

Boiler Conductivity Calibration

Step 1:

Push the **SET UP RUN** button to get this screen. From here push **CALIBRATION** (Button 2) to go to the next screen.

```

      >HOME SETUP<
SETPOINTS          DATE/TIME
CALIBRATION        CONFIGURE
TIMERS             HISTORY
CUSTOMIZE          WATER METER
ALARMS             RELAYS
  
```

Step 2:

This is the Calibration Screen. From here push **SENSORS** (Button 1) on a MegaTron SS or select the appropriate **SYSTEM** number on a multi-system MegaTron.

```

      >CALIBRATION<
SENSORS
  
```

Step 3

From here push **SYSTEM COND** (Button 1) to go to the next screen.

```

      >CALIBRATION<
SYSTEM COND
*SYSTEM pH
  
```

Step 4:

This is the Conductivity Calibration Screen. From here push **CALIBRATE** (Button 1) to go to the next screen.

```

      >CONDUCTIVITY CALIBRATION<
CALIBRATE          Cal = 10.01
RESET ZERO
  
```

Step 5:

This is the calibration pop-up screen with a live conductivity and A/D reading. If the sample method is not continuous use the down arrow to force on the blowdown, the relay LED will come on. Leave the relay on for 1-2 minutes to get a fresh hot sample on the electrode.

```

      >CONDUCTIVITY CALIBRATION<
CALIBRATE          00000 RELAY ON
[      ] uS/cm (A/D: 00000)
USE DOWN KEY TO CHANGE, PRESS
ENTER TO ACCEPT OR BACK TO ERASE
  
```

- If using the **Timed Sampling** method and the conductivity and A/D reading are stable after 1-2 minutes use the number keys to enter desired conductivity reading filling in all 5 spaces (i.e. 02650) then press **ENTER** to finish calibration.
- If using the **Sample and Hold** method use down arrow to force relay back off after 1-2 minutes and wait 15-30 seconds. If the conductivity and A/D reading are stable use the number keys to enter desired conductivity reading filling in all 5 spaces (i.e 02650) then press **ENTER** to finish calibration.
- If using the **Continuous Sample** method the relay does not need to be activated. If the conductivity and A/D reading are stable use the number keys to enter desired conductivity reading filling in all 5 spaces (i.e. 02650) then press **ENTER** to finish calibration.

Note: If reading is bouncing by more than 100 in the calibration pop-up window see **Calibration Troubleshooting** on next page.

Calibration Trouble Shooting

The A/D number in the calibration pop-up screen has a scale of 0-32,767 on MG & SS units and 0-45,000 on XS units. If the A/D reading is jumping by more than 100 it can indicate the electrode is being exposed to steam. Adjust your throttling valve or switch to a Sample and Hold method instead of Timed Sampling to prevent flashing.

If the A/D reading is at the extreme low end of the range with hot water on the electrode, this indicates a dirty or faulty electrode or an opening in the wiring run. Check electrode for deposits that might reduce exposure to the water between the two references. The wire run can be checked by shorting the two conductivity wires at the electrode going back to the controller. This shorted input should read close to the full A/D scale in the calibration pop-up screen.

If the A/D reading is at the extreme high end of the range, this can indicate a short in the electrode or wire run or stray current in the sample stream piping.

The Cal factor is an indication of how far the conductivity value has been calibrated from its factory default value. Typical Cal factors for boiler applications will generally be in the 8 to 18 range. Cal factors outside of this range accompanied by conductivity tracking issues and/or a decreased conductivity measurement range could indicate that the conductivity reading has been repeatedly calibrated without cleaning the sensor. To bring this factor back in line, perform the following procedure:

1. Remove and clean the conductivity sensor using the procedure described in the boiler electrode cleaning procedure below.
2. With the sensor still out of the sample line (clean and dry), verify that the A/D is below 200 in the Calibrations screen press cancel then go to the RESET ZERO button to remove all previous calibration entries.
3. Reinstall the sensor and perform the boiler conductivity calibration steps shown at the beginning of this guide.

Cleaning and Inspection

The only required maintenance for normal uninterrupted operation of your blowdown controller is cleaning of the electrode(s). After initial start-up, test controller reading against a calibrated tester frequently to determine necessary testing and cleaning. Since each application is unique the amount of cleaning will be unique. As electrode becomes fouled it will read lower than expected.

Boiler Electrode Cleaning Procedure

1. Record the current conductivity reading.
2. Isolate the electrode from the boiler, bleed pressure from the line, allow electrode to cool and remove.
3. Use a clean emery cloth or mild acid to clean electrode making sure the sensor tip in the hole is clean.
4. Reinstall electrode and calibrate to a reliable test reading.

Storage

When a boiler is off-line for a season, it is best to store the electrode dry. It can be kept in the drained sample line with the drain valves open during the layup season. Clean and inspect the electrode at this time.