer operational malfunction data.

Help Screen

General Help Screen with access to the O&M Manual and demonstration videos.

Commissioning Screens

Accessible by ChemScan Technicians during startup and servicing the analyzer.

Analysis Message

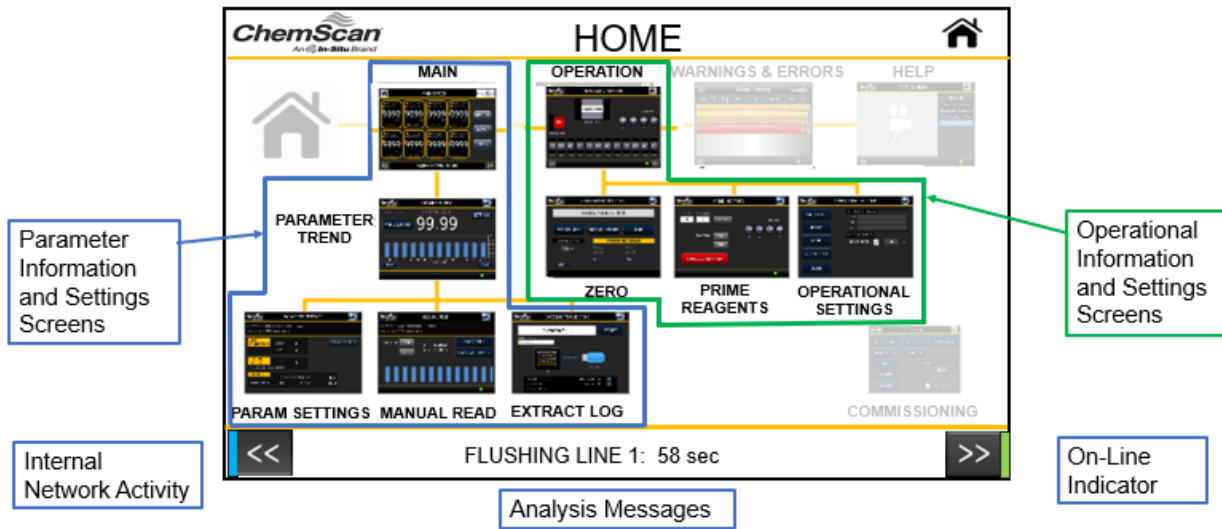
The analyzer operational steps are displayed. These messages are similar to the legacy ChemScan products LCD display. *Tip: This is also a button to access the interrupt On-Line Mode from any screen.*

Indicator Lights

Internal Network Activity: This green light flashes during analyzer internal network activity.

On-Line Indicator: This is color red when Analyzer is in the On-Line continuous operation mode.

3.2.2. Home Screen – Parameter and Operation Groups



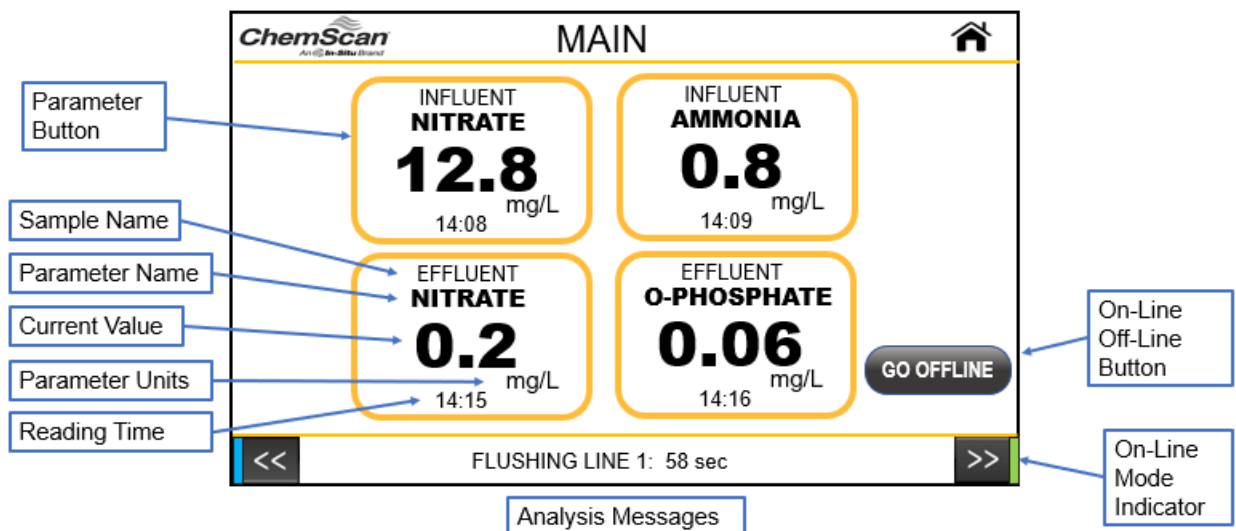
Parameter Information and Settings Screens

The items surrounded by the blue outline above, contain parameter concentration values, concentration trend, parameter settings, manual readings and concentration log retrieval.

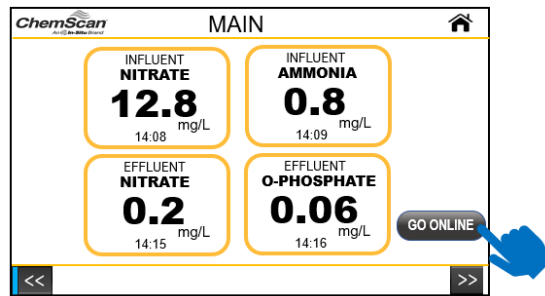
Analyzer Operation Information and Settings Screens

The items surrounded by the green outline above, contain overall analyzer operational status, analyzer zero, prime reagents and operational settings.

3.3. Main Screen



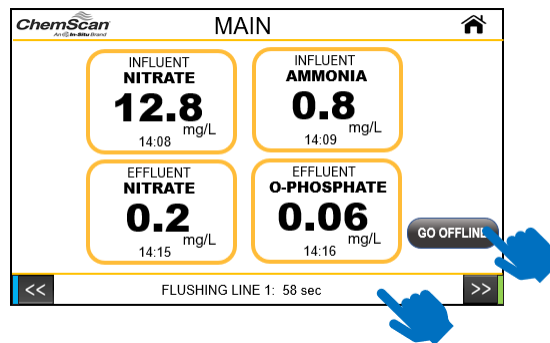
3.3.1. Initiate On-Line Mode



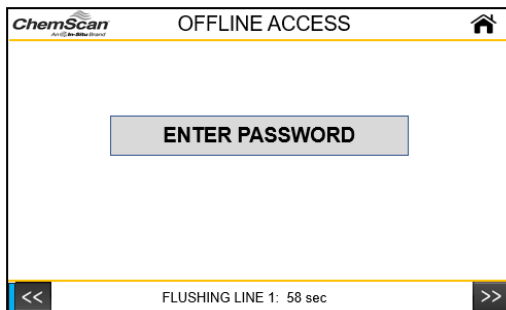
To enter the on-line mode, press the GO ONLINE button.

The Analyzer will begin the reading cycle at the first parameter on the first sample line.

3.3.2. Exit On-Line Mode

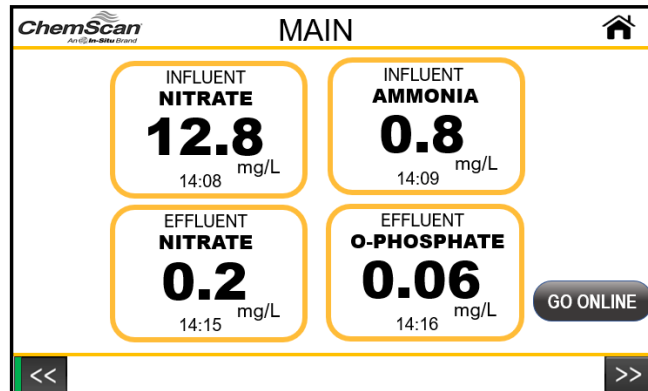


To exit the on-line mode, press the GO OFFLINE Button **OR** in **any** screen press the Analysis Message Bar at the bottom.



Then, enter the operator's level Password - Default Password: 0000

3.3.3. Navigation Short Cuts



There are a few navigation tips to make it easier to move around the screens.

The top Left Corner **ChemScan** Logo button will return to the HOME Screen from any screen.

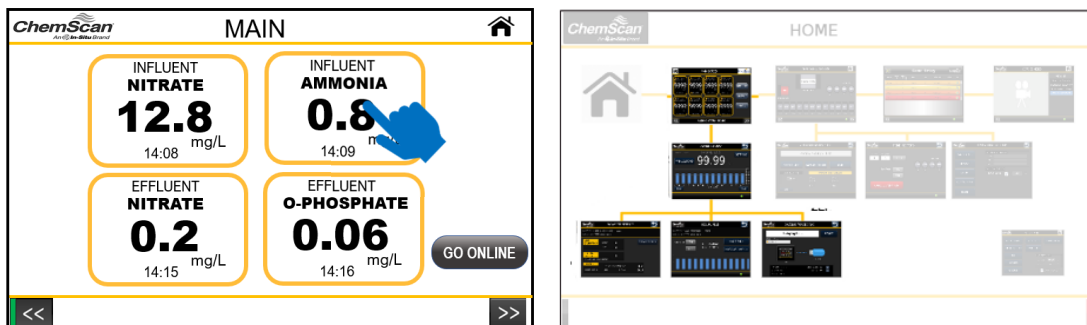
The Top Right Corner button will return back from the previous Screen.

In the on-line mode, the bottom **Analysis Message Bar** button will call up the security code to exit the on-line mode from any screen displaying the Analysis Information.

The bottle left arrows and right arrows will move across the Top Level Screens.

3.3.4. Parameter Screen Group

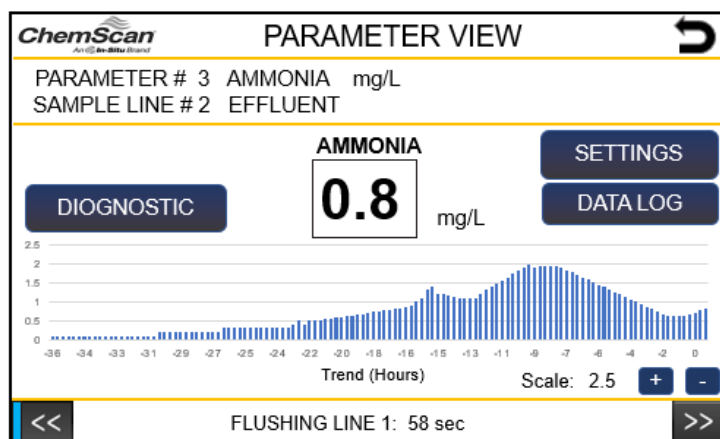
The parameter screen group is entered from the Main Screen by selecting one of the parameter buttons.



3.3.4.1. Parameter View Screen (On-Line Mode)

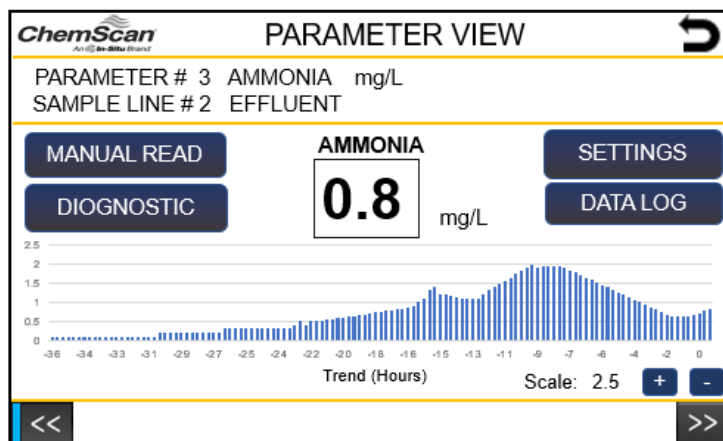
The Parameter View screen displays the currently selected parameters name, units, sample name, concentration, and a graph of the last 30 hours of operation. The Y scale can be changed using the +/- buttons in the lower right corner of the trend.

While the Diagnostics data can be displayed, the Parameter Settings can be displayed but not changed, and the Data Concentration Log can be extracted.

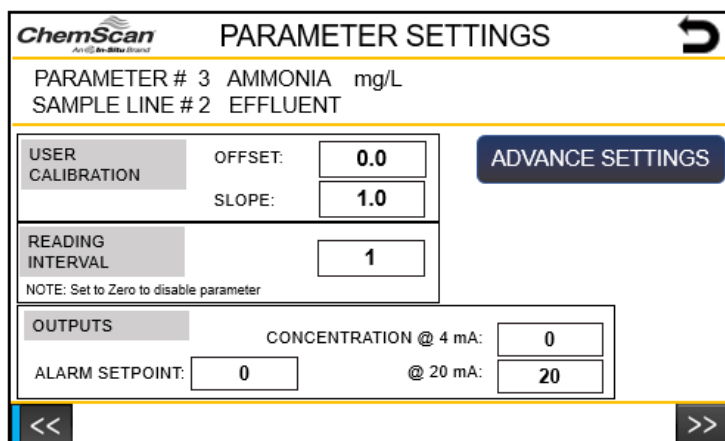


3.3.4.2. Parameter View Screen (Off-Line Mode)

While in the Off-Line Mode, the Manual Read is also displayed enabled. The Diagnostics data can be displayed, the Settings can be displayed and changed, and the Data Concentration Log can be extracted.



3.3.4.3. Parameter Settings Screen (Off-Line Mode)



The screen displays the following settings for Parameter # 3 AMMONIA mg/L, Sample Line # 2 EFFLUENT:

- USER CALIBRATION:** OFFSET: 0.0, SLOPE: 1.0
- READING INTERVAL:** 1 (Note: Set to Zero to disable parameter)
- ADVANCE SETTINGS:** Button to access advanced settings.
- OUTPUTS:** CONCENTRATION @ 4 mA: 0, @ 20 mA: 20
- ALARM SETPOINT:** 0

Navigation buttons: << and >>

Calibration Offset: Adjust the parameter offset value.

Calibration Slope: Adjust the parameters slope value.

Reading Interval: Adjust the parameters reading interval, 1 = measure every cycle, 4 = measure every 4th cycle, 0 = Disable parameter.

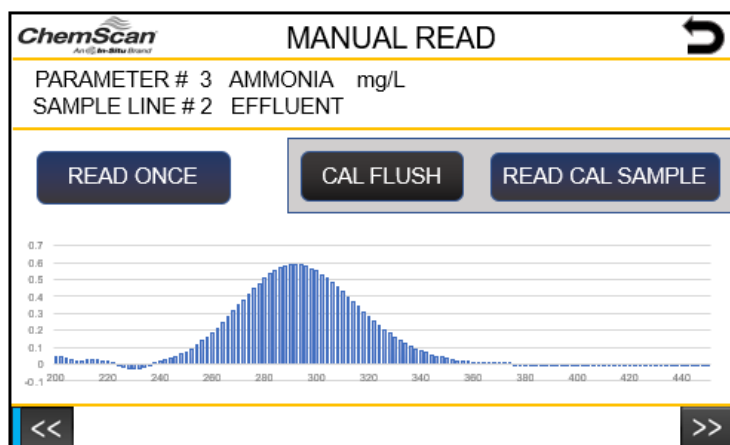
Alarm Setpoint: Adjust alarm concentration value. Alarm active above the set concentration (dry contact relay or bit when serial is used) 0 = inactive.

4 mA Concentration: Adjust parameters 4 mA concentration when analog outputs are used. Default = 0.

20 mA Concentration: Adjust parameters 20 mA concentration when analog outputs are used. Default = max of parameters operating range.

The ADVANCED SETTINGS button requires a Technician level password. Contact ChemScan Service before making any adjustments in the advanced settings screen.

3.3.4.4. Parameter Manual Read Screen (Off-Line Mode)



READ ONCE: The READ ONCE button initiates a single read of the selected parameter.

READ CAL SAMPLE: READ CAL Sample Button initiates a single reading of the sample currently in the analyzer's flow cell. Typically a calibration sample.

CAL FLUSH: Use the CAL FLUSH button to draw in a sample from the analyzer's calibration port into the cell prior to reading a calibration sample. Flush a minimum of 500 mL through the cell prior to initiating a READ CAL SAMPLE.

The previous sample's spectral data is displayed in the graph. This can be used to assist ChemScan Service while troubleshooting the analyzer.

3.3.4.5. Data log Retrieval Screen

ChemScan An In-Situ Brand

SAVE LOG TO USB DRIVE

Saving Log File ... **START**

USB Drive Folder ...

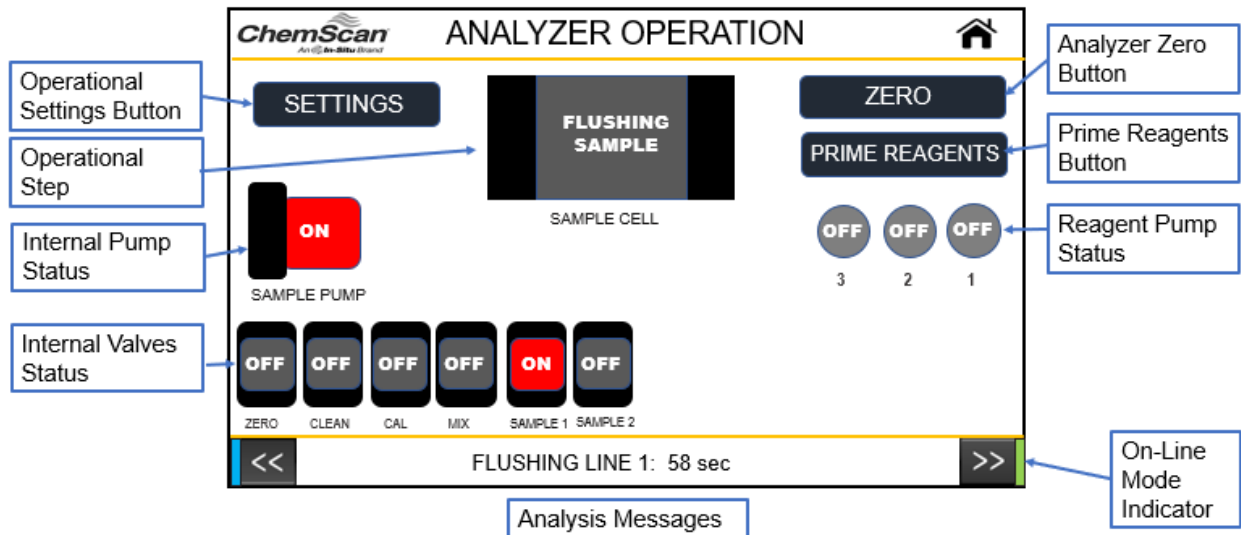
99.99 99.99
99.99 99.99

File Name: Status SD Card:
Import State: USB Drive:
Wait Count:

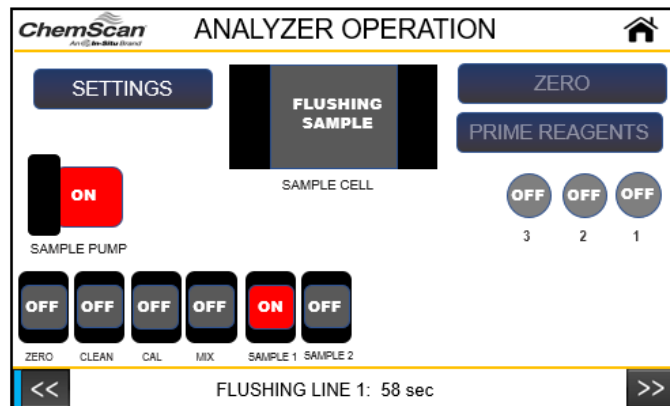
The analyzer's Concentration Data Log can be extracted to an USB drive by pressing the START button.

3.4. Operational Screen

Analyzer Operational Grouping



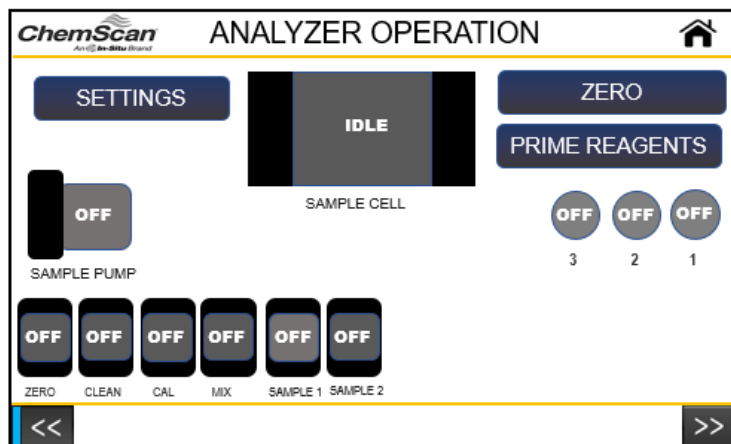
3.4.1. Analyzer Function Screen (On-Line Mode)



While in On-Line Mode the Analyzer Operation Screen will display status of the components during the analysis cycle. The Analyzer's operational SETTINGS Screen can be displayed but the edit function is disabled. The ZERO and PRIME REAGENTS buttons are disabled. Exit the On-line Mode to enable the ZERO and PRIME REAGENTS buttons and allow editing of the operational SETTINGS.

3.4.2. Analyzer Function Screen (Off-Line Mode)

While in Off-Line Mode the Analyzer Operation Screen the Analyzer's operational SETTINGS Screen can be displayed and edited. The ZERO and PRIME REAGENTS buttons are enable to access those functions.



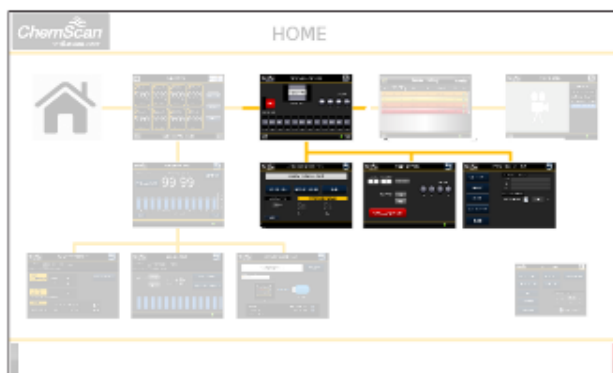
3.4.3. Manual Component Operation

While in the Off-Line Mode the Analyzer Operational Screen can be used to manually operate each component. This can be used during troubleshooting the analyzer.

To manually operate the component, press the component graphic. If the component requires a companion component to operate, both will turn on. (i.e. select the zero valve and the pump will operate too)

3.4.4. Analyzer Operation Group

The overall Analyzer's operation and settings is accessed through the buttons on the Analyzer Operation Screen.



3.4.4.1. Manual Zero Screen

The Manual Zero Screen is used to perform the analyzer zeroing process. The Zero is the way to create an analyzer reference of the zero-absorbance water. This is also one of the main diagnostic tests to confirm the light level through the analysis cell. *See Manual Zero Operation in the Maintenance section.*

The screenshot shows the 'ZERO CALIBRATION / TEST' screen. At the top, there is a 'SELECT OPTION' button. Below it are three buttons: 'ZERO FLUSH', 'READ ZERO', and 'TEST ZERO'. To the left of the 'TEST ZERO' button is a 'CLEAN FLUSH' button. Below 'CLEAN FLUSH' is a 'FLUSH TIME' section showing '120 sec.'. To the right of these buttons is a 'PREVIOUS ZERO RESULTS' table. At the bottom right is a 'LOG' button. The bottom of the screen has navigation arrows '<<' and '>>'.

PREVIOUS ZERO RESULTS	
@ 230: 3285	@ 424: 3352
@ 248: 3622	@ 448: 3472
Min: -0.003	Max: 0.004

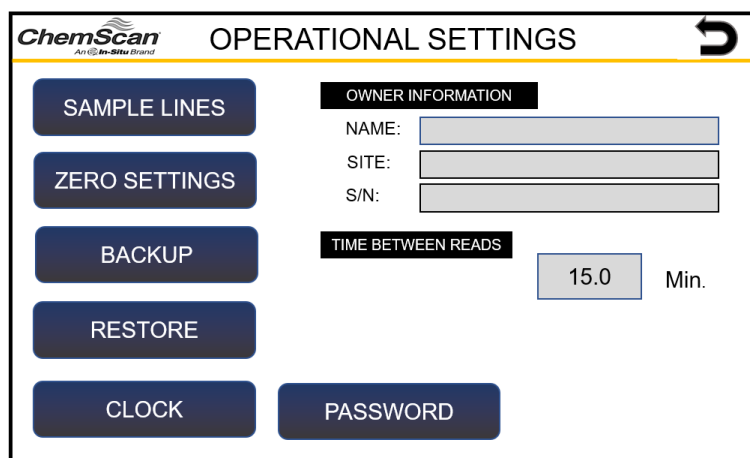
3.4.4.2. Prime Injectors Screen

The Prime Injector Screen is used to manually operate the reagent injector pumps to remove air from the reagent lines or test the reagent injector pump operation. *See Prime and Test Reagents Injectors in the Maintenance section.*

The screenshot shows the 'PRIME REAGENT INJECTORS' screen. At the top, there is a 'START' button. To its right are 'INJECTOR' (set to 1) and 'CYCLES' (set to 20) fields. Below the 'START' button is a 'ZERO FLUSH' button. Below 'ZERO FLUSH' is a 'CANCEL' button. To the right of these buttons are four 'REAGENTS' status indicators labeled 4, 3, 2, and 1. Indicators 4, 3, and 2 are 'OFF', and indicator 1 is 'ON'. The bottom of the screen has navigation arrows '<<' and '>>' and a status bar showing 'INJECTOR 1: 1 OF 20'.

3.4.4.3. Operational Settings

The Operational Settings Screen provides access to the analyzer's overall operational configuration.



The Operational Settings screen features the ChemScan logo and a back arrow in the top left. The title "OPERATIONAL SETTINGS" is centered at the top. On the left, there is a vertical column of five buttons: "SAMPLE LINES", "ZERO SETTINGS", "BACKUP", "RESTORE", and "CLOCK". On the right, the "OWNER INFORMATION" section contains three input fields for "NAME:", "SITE:", and "S/N:". Below this, the "TIME BETWEEN READS" section shows a numeric input field with "15.0" and the unit "Min.". At the bottom right is a "PASSWORD" button.

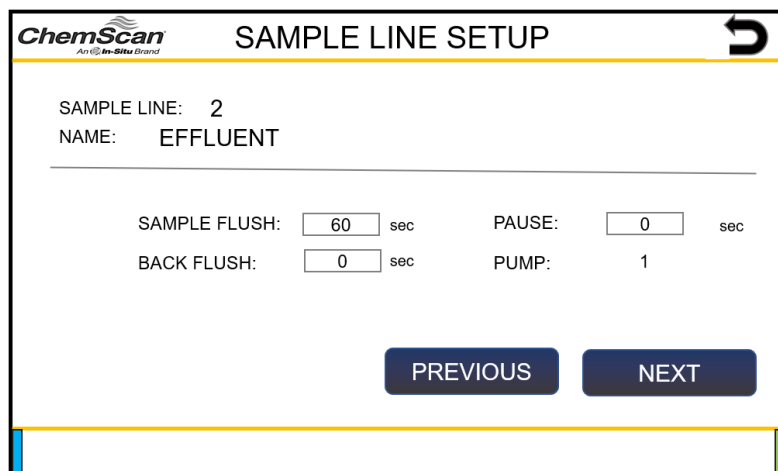
Installation Information:

Name: Organization or Company Name

Site: Plant or installation Name

S/N: Analyzer Serial Number

3.4.4.4. Sample Line Settings



The Sample Line Setup screen features the ChemScan logo and a back arrow in the top left. The title "SAMPLE LINE SETUP" is centered at the top. Below the title, it displays "SAMPLE LINE: 2" and "NAME: EFFLUENT". A horizontal line separates this header from the configuration fields. There are four input fields: "SAMPLE FLUSH:" with a value of "60" and unit "sec", "PAUSE:" with a value of "0" and unit "sec", "BACK FLUSH:" with a value of "0" and unit "sec", and "PUMP:" with a value of "1". At the bottom right, there are two buttons: "PREVIOUS" and "NEXT".

Sample Line: Current Sample Line Number

Name: Sample Line Name

Sample Flush: Flush time before analysis

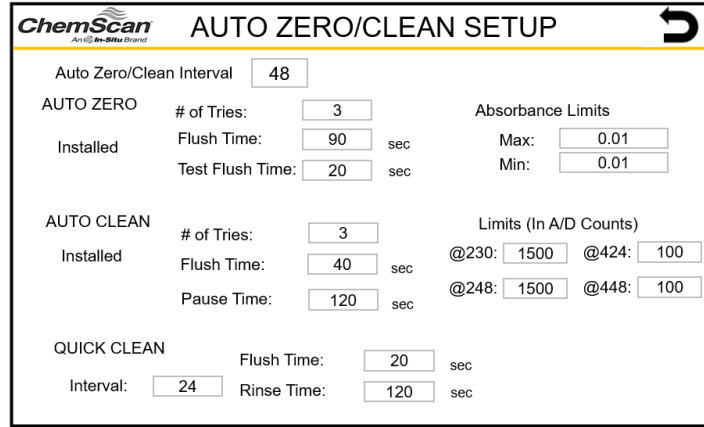
Back Flush: Time reverse flow (when a peristaltic pump), air blow back for certain filter systems with compressed air.

Pause Time: Setting time for some filter types.

Pump Number: Type of pump installed at the factory.

PREVIOUS/NEXT Buttons: Navigate between sample lines.

3.4.4.5. Zero Settings



ChemScan		AUTO ZERO/CLEAN SETUP	
Auto Zero/Clean Interval		48	
AUTO ZERO		# of Tries: 3	
Installed	Flush Time:	90	sec
	Test Flush Time:	20	sec
		Absorbance Limits	
		Max:	0.01
		Min:	0.01
AUTO CLEAN		# of Tries: 3	
Installed	Flush Time:	40	sec
	Pause Time:	120	sec
		Limits (In A/D Counts)	
		@230:	1500
		@424:	100
		@248:	1500
		@448:	100
QUICK CLEAN		Flush Time: 20 sec	
Interval:	24	Rinse Time:	120 sec

Auto Zero/Clean Interval: Number of cycles between Zero/Clean cycles

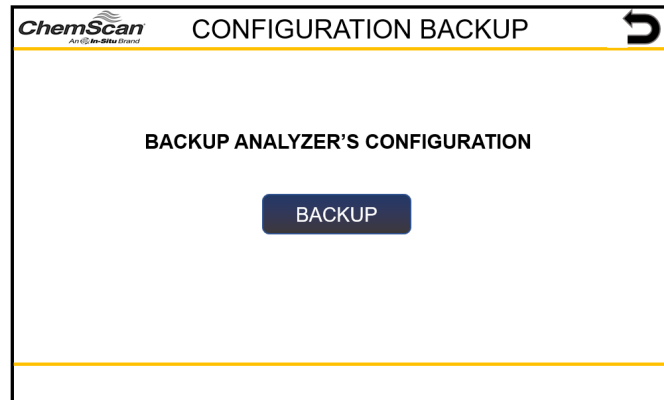
Quick Clean Interval: Number of cycles between Quick Clean cycles

Quick Clean Flush Time: Time to flush cleaning solution during a quick clean.

Quick Clean Rinse Time: Time to rinse sample after a quick clean.

All other parameters require contact with ChemScan Service prior to adjusting.

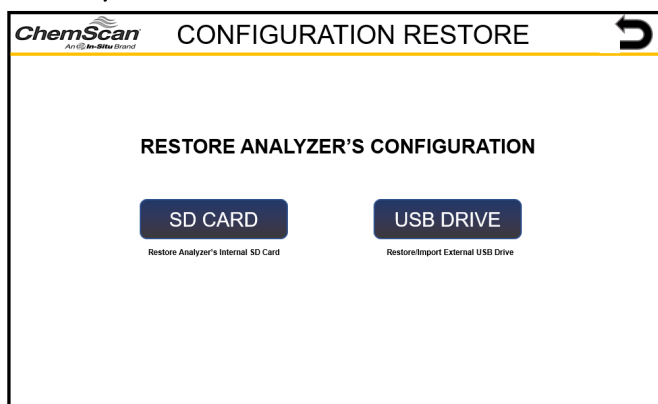
3.4.4.6. Memory Backup



ChemScan		CONFIGURATION BACKUP	
BACKUP ANALYZER'S CONFIGURATION			
BACKUP			

- 1) The BACKUP button will store the current configuration savings to the internal SD memory card.
- 2) A second step will allow backup to a USB drive.

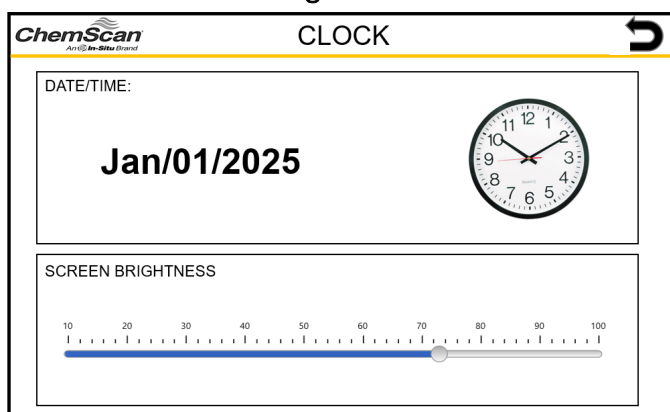
3.4.4.7. Memory Restore



SD CARD button will restore the configuration stored on the internal SD card.

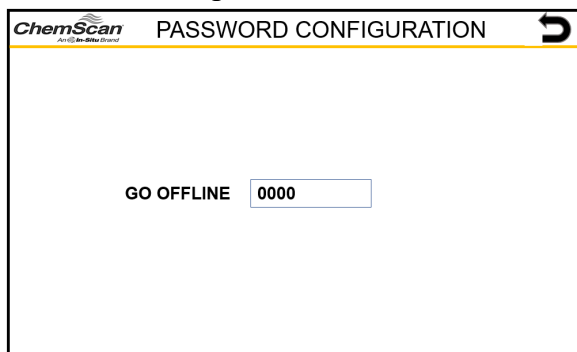
USB DRIVE button will restore the configuration stored on the external USB Drive.

3.4.4.8. Clock and Screen Settings



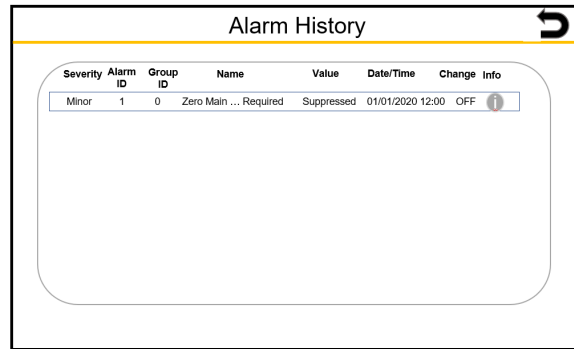
Set the clock and screen intensity.

3.4.4.9. Password Settings



Set the security code to interrupt the On-Line mode.

3.4.5. Warnings and Errors –

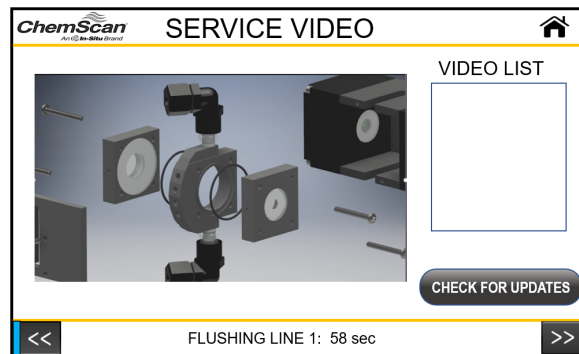


The Alarm History screen displays a table of alarm events. The table has columns for Severity, Alarm ID, Group ID, Name, Value, Date/Time, Change, and Info. A single entry is shown with a Minor severity, Alarm ID 1, Group ID 0, and Name Zero Main ... Required. The value is Suppressed, the date/time is 01/01/2020 12:00, and the change is OFF. An information icon is present in the Info column.

Severity	Alarm ID	Group ID	Name	Value	Date/Time	Change	Info
Minor	1	0	Zero Main ... Required	Suppressed	01/01/2020 12:00	OFF	

Displays the internal operational warnings and alarms.

3.4.6. Help



Displays videos and animations of critical service items.

4. Maintenance

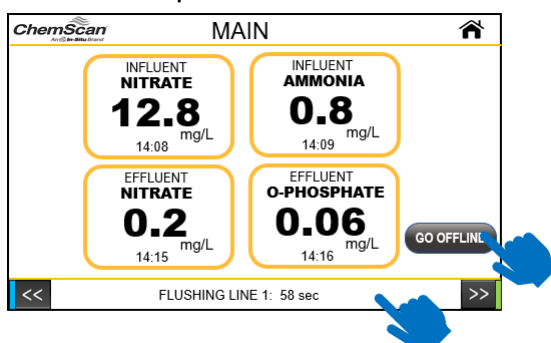
4.1. Manual Analyzer Zeroing Procedure

The ChemScan UV-Series Analyzer must be zeroed occasionally to correct for drift and flow cell fouling. The analyzer will automatically perform a zero on a regular basis (typically daily). However it is important to periodically perform a Manual Zero Operation to track the indicator numbers. This procedure simply involves rinsing the flow cell with deionized water, initiating a zero reading and testing the zero.

Items Required:

1 gallon of deionized water

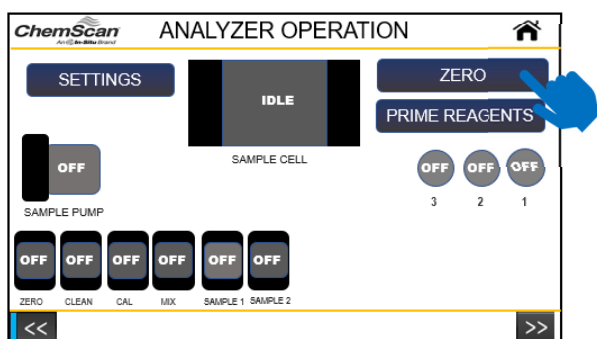
4.1.1. Interrupt on-line mode:



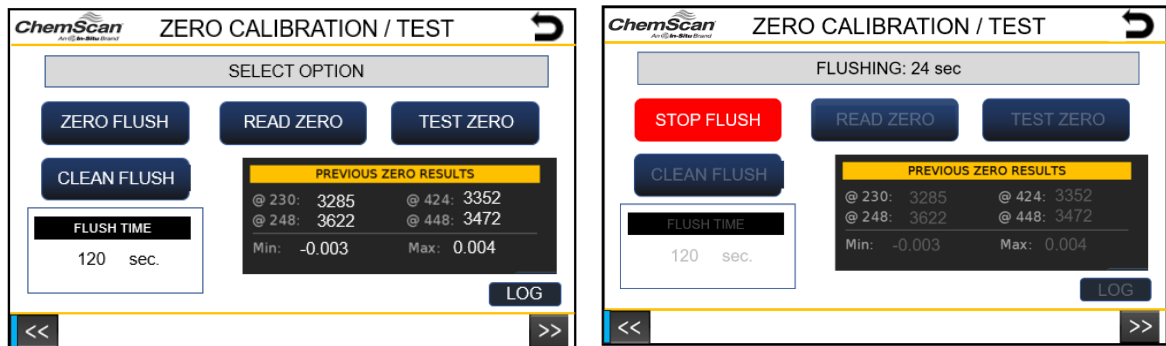
To exit the on-line mode, press the GO OFFLINE Button **OR** in **any** screen press the Analysis Message Bar at the bottom.

4.1.2. Analyzer Operation Screen

Navigate to the ANALYZER OPERATION screen, then press the ZERO button.



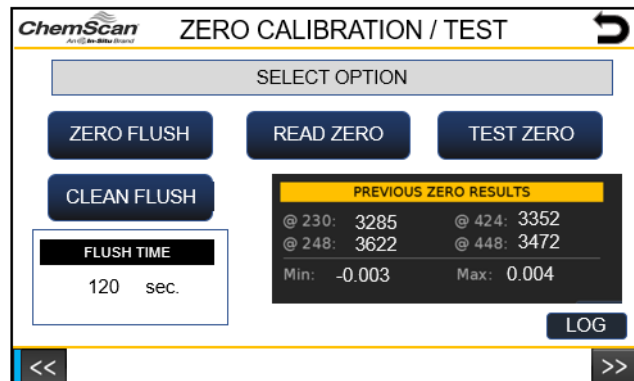
4.1.3. Analyzer Zero Screen – Reading the Zero



Press the ZERO FLUSH button to begin flushing the deionized water. Allow the water to flush for 2 minutes and press STOP FLUSH to stop flushing. Allow the water to settle in the flowcell for 10 – 15 seconds.

Press READ ZERO button to Read and store the zero-absorbance water.

4.1.4. Analyzer Zero Screen – Testing the Zero



Press the ZERO FLUSH button to begin flushing the deionized water. Allow the water to flush for 15 – 20 seconds and press STOP FLUSH to stop flushing. Allow the water to settle in the flowcell for 10 – 15 seconds.

Press TEST ZERO button to Read and store the zero-absorbance water. The “Previous Zero Results” will update when the Test Zero reading is finished.

If the MX value is greater than 0.005 or if the MN value is less than -0.005 repeat the Zeroing procedure. If the 230 or 248 values are less than 2500, the flow cell should be chemically cleaned.

4.1.5. Returning to on-line mode:

