



Troubleshooting Guide

A **level 1 fault** is a system fault. NOT a problem that the operator can correct, the unit must be returned.
 A **level 2 fault** indicates a severe problem that will usually require technical assistance from HF scientific technical service.
 A **level 3 fault** indicates a failure or a problem that usually can be corrected by the operator.
 A **level 4 fault** is simply a screen indication that one of the alarm levels has been activated.

Level 3 (self-clearing) fault conditions

Message	Description of Fault	Corrective Action
MA	4-20 mA enabled & loop open	Check 4-20 mA wiring or turn off 4-20mA if not used
CAL	Calibration invalid –not accepted	Recalibrate if needed
WATR	No water flowing	Check water flow
FAST	Intake water flow too fast	Set flow rate (see section 9.2)
SLOW	Sample cuvette filling too slowly	Set flow rate (see section 9.2)
PURG	Sample cuvette has slow purge	Check drain lines
NPRG	Sample cuvette not purging	Check drain lines
ISOL	Problem with intake solenoid	Check wiring, check for clogged solenoid
PSOL	Problem with purge solenoid	Check wiring, check for clogged solenoid
RGNT	Problem with reagent	Check reagent and lines
GLAS	Dirty cuvette	Replace or clean cuvette
WCAL	Water Level Calibration Invalid	Clear fault (see section 9.3)
REPL	Reagents Expired	Replace reagents and press PRIME

Diagnostic Chart

Symptom	Cause	Cure
Lower display shows MA	4-20 mA loop open	Check wiring. See sections 4.3.4 and 7.2 of manual
Lower display shows FAIL	Major system fault	Refer to section 9.1 of manual
Readings are erratic	(1) Bubbles in solution (2) Debris in flow	(1) See above (2) Install T strainer at inlet
Readings are lower than expected	(1) Condensate or leaky measurement cuvette (2) Measurement cuvette dirty (3) Reagents bad or expired (4) Buffer reagent not being dispensed	(1) Install desiccant cartridge kit (2) Replace or clean cuvette (3) Replace reagents (4) Check buffer lines and check values.
Upper display flashes	Sample Over-Range	Check sample. Sample may be too high to read.
Upper display shows nOnE while attempting to calibrate	No current reading displayed	Wait for CLX to post a reading

Instrument Calibration

The instrument was tested prior to leaving the factory. Since it operates from a pre-determined calibration curve, no calibration is required.

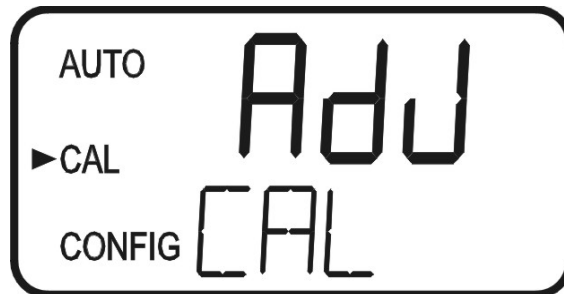
Calibration can easily be performed if required. The method is by comparison against another instrument, such as a laboratory or hand held photometer (such as HF scientific's Chlorine Pocket Photometer).

There are two points of calibration. The slope or gain and the zero (offset). To perform the zero the instrument must be plumbed to a sample of known chlorine free water such as de-ionized water for a zero adjustment.

Slope (gain) Calibration Procedure

It is important that the chlorine level be quite stable to use this method. The comparison will be made against a trusted measurement such as a chlorine photometer, spectrophotometer, or an amperometric titration.

1. Obtain a grab sample of the flow.
2. Measure the value of the sample with one of the methods shown above.
3. On the CLX, press the **MODE/EXIT** button once. The screen is shown below.



4. Press \leftarrow to enter the calibration adjustment.



5. The screen will show the current reading on the CLX. Using the \blacktriangle & \blacktriangledown buttons adjust the reading to agree with the laboratory method or portable photometer.
6. Press \leftarrow to accept the calibration adjustment and return to **AUTO** measurement mode.
There is a limit to the size of the change that can be made to a current reading. The upper limit is the current reading times 1.5. The lower limit is the current reading divided by 1.5.



Ensure a reading is posted to the display before calibrating to avoid a nOnE error.

If the CLX displays a CAL error or the calibration was incorrectly performed, it may be desired to restore the factory calibration. All factory defaults including factory configurations can be reset by holding down the \blacktriangle button and then pressing and releasing the \leftarrow button then releasing the \blacktriangle button.