

**ANALOG INPUT AIX1**

**DESCRIPTION OF OPERATION**

**Introduction**

Analog Input AIX1 allows the connection of a 4-20mA Analog Level Input signal to the Controller for the control of the pumps, level alarms and to provide the Analog Level Input data to SCADA.

Analog Input AIX1 is non-isolated unless the Controller is ordered with the “S” option.

The Analog Input AIX1 is Transient Protected and has a 100Ω input load resistor and use a 12-bit Analog to Digital Converter to measure the input signal.

The Analog Input AIX1 is factory calibrated to have the following Analog Input Status values:

819 @ 4.0mA      4095 @ 20mA

To perform a factor level calibration of AIX1 see Section X.

**Status**

The status of the Analog Input AIX1 in raw form is made available to be read by SCADA and is available in the menu from Parameter A.100. The data is scaled to 819 @ 4.0mA and 4095 @ 20mA.

**Function**

The Analog Input AIX1 is assigned the Function of “Analog Level Meter ALM1”. The analog data from AIX1 is sent to the “Analog Level Meter ALM1” for display and for use by the Controller to perform Pump Control and Level Alarms.

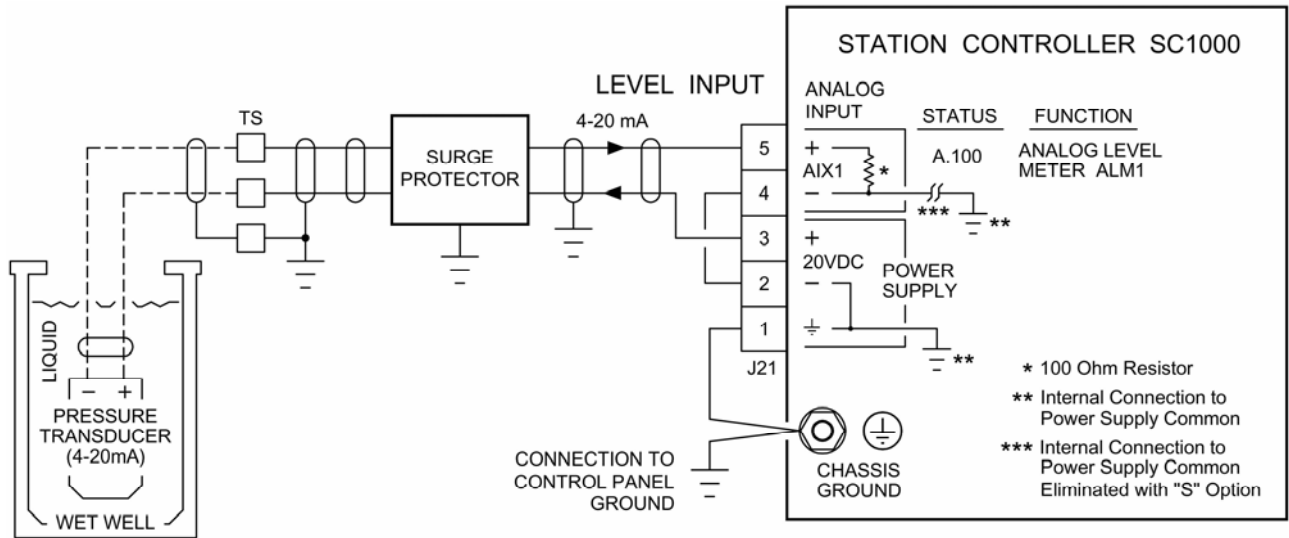
The Analog Level Meter ALM1 scales the raw analog data into feet for display on the front of the Controller. The scaled Level Input data is also made available to SCADA from Parameter ALd.1 (Modbus Register 42141) and from Parameter Ld.11 (Modbus Register 40011).

For more information about the Analog Level Meter ALM1 see Section M.

User / Operator Info.	SCADA	Description of Parameters and SCADA Notes	
Parameter	Register Address		
<b>Analog Input Status</b>			
A.100	40061	Analog Input - AIX1	Note: Parameter A.100 is the 12-bit Analog to Digital Converter input value that is conditioned and factory calibrated to the following values: 819 @ 4.0mA      4095 @ 20mA

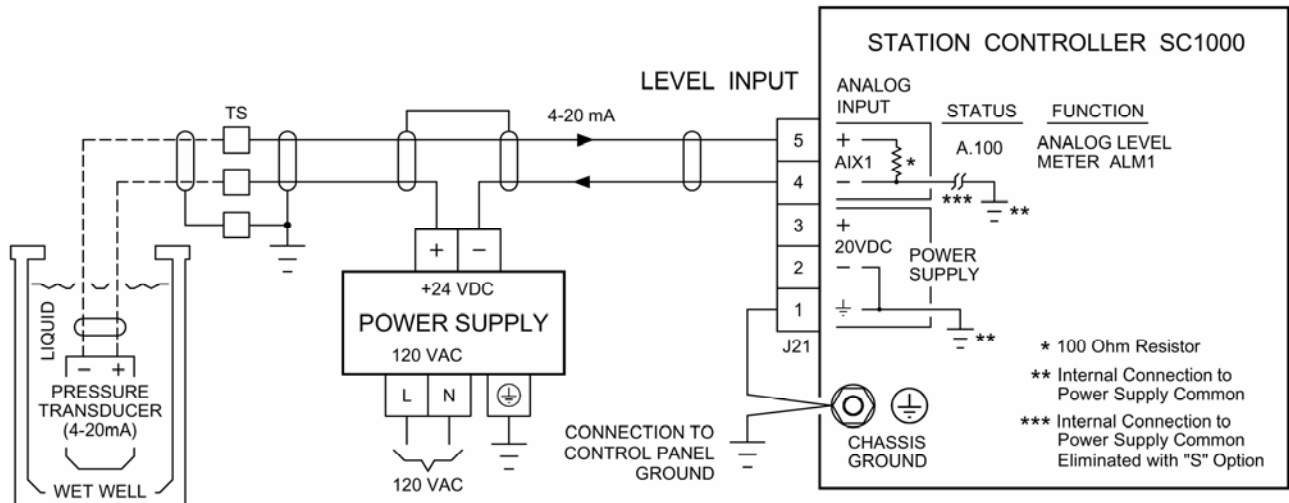
# ANALOG LEVEL INPUT EXAMPLES

## Example Using the 20VDC Power Supply on the SC1000



Analog Input AIX1 in this example does not need to be Isolated, so the Controller does not need the "S" Option.

## Example Using an External 24 VDC Power Supply

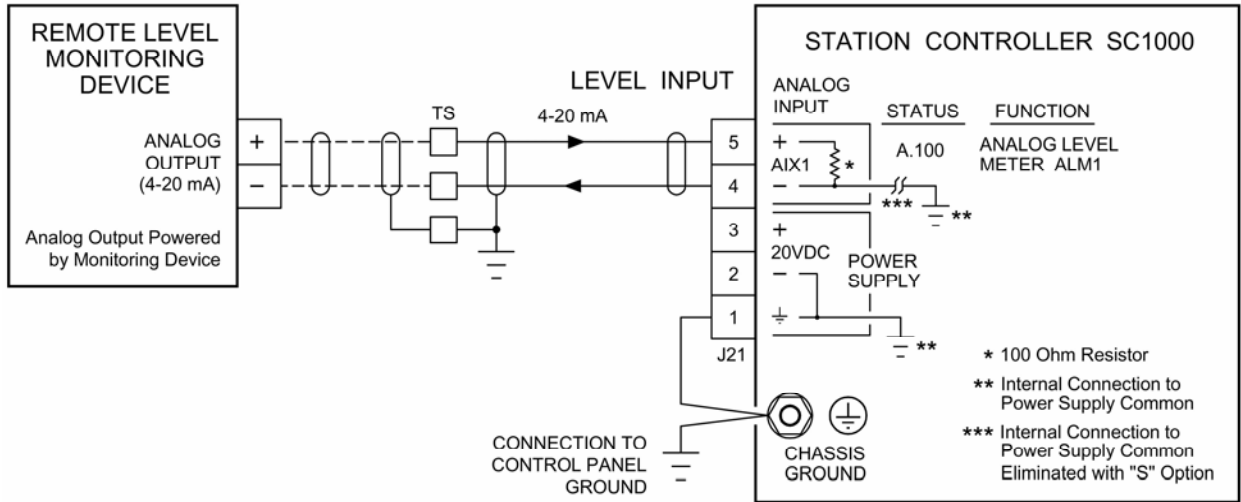


Analog Input AIX1 in this example does not need to be Isolated, so the Controller does not need the "S" Option.

**For more information on the Analog Level Input see Section M.**

# ANALOG LEVEL INPUT EXAMPLES

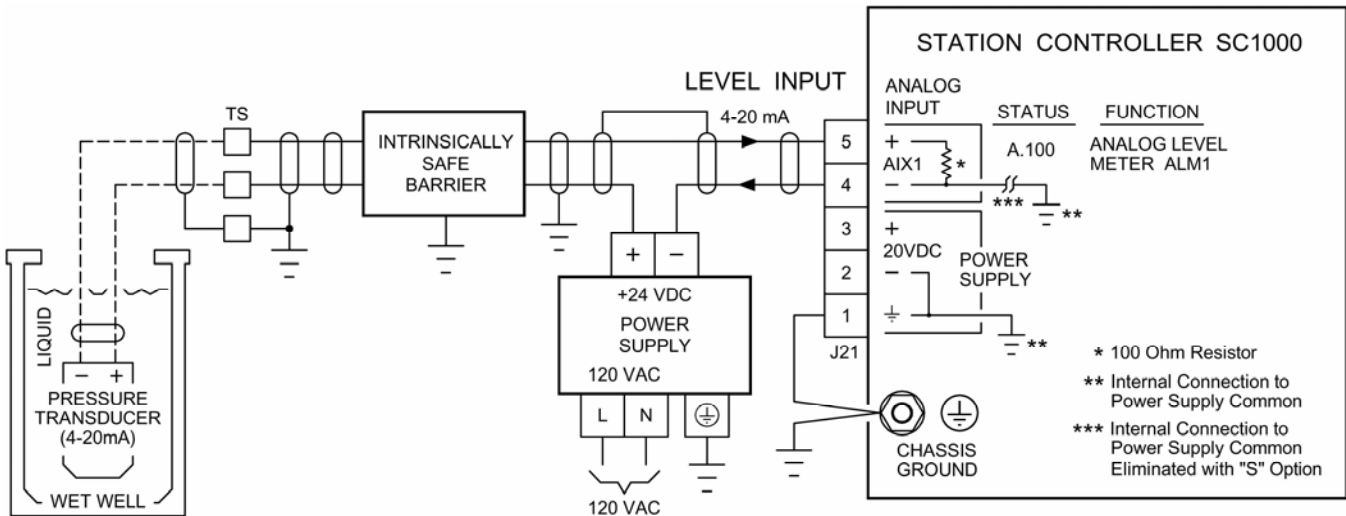
## Example of where the Analog Signal is Powered by a Remote Device



The 4-20mA signal in this example **must be Isolated from ground**. This is required to ensure that the Remote Device's Control Panel ground is not connected to the Local Control Panel's ground through the 4-20mA signal wiring. When this is the case it greatly affects the signal's integrity.

The **Controller should be ordered with the "S" Option**, unless it is known that the Analog Output from the Remote Device is Isolated from ground. The Level Input signal must be Isolated from ground at one end or the other or at both ends.

## Example using an Intrinsically Safe Barrier



An external +24VDC Power Supply is required when using an Intrinsically Safe Barrier.

Some Intrinsically Safe Barriers (due to how they are made internally and how they are connected in the circuit) can lose part of the analog signal to ground through their internal circuits. When this is the case it greatly affects the analog signal's integrity. In some cases having the "S" Option (where AIX1 is Isolated from the Controller's ground) may correct the problem.

For correctly made Intrinsically Safe Barriers that are connected correctly it is not necessary for the Analog Input AIX1 to be Isolated, so the Controller does not need the "S" Option.

**For more information on the Analog Level Input see Section M.**