# Aquatrac Instruments

# **Application Note**

Loop Powered, Non-Contact Conductivity Measurement AN010-24 For SmartAS & SmartFLEX

## 1. OBJECTIVE

Details the installation & operation of Part# **NCCS-10K**, Loop powered, non-contact, conductvity sensor & sensor entry, Part# **Hdr\_CN**.

#### 2. SPECIFICATIONS

| Parameter   | Value                      | Notes                                    |
|-------------|----------------------------|--|
| Range       | 0 – 10,000 uS = 4-20mA     | Fixed range.                             |
| Loop Power  | 11-24 VDC                  | Controller supplies 11VDC @ 20mA         |
| Loop Load   | 600 ohm max @ 24VDC        | Controller terminates loop with 50 ohms  |
| Pressure    | 145 psi @ 75F              | Rated for in-line and immersion, cooling |
|             | 10 Bar @ 25C               | tower applications                       |
| Temperature | 120F, 50C Max              | Conductivity, thermally compensated,     |
|             |                            | RTD Pt100                                |
| Cable       | 2 x AWG22, overall shield. |  |

#### 3. INSTALLATION

Install the sensor, as shown on page 3 in the sample stream piping header.

# NOTES:

- 1. Removing the 1 1/2" inlet & outlet reducers allows installs in line sizes from 1" to 1 ½"
- 2. Flow rate reduction and possible solids drop-out occurs on any increase in line size; vertical installation is therefore strongly recommended.
- 3. Sensor cabling may be extended in AWG22, single pair overall shield.
- 4. Any unused 4-20mA input 'G' though 'N' may be used for sensr measurment. Typical connection for controller input 'G' shown in the following table.

| Controller<br>Terminal | Sensor Wire<br>Color | Function                                 |
|------------------------|----------------------|--|
| GP                     | White                | 4-20mA Loop Power, 12VDC                 |
| G+                     | Black                | 4-20mA Loop Return                       |
| G-                     | Clear/Shield         | Shield, controller and electrical ground |

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#### 4. CONTROLLER CONFIGURATION

The following details configuration on controller input 'G'.

Any unused analog input 'G' through 'N' may be configured for the non-contact sensor.

# **Verify Controller Software Version**

- 1. Connect to the controller using Tackster at the 'configure' level password.
- 2. Right click on the controller icon in your active view & select **View Configuration**.
- 3. Verify the the controller is running Version 4 operating software.

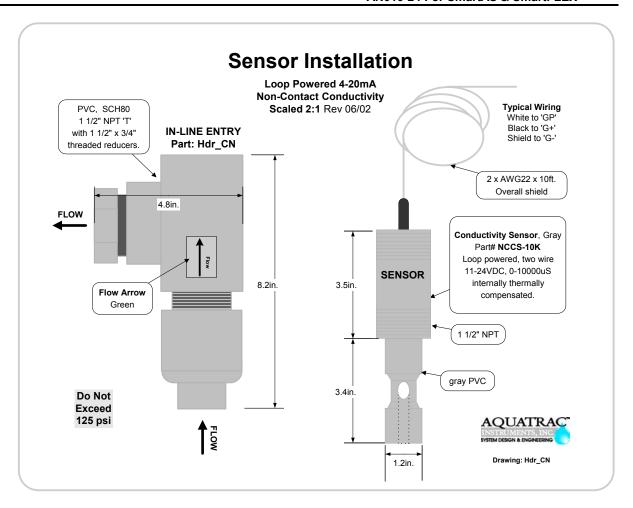
Prior to Version 4, Trackster Terminal is required to configure an analog input for a new sensor.

#### **Controller Software Version 4 Instructions**

- 1. Click Views then select Diagnostic View II
- 2. On the menu line at the top of the screen, select OPTIONS / PREFERNCES / VIEWS and verify that both Gray Out Sensors & Display Parameter Numer are both checked.
- Right click on & Enable Sensor 'G' (You see the sensor letter until you Enable).
- 4. Right click on Sensor 'G', select Calibrate Sensor then select 4-20mA Auto Calibrate
- Enter 0 for 4mA and 10000 for 20mA. You'll see GAIN = 12.5 & OFFSET = -2500.
- 6. The conductivity value will update within 15 seconds.
- 7. Right click on 'G' and **Set Units** = 'US' and **Set Descriptor** = 'Conductivity'. Setting units to upper case allows the 4-20mA Auto Calibrate option.

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