

ANALOG OUTPUT TROUBLESHOOTING

Tools Needed:

- Phillips-head screwdriver
- Digital Multimeter

Scenario 1

If the analog value being output doesn't correspond with the value being displayed on the Controller:

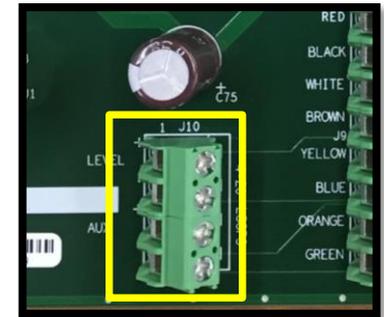
1. If the analog value is 4mA or 20mA, then the sensor may be in Echo Loss. An Echo Loss message will be displayed with the reported value on the Controller. In this case, refer to the instructions regarding Echo Loss Troubleshooting.
2. If the sensor in question is not already selected, press **Change Sensor**, use the arrow keys to scroll to the desired sensor, then press **Select Sensor**.
3. In order to verify the analog set points,
 - a. For EchoSmart systems, go to **Modify Settings** → **Advanced Settings**.
 - b. For FilterSmart systems, go to **Modify Settings**.
4. Check to see if the 4mA Set Point and 20mA Set Point settings match the sensor's corresponding set points at the on-site PLC/SCADA/DCS system. If not, use the arrow keys to scroll to the setting that needs to be modified and utilize the **Increase & Decrease** options to change the value. Press **Back to Display** to save any changes and to return to the display screen.
5. If any changes were made to the set points, check to see if the analog value now corresponds with the locally reported value on the Controller.

| Sensor Name | Sensor Name | Addr | 2 |
|--|---|-----------------------|-------|
| ADVANCED SETTINGS | | | |
| Tank Configuration | | Tracking | |
| Max Range | 13.2 | Sensitivity | 20 |
| Measure Level | 240 | LG Min | 2.0 |
| Wiper Timing | 240 | RG Min | 2.0 |
| Acoustics | | Analog Outputs | |
| Gain Band | 20 | 4mA Set Pt | 0.0 |
| Gain Increment | 0.1 | 20mA Set Pt | 12.0 |
| Save GB MP | OFF | Echo Loss | OFF |
| GB Midpoint | 35 | Echo Delay | 60 |
| Wall Zone | 0.5 | Echo Loss Action | Cycle |
| Wall Zone AG | 40 | Level Loop Test | |
| Sound Speed | 4882 | Aux Loop Test | |
| Use the arrow keys to select the parameter you wish to modify. | | | |
| Level: 2.7 ft | Press 'Change Sensor' to select a different sensor. | | |
| Gain: 20 | | | |

Scenario 2

If the analog value being output is a zero value or equal to zero milliamps:

1. Locate the "4-20 Loops" connector of the unit that shows a zero value or reports zero milliamps.
2. Temporarily remove any cables currently installed on the 4-20 Loops connector.
3. Set the Digital Multimeter to read milliamps.
4. Use the multimeter to check the current between the "LEVEL +" and "LEVEL -" terminal locations.
 - If the reported value is between 4mA and 20mA, then there may be a problem at the PLC/SCADA/DCS system or with the cabling between the devices.
 - If the reported value is zero, proceed to step 5.
5. Set the multimeter to read DC voltage.
6. Check the DC voltage between the "LEVEL +" and "LEVEL -" terminal locations and between "Yellow" & "LEVEL -" (voltage should be present on one of the checks).
 - If the reported value is 24 VDC or greater and the mA output is zero, then there is likely a problem with the sensor.
 - If the reported value is 24 VDC or greater and the mA output is between 4mA and 20mA, then the equipment is working correctly.
 - If the reported value is 0 VDC, then there is likely a problem with the Controller or Power Supply unit being tested.



NOTE: If the analog output exhibiting a problem is the AUX loop instead of the LEVEL loop, perform the same checks as above between the "AUX +" and "AUX -" terminal locations (between "AUX +" and "AUX -" and between "Orange" and "AUX -" for voltage check).

If the above steps do not resolve the issue, please contact Analytical Technology, Inc.
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