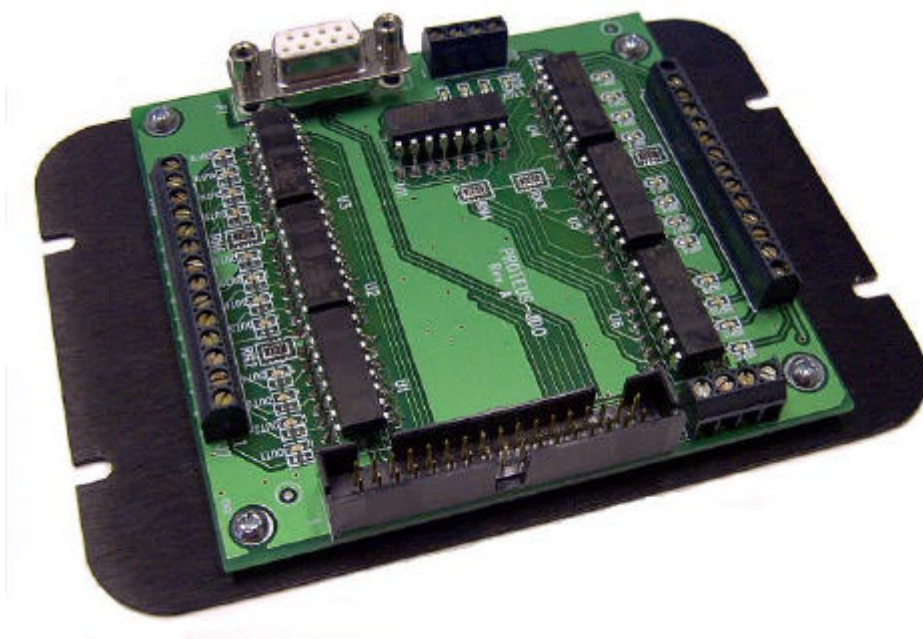


PROTEUS JDO Manual



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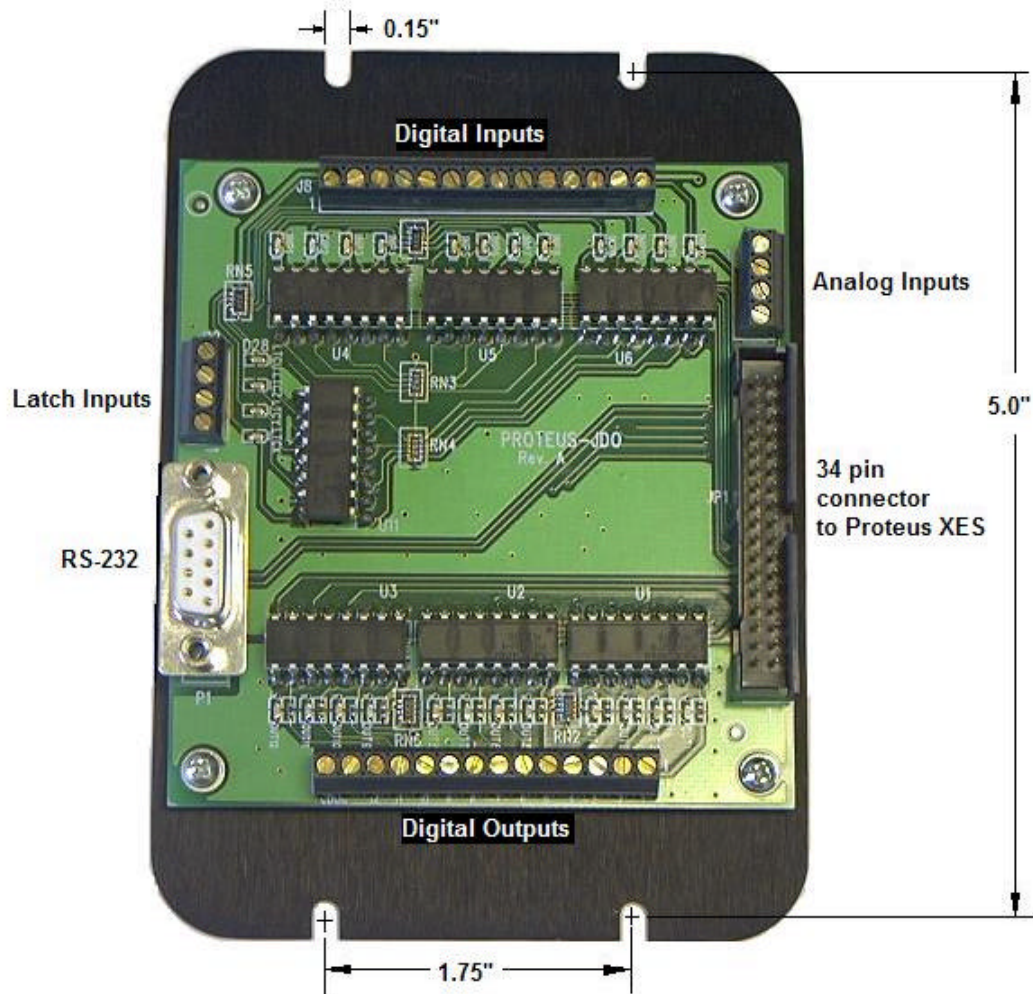
Revision History:

1.0 – First revision

Table of Contents

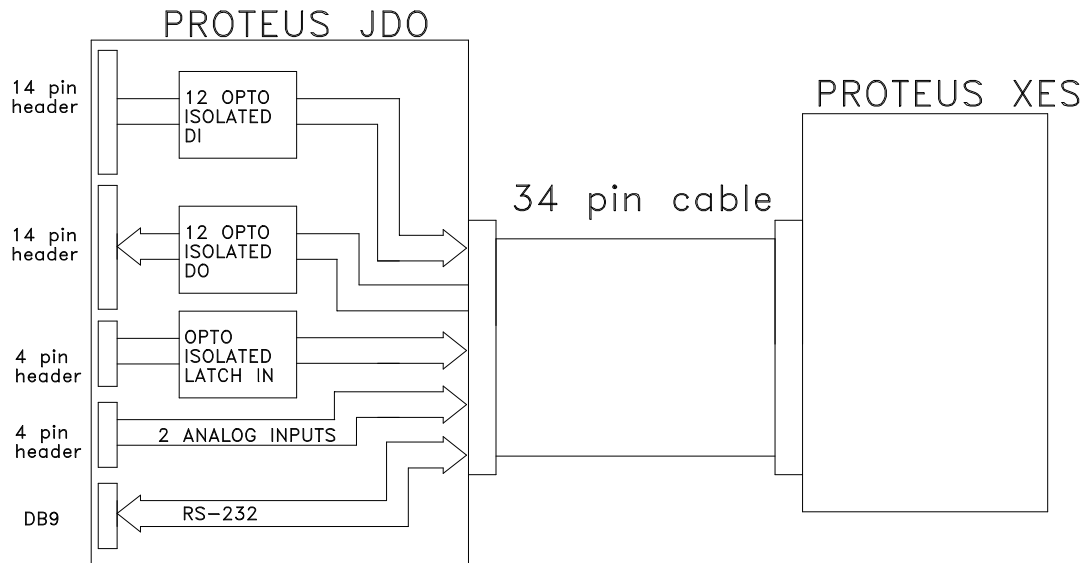
1. Dimensions and Connectors _____	4
2. Overview _____	5
3. Connector Descriptions _____	6
34 pin IO Connector Pinouts _____	6
4. Electrical Specifications _____	8
Opto-isolated Digital Inputs _____	8
Opto-isolated Digital Input Electrical Diagram _____	9
Opto-isolated Digital Outputs _____	10
Opto-isolated Digital Output Electrical Diagram _____	11
Opto-isolated Latch Inputs and RS-232 _____	12
Analog Inputs _____	13

1. Dimensions and Connectors



For mounting the Proteus JDO, make four #4-40 taps that are 1.75" by 5.0".

2. Overview



Proteus JDO provides Darlington transistor opto-isolated outputs (capable of 150 mA drive) to first 12 bits of the 24 configurable DIO from Proteus XES. The signals are available on 14-pin screw terminal header.

Proteus JDO provides opto-isolated inputs to remaining 12 bits of 24 configurable DIO from Proteus XES. The signals are available on 14-pin screw terminal header.

Proteus JDO provides opto-isolated inputs to 4 latch inputs from Proteus XES. The signals are available on 4-pin screw terminal header.

Proteus JDO provides access to 2 analog inputs on 4 pin screw terminal header.

Proteus JDO provides access to RS-232 signals (TXD, RXD, and GND) on DB9 connector.

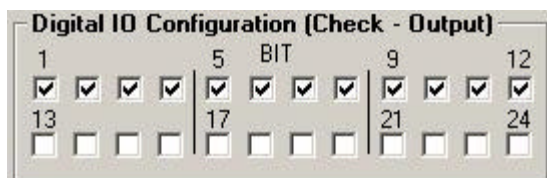
3. Connector Descriptions

34 pin IO Connector Pinouts

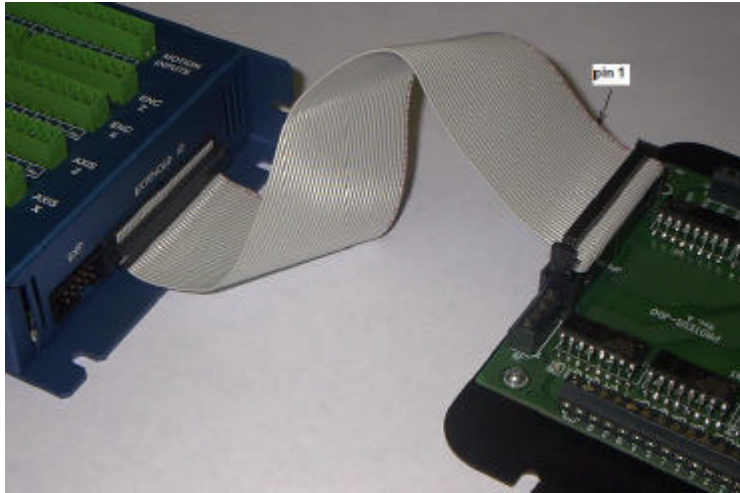
Description	Pin	Pin	Description
Digital Output 1	1	2	Digital Output 7
Digital Output 2	3	4	Digital Output 8
Digital Output 3	5	6	Digital Output 9
Digital Output 4	7	8	Digital Output 10
Digital Output 5	9	10	Digital Output 11
Digital Output 6	11	12	Digital Output 12
Digital Input 1	13	14	Digital Input 7
Digital Input 2	15	16	Digital Input 8
Digital Input 3	17	18	Digital Input 9
Digital Input 4	19	20	Digital Input 10
Digital Input 5	21	22	Digital Input 11
Digital Input 6	23	24	Digital Input 12
Latch Input 1	25	26	Latch Input 2
Latch Input 3	27	28	Latch Input 4
Analog Input 1	29	30	Analog Input 2
RS-232 TXD	31	32	RS-232 RXD
+5V Supply	33	34	GND

In order for Proteus JDO to work with Proteus XES, first 12 bits of 24 configurable DIO must be configured as outputs and the remaining 12 bits configured as inputs.

Configuration can be easily done from Proteus IPE software. Open communication with Proteus XES controller from Proteus IPE software. Go to setup dialog box. Setup the 24 configurable IO as shown below and save and store the setting to non-volatile memory.



Use 34 pin flat cable to connect Proteus JDO and Proteus XES as shown below.



Confirm that pin 1 of the 34 pin cable matches on Proteus XES and Proteus JDO.

On Proteus JDO, 12 bits of digital outputs have red color LED indicator for each output signal.

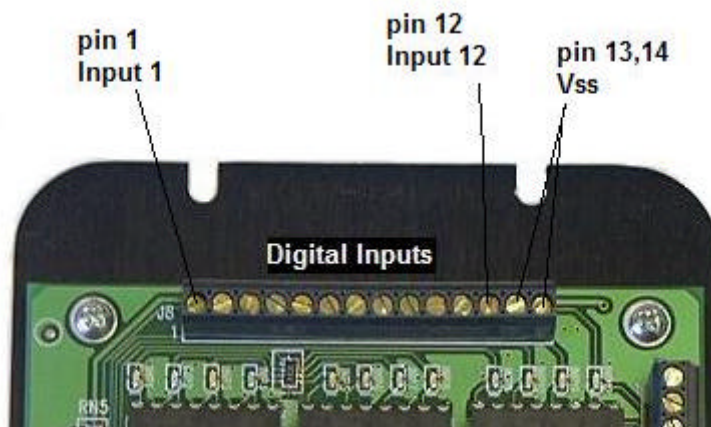
On Proteus JDO, 12 bits of digital inputs have green color LED indicator for each input signal.

On Proteus JDO, 4 bits of latch inputs have green color LED indicator for each latch input signal.

4. Electrical Specifications

Opto-isolated Digital Inputs

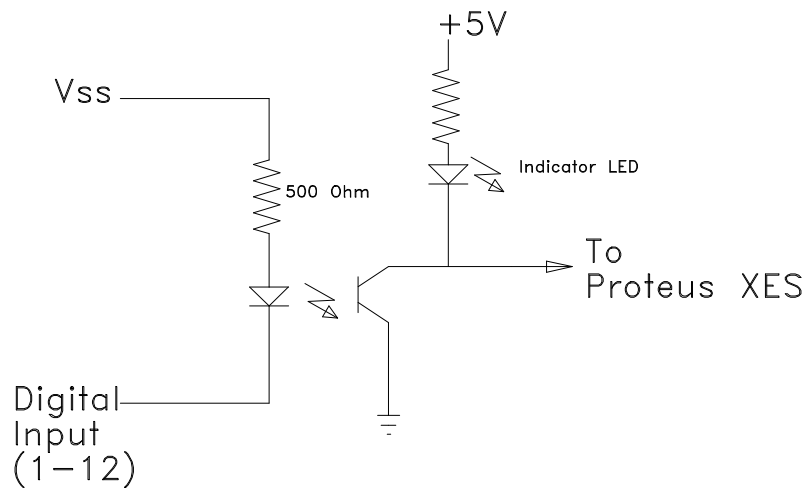
12 bits of opto-isolated inputs are available on 14 pin screw terminal headers as shown below.



Header Pin #	Description
1	Digital Input 1
2	Digital Input 2
3	Digital Input 3
4	Digital Input 4
5	Digital Input 5
6	Digital Input 6
7	Digital Input 7
8	Digital Input 8
9	Digital Input 9
10	Digital Input 10
11	Digital Input 11
12	Digital Input 12
13	Vss – Opto supply voltage
14	Vss – Opto supply voltage

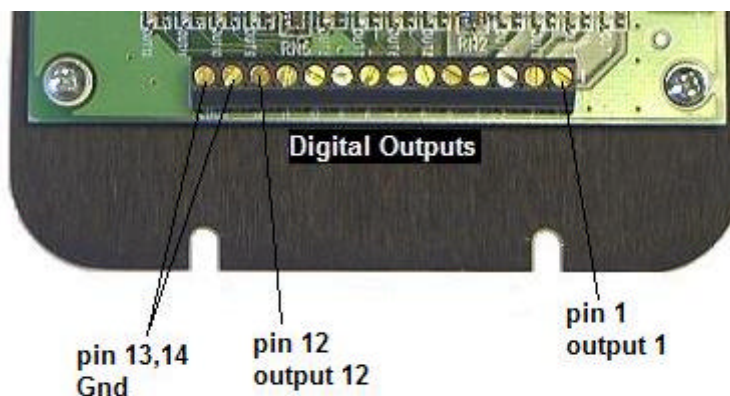
Vss – range 12V to 24V

Opto-isolated Digital Input Electrical Diagram



Opto-isolated Digital Outputs

12 bits of opto-isolated outputs are available on 14 pin screw terminal headers as shown below.

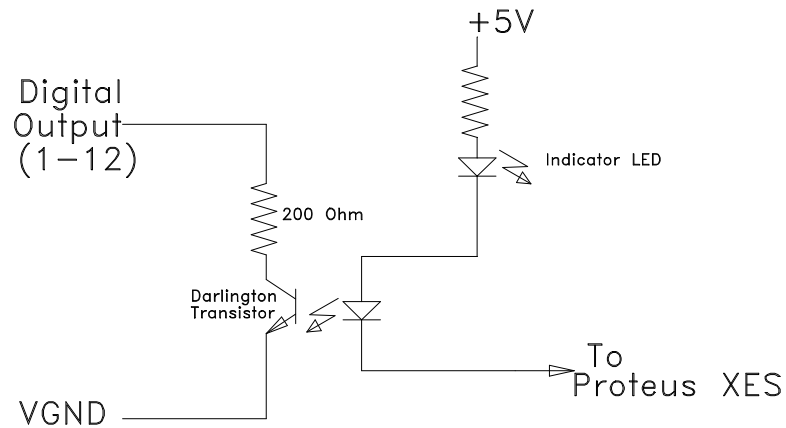


Header Pin #	Description
1	Digital Output 1
2	Digital Output 2
3	Digital Output 3
4	Digital Output 4
5	Digital Output 5
6	Digital Output 6
7	Digital Output 7
8	Digital Output 8
9	Digital Output 9
10	Digital Output 10
11	Digital Output 11
12	Digital Output 12
13	VGND – Transistor Ground
14	VGND – Transistor Ground

Opto-isolated outputs use Darlington transistor outputs and can drive current up to 140 mA.

200-Ohm resistor is built in for current limiting.

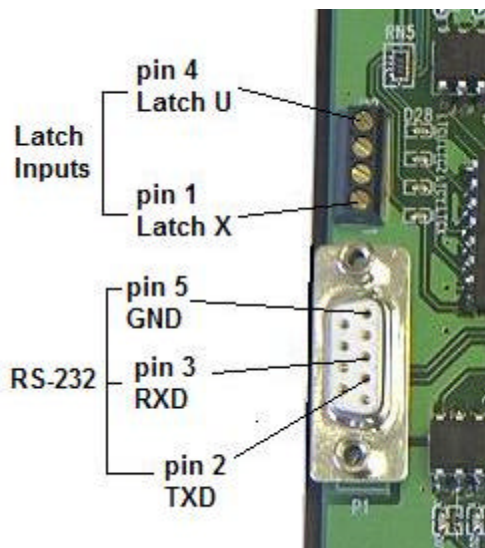
Opto-isolated Digital Output Electrical Diagram



When digital output on Proteus XES is low, the LED on the opto-isolator is turned on. This will sink the digital output signal on Darlington transistor to VGND ground.

Opto-isolated Latch Inputs and RS-232

4 opto-isolated latch inputs are available on 4 pin screw terminal headers as shown below.



Latch Input Pinouts

Header Pin #	Description
1	Latch X
2	Latch Y
3	Latch Z
4	Latch U

Opto-isolated latch inputs use Vss signal from the 14 pin digital input header. Electrical diagram for opto-isolated latch inputs is same as the 12 opto-isolated digital inputs.

RS-232 Pinouts

Header Pin #	Description
2	TXD
3	RXD
5	GND

RS-232 signals are available on DB9 female connector. To connect to a PC, use a DB9 cable with male/female connector.

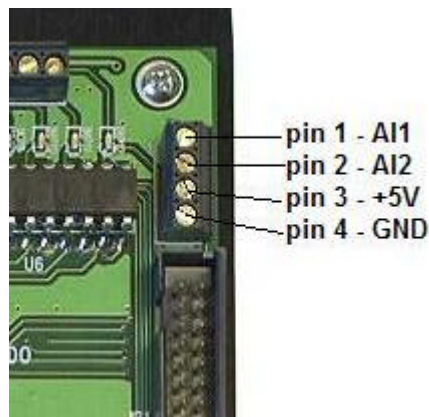
Analog Inputs

On Proteus XES, 2 channels of analog inputs are optional.

Analog inputs are 12 bits resolution and range is 0 to 5V.

Analog inputs are designed to be used with magnetic joystick. For recommended joysticks, contact technical support.

2 analog inputs are available on 4 pin screw terminal headers as shown below.



Header Pin #	Description
1	Analog Input 1
2	Analog Input 2
3	+5V
4	GND