

# *iQ Series*

ULTRASONIC PROBE SYSTEM

## *AL*



## Automation Interface Guidelines



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## System Input/Output Cable Pinout

Pin	Color	Description
1	BLK	ENABLE OUT
2	WHT	ENABLE IN
3	RED	SYSTEM OVERLOAD STATUS OUTPUT
4	GRN	ULTRASOUND ACTIVE STATUS OUTPUT
5	ORN	ANY FAULT STATUS OUTPUT
6	BLU	NO CONNECTION
7	WHT/BLK	ISOLATED OUTPUT COMMON ( <i>SOURCING OR SINKING OUTPUTS</i> )
8	RED/BLK	SYSTEM READY STATUS OUTPUT
9	GRN/BLK	NO CONNECTION
10	ORN/BLK	NO CONNECTION
11	BLU/BLK	Fault Reset Input
12	BLK/WHT	ULTRASOUND ACTIVATE/CYCLE START INPUT
13	RED/WHT	ISOLATED INPUT COMMON ( <i>SOURCING OR SINKING INPUTS</i> )
14	GRN/WHT	NO CONNECTION
15	BLU/WHT	GROUND (CHASSIS)

**Note:** For detailed signal descriptions, please refer to the product manual.

## System Input/Output Cables

Part Number	Length
200-1380-03M	3 meters
200-1380-05M	5 meters
200-1380-07M	7 meters
200-1380-09M	9 meters
200-1380-11M	11 meters
200-1380-13M	13 meters

#### **Pin 1 (Enable Out)**

This is a current limited voltage source output intended to connect to an E-Stop circuit. If an E-Stop circuit is not used, Pin 1 must be connected to Pin 2 for ultrasound operation to be enabled.

#### **Pin 2 (Enable In)**

The output from the E-Stop circuit is connected to this pin when an E-Stop circuit is used. Otherwise, this pin must be connected to Pin 1 for ultrasound operation to be enabled.

#### **Pin 3 (System Overload Status Output)**

Pin 3 is an isolated digital NPN/PNP status output that activates when an output overload condition is tripped. This output will be an open circuit if an output overload condition is not tripped. This output will remain latched ON until the U/S Activate input is switched OFF and then ON again.

#### **Pin 4 (Ultrasound Active Status Output)**

Pin 4 is an isolated digital NPN/PNP status output that activates when the system is delivering ultrasonic power to the load attached to the ultrasound output connector. This output will be an open circuit when the ultrasound output is off.

#### **Pin 5 (Any Fault Status Output)**

Pin 5 is an isolated digital NPN/PNP status output that activates whenever any fault condition is detected that inhibits ultrasound output and normal system operation. This output will be an open circuit when no system fault conditions are active.

#### **Pin 6 Open Connection.**

#### **Pin 7 (Isolated Output Common)**

Pin 7 is electrically isolated from chassis ground. This common line should be connected to the negative output of a user-provided isolated 24VDC power supply for a PLC sourcing input card. For a PLC Sinking input card this line is connected to the positive output of the isolated 24VDC power supply.

#### **Pin 8 (System Ready Status Output)**

Pin 8 is an isolated digital NPN/PNP status output signal. The signal will activate when the system is ready to begin a weld cycle. This output will be an open circuit when the welding process controller determines that the next welding cycle cannot be started.

#### **Pin 9 (Open Connection).**

#### **Pin 10 (Open Connection).**

#### **Pin 11 (Open Connection).**

#### **Pin 12 (Ultrasound Activate/Cycle Start Input)**

Pin 12 is an isolated input used to activate the generator ultrasound output. Activation of this control input will switch the ultrasound output ON, and deactivating this signal will switch ultrasound OFF. This input signal will also function as a cycle start input, where the ultrasound activation and timing are completely under the control of the process controller. Depending on the welding process controller setup, this input signal could be activated momentarily to start a welding cycle.

#### **Pin 13 (Isolated Input Common)**

Pin 13 is electrically isolated from chassis ground. Using sourcing (PNP) output drivers, this common line would be connected to the automation system power supply common. Using sinking (NPN) output drivers, this common line would be connected to the automation system positive supply output.

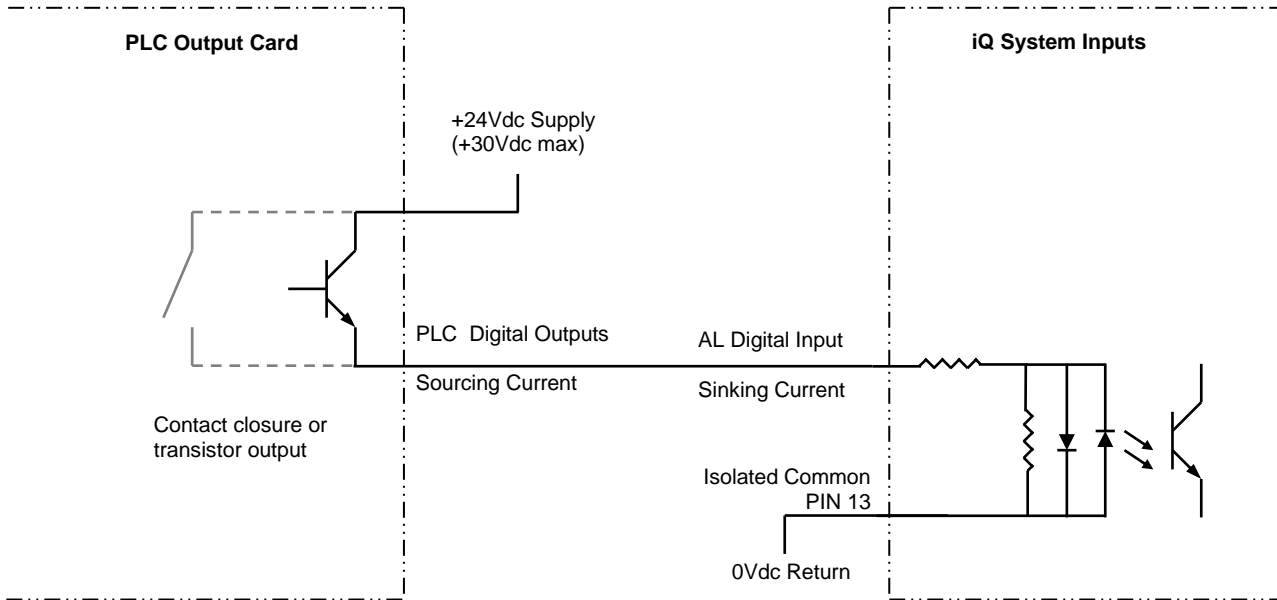
#### **Pin 14 (Open Connection).**

#### **Pin 15 (Chassis Ground).**

## Connecting System Inputs

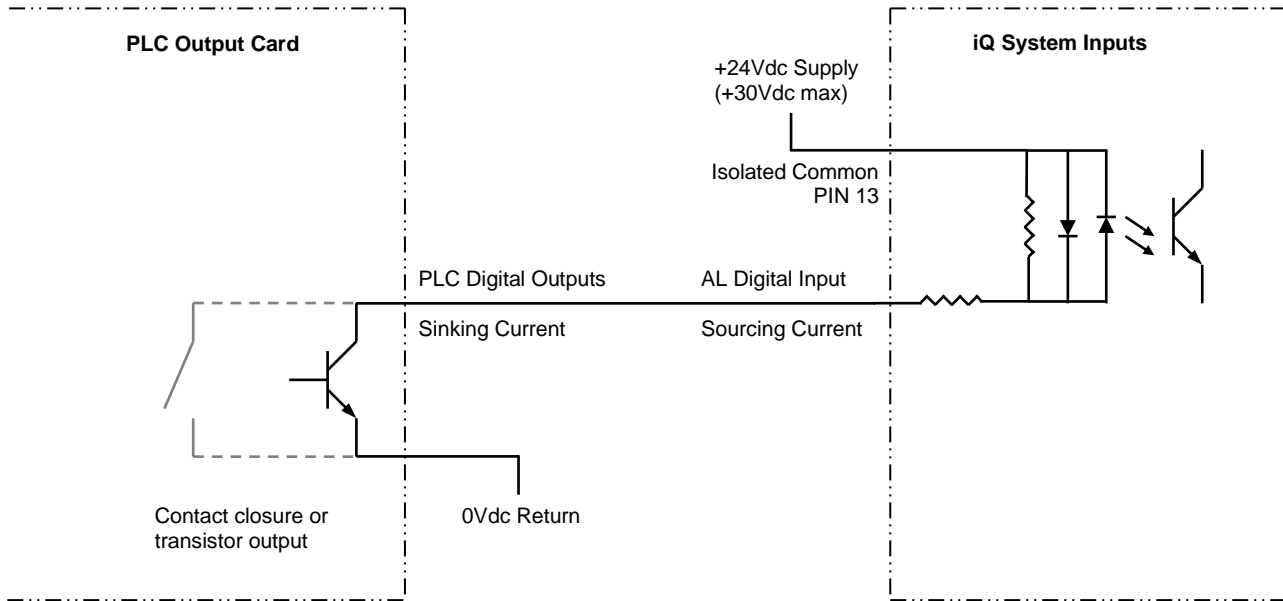
All System Inputs are optically isolated from the internal circuits and can be connected to sinking or sourcing PLC output cards. The inputs will draw approximately 10mA with a 24Vdc supply. The Systems Inputs can also be configured for a contact closure if necessary.

### PLC Sourcing Output Card



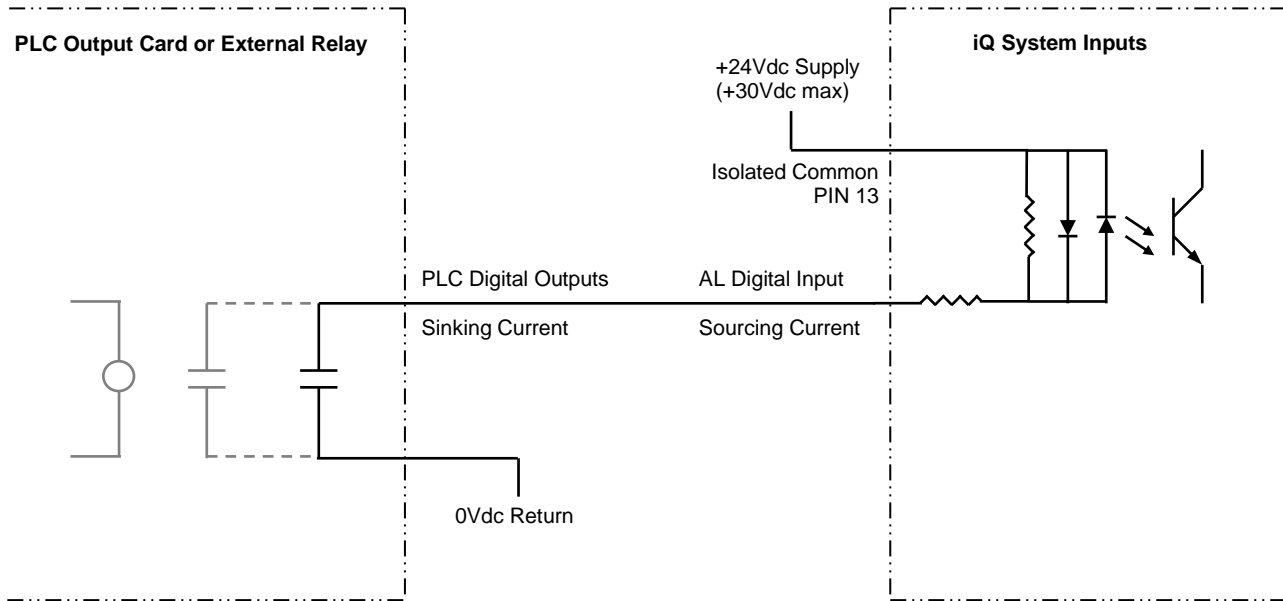
**Warning:** Any connection to the Ultrasound Activation/Cycle Start Input (Pin 12) should be disabled during an emergency stop condition. It is critical that the isolated common is connected to the positive supply or ground.

#### Connecting a PLC Sinking Output Card



**Warning:** Any connection to the Ultrasound Activation/Cycle Start Input (Pin 12) should be disabled during an emergency stop condition. It is critical that the isolated common is connected to the positive supply or ground.

#### Connecting a Relay Contact Closure

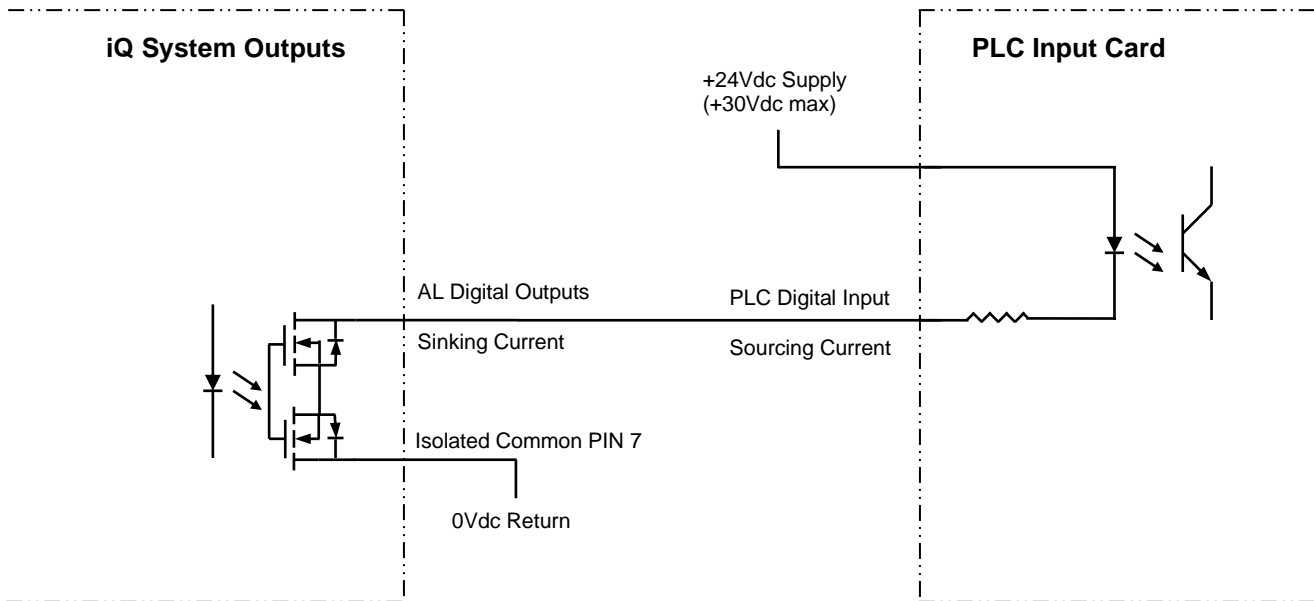


**Warning:** Any connection to the Ultrasound Activation/Cycle Start Input (Pin 12) should be disabled during an emergency stop condition.

## Connecting System Outputs

All System Outputs are optically isolated from the internal circuits and can be connected to sinking or sourcing PLC input cards. The outputs can sink or source a maximum of 25mA.

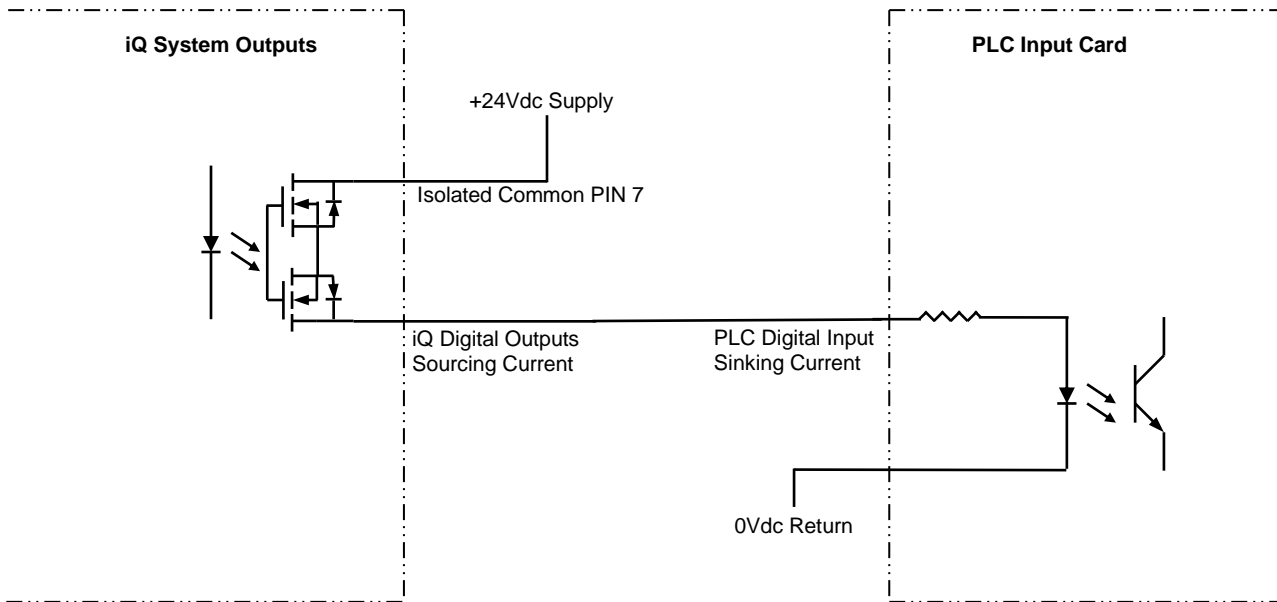
### PLC Sourcing Input Card



**Note:** All System Outputs share the same Isolated Common (J3-24). It is critical that the isolated common is connected to the positive supply or ground.



#### Connecting a PLC Sinking Input Card



**Note:** All System Outputs share the same Isolated Common (J3-24). It is critical that the isolated common is connected to the positive supply or ground.

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