

1900 Series Remote I/O Handler

The 1900 Series has a standard remote I/O interface port available through a 37-pin DB type connector located on the rear panel of the instrument. This port has outputs lines to indicate a measurement in process and binning information. Input lines are also available for start and stop control.

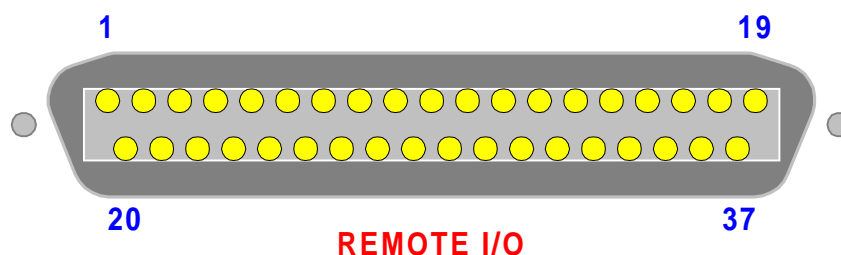


Figure 1: Remote I/O Pin Configuration

I/O	Pin	Action	&/Or	Action & Condition
Outputs:				
Busy	1	Measurement in process		
Bin 1	2	Primary Pass	Or	Secondary Pass If Binning is enabled and all Primary bin limits are OFF
			Or	All steps in sequence Pass
			Or	Step 1 in Sequence Test Fails
Bin 2	3	Primary Pass	Or	Step 2 in Sequence Test Fails
Bin 3	4	Primary Pass	Or	Step 3 in Sequence Test Fails
Bin 4	5	Primary Pass	Or	Step 4 in Sequence Test Fails
Bin 5	6	Primary Pass	Or	Step 5 in Sequence Test Fails
Bin 6	7	Primary Pass	Or	Step 6 in Sequence Test Fails
Bin 7	8	Primary Pass		
Bin 8	9	Primary Pass		
Bin 9	10	Primary Pass		
Bin 10	11	Primary Pass		
Bin 11	12	Primary Pass	&	Secondary Fail Low
Bin 12	13	Primary Pass	&	Secondary Fail High
Bin 13	14	Primary Fail	&	Secondary Pass
Bin 14	15	Primary Fail	&	Secondary Fail
Under Test	16	Opposite of Pin 1 (Busy)		
GND	20-37	Signal ground		
Inputs:				
Stop	18	Stops the measurement in process		
Start	17	Starts the measurement		

Output Signals & Input Lines

Output Signals

All output lines are negative if true from open collector drivers that pull each signal line to a low voltage, signal ground, when the signal is active (true). Each external line must be pulled up to a positive voltage between 5V and 24V. The pull up resistor is required to limit the current to < 20mA. Outputs are controlled via a Texas Instruments TPIC6273DW Power Logic octal D-Type Latch. Schematic is shown in Figure 2.

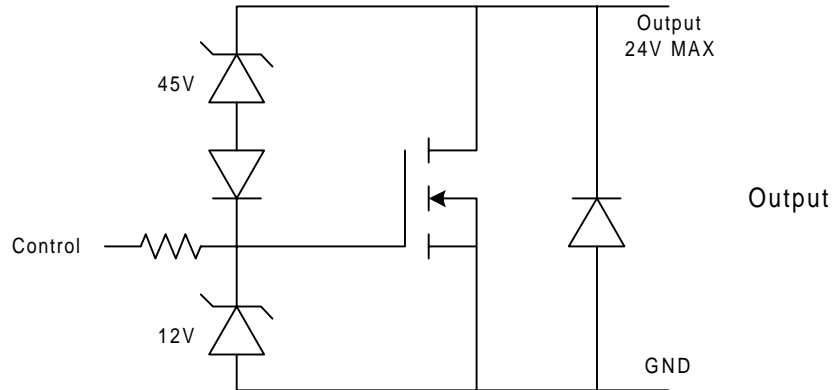


Figure 2: Outputs

Input Lines

Input signals are active low and require a positive external voltage that must pull the signal down below 0.4V, ground. Maximum input voltage is $V_{CC} \pm 0.5V$ and is stated in the 1900 instruction manual as 5V. For the inactive state, the external circuit must allow the signal line with its internal $3.3k\Omega$ to float above 2.5V, but not above 5V. A pull up resistor or current limiting resistor is not required for operation. The Input signals are tied directly to the SET line of an 74AC74 D-Type Flip-flop. Schematic is shown in Figure 3.0.

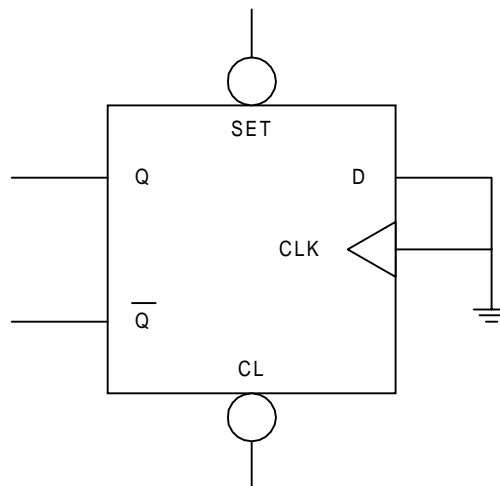


Figure 3.0: Inputs

Connection of Switch

This example shows the connection of a simple switch to start a measurement and LED to indicate if bin 1 is true, to the 1900 Series remote I/O. When the switch is closed ground is connected to Pin 17 and the 1900 Series LCR meter will perform a measurement. A pull up resistor is not required for operation as pin 17 will float high to 5V but is shown for consistency. Note: Trigger Source in the utilities menu of the 1900 must be set to “External” and the 1900 should be programmed for binning with high and low limits for bin 1. Please refer to appropriate sections of the instruction manual.

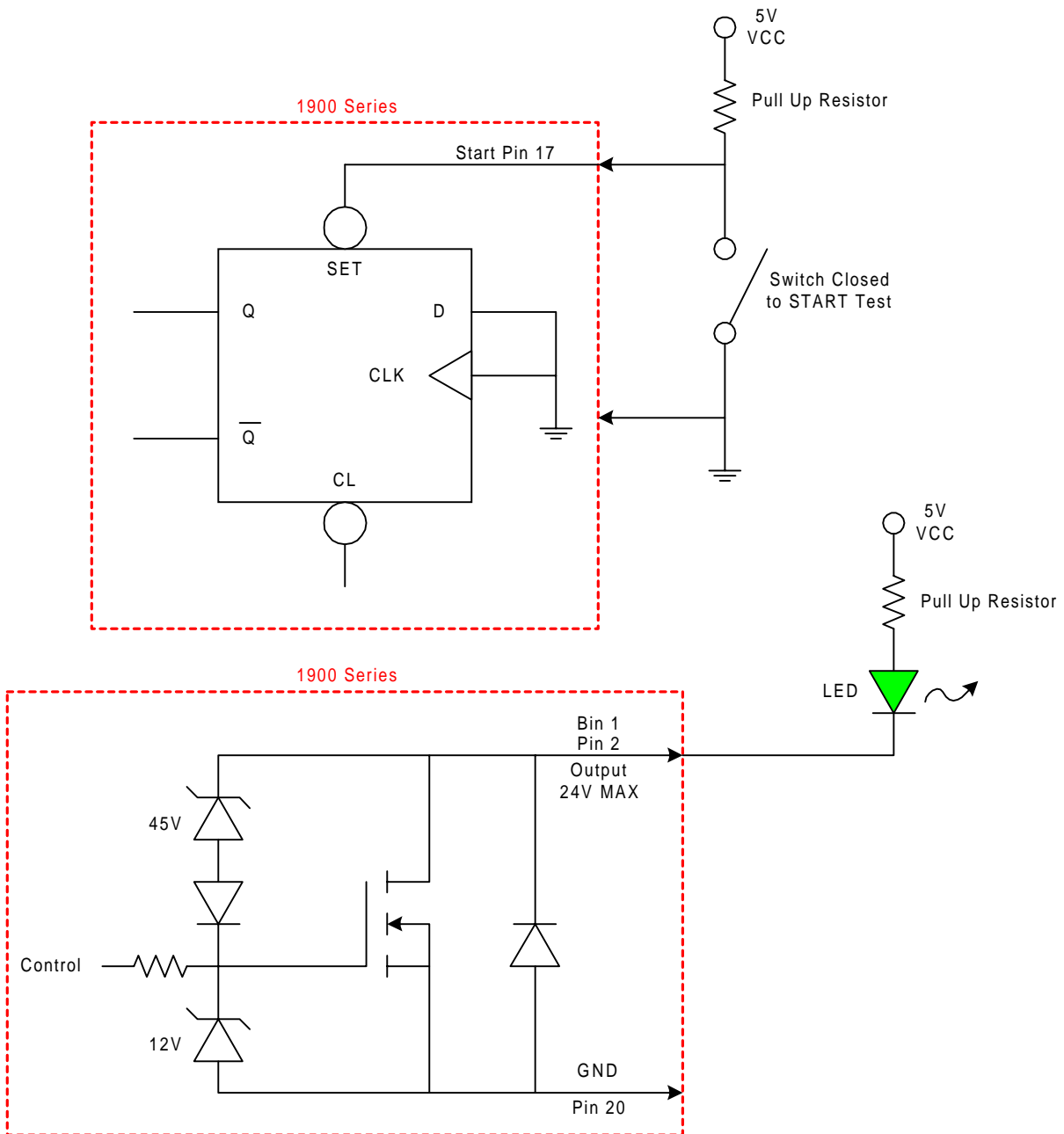


Figure 4.0: Switch & LED Connection

Connection to a 24V PLC

The 1900 Series can also be connected to a PLC. Note: Trigger Source in the utilities menu of the 1900 must be set to “External” and the 1900 should be programmed for binning with high and low limits for bin 1. As the inputs of the 1900 Series cannot exceed 5V, a 5V Zener diode, 4.7V to 5.1V can be used, and current limiting resistor are used to protect the 1900 Series.

To start a measurement the 24V control must go to ground or 0V. If the measured value of the component is within the high and low limits programmed for bin1, bin 1 is true so pin 2 on the remote I/O will go to 0V or ground, on completion of the test. This results in the signal to the PLC going from 24V to ground or 0V on completion of the test.

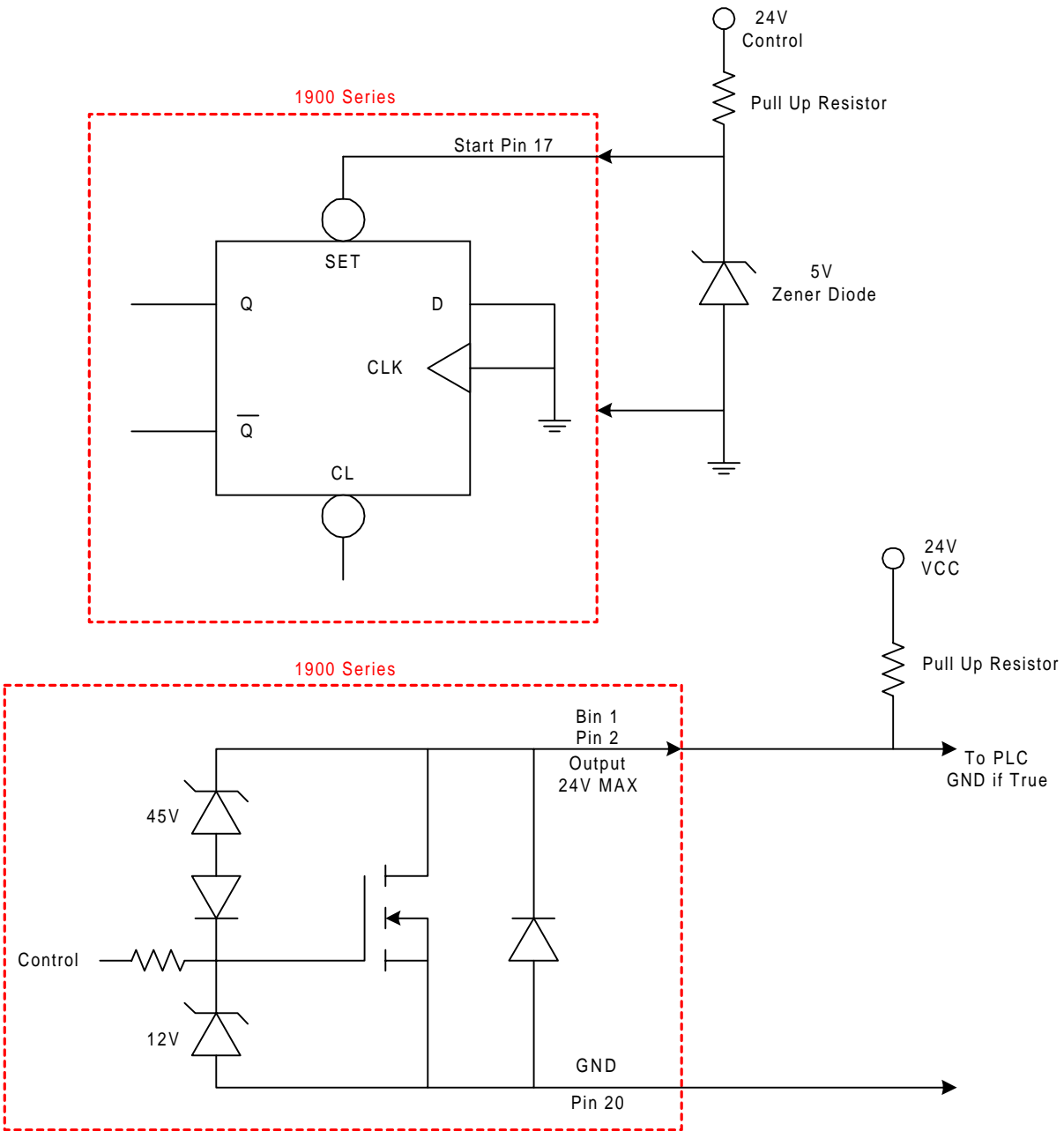


Figure 5.0: Connection to PLC

1900 Series Precision LCR Meters

The 1900 Series Precision LCR Meters are highly accurate laboratory quality instruments that provide solutions to testing needs quality assurance, materials testing and production line environments. The remote I/O interface is quite useful in these applications and especially in component handling.



Figure 6.0: 1920 Precision LCR Meter

If there are further questions on the 1900 Series remote I/O interface please contact QuadTech for applications support. The 1900 Series Instruction manuals can be accessed and downloaded in pdf format at www.quadtech.com/manuals.

For complete product specifications on the 1900 Series Precision LCR meters or any of QuadTech's products, visit us at <http://www.quadtech.com/products>. Do you have an application specific testing need? Call us at 1-800-253-1230 or email your questions to info@quadtech.com.

The information presented here is subject to change and is intended for general information only.

© **QuadTech, Incorporated**

Telephone: 1-800-253-1230, Website: <http://www.quadtech.com>

Printed in the U.S.A.

P/N 035114

March 2002