

OP7816 16 Digital Inputs Module

- [Board Layout](#)
- [Input Circuit Description](#)
- [Installation](#)
- [Face Plate](#)
- [DB37F Connector Pins Assignment](#)
- [Specifications](#)

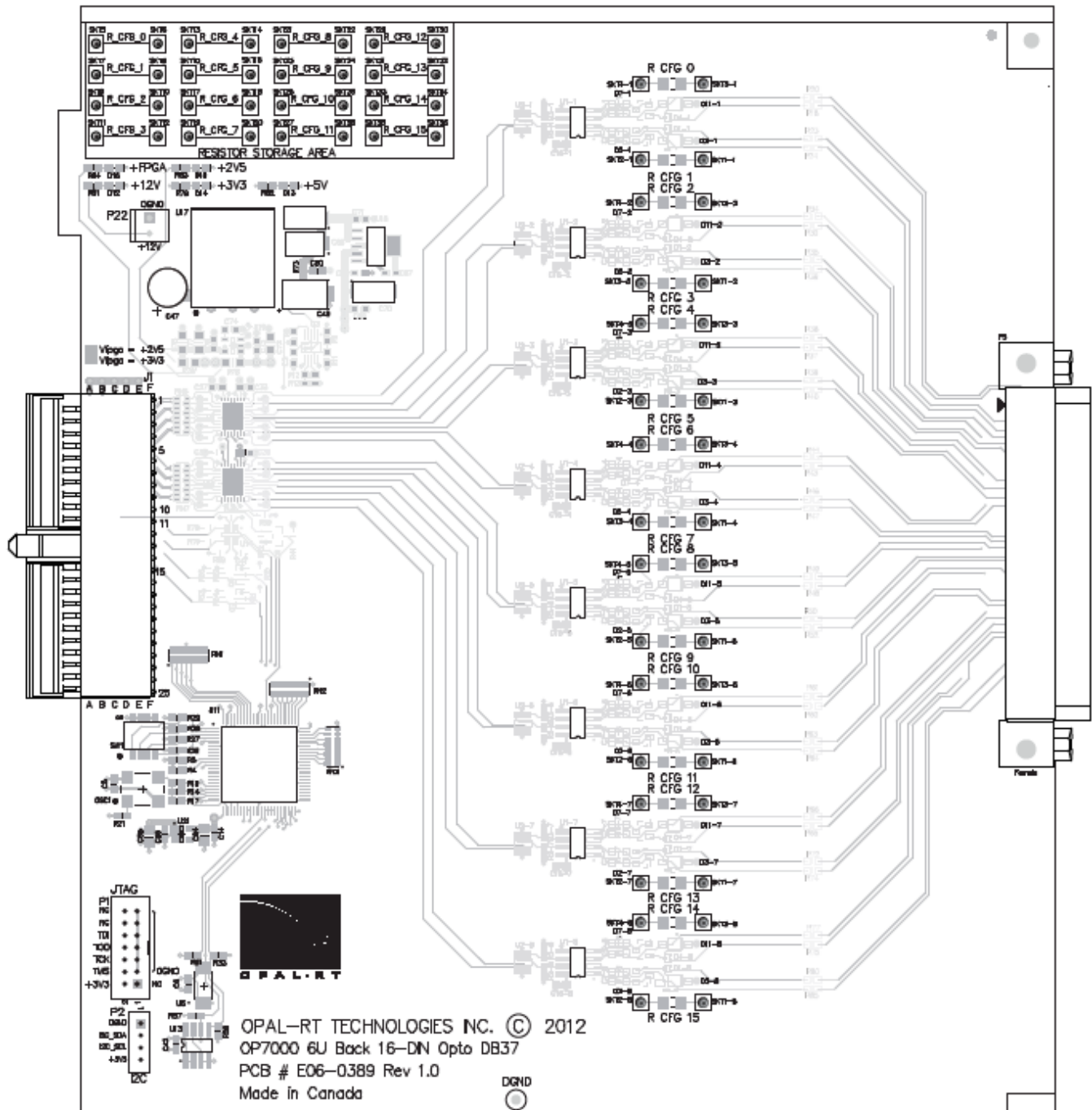
The OP7816 (also named OP7816-2) module features 16 digital input signals.

The cards feature optical isolation of all the inputs.

The card accepts input voltages between 5V and 50V, with a 30V maximum reverse protection.

In the typical configuration, the 16 channels are routed via the mid-plane of the chassis to the Primary FPGA card (OP7161-1 or OP7170-1) which performs acquisition of the channels' state. Alternatively, if a Secondary FPGA card (OP7161-2 or OP7170_2) is installed in the front slot corresponding to the back slot where the card is installed, the acquisition of the channels can be performed by this secondary FPGA card.

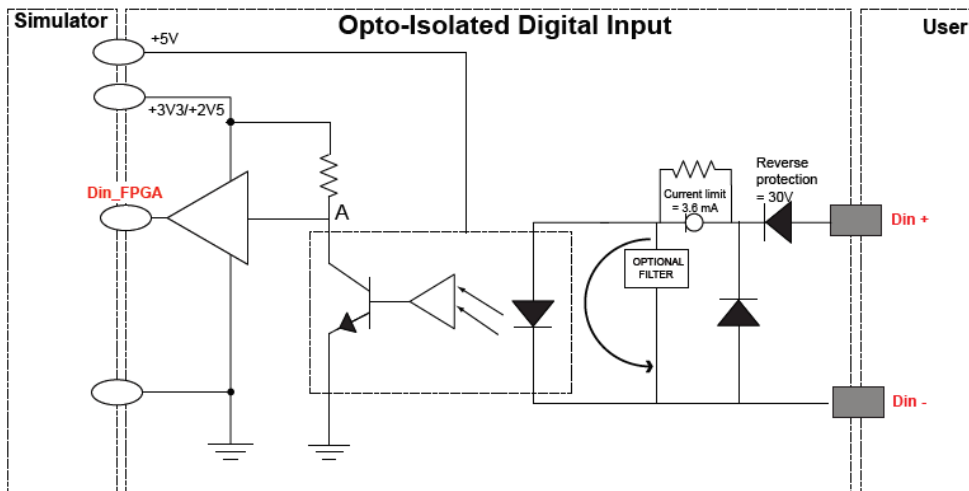
Board Layout



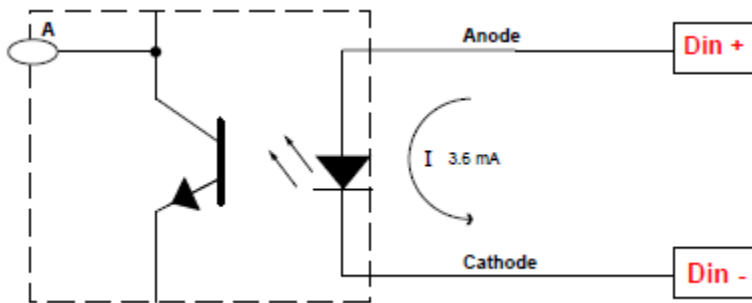
Input Circuit Description

The optically isolated inputs accept a wide input voltage range, from 5 to 50 volts. They are current limited to 3.6 mA. Each input has a reverse voltage protection of up to 30 volts provided by a diode.

The digital input circuit needs a 5 V supply source to power the onboard circuitry. In the case of the OP7816, this source is connected to the OP7000 chassis's 5 VDC source (not to the simulator as indicated on the figure below).



The signal conditioning module inputs have both anode and cathode sides available to the user (on the DB37F I/O connector).



When current flows from Din+ to Din -, the output of optocoupler A is **low** and the Din_FPGA signal is **low**. When no current flows, the optocoupler output A is **high** and the Din_FPGA signal is **high**.

Installation

The OP7816 digital input module must be inserted at the back of the OP7000 simulator. The card can be installed in any of the 16 back slots, provided the front slot configuration is compatible. Refer to the page [OP7000V2 Adding or Replacing Boards](#) for more information on digital I/O card placement in the chassis - the same applies to the OP7000 chassis.

Make sure that the board is properly aligned using the guide tracks before pressing it into place.

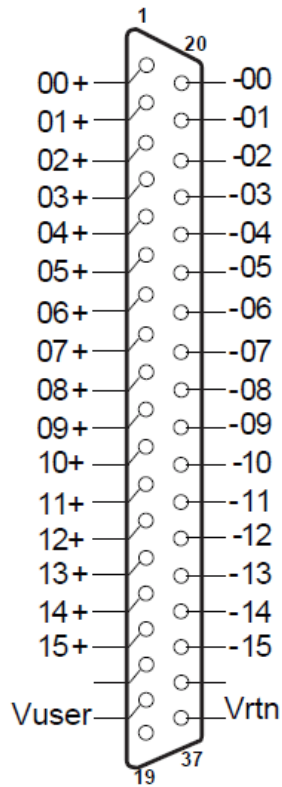
Face Plate

The faceplate provides the DB37F connector used to connect the 16 input signals.

DB37F Connector Pins Assignment

DB37 Connector	Channel	DB37 Connector	Channel
1	+IN00	20	-IN00
2	+IN01	21	-IN01
3	+IN02	22	-IN02
4	+IN03	23	-IN03
5	+IN04	24	-IN04

6	+IN05	25	-IN05
7	+IN06	26	-IN06
8	+IN07	27	-IN07
9	+IN08	28	-IN08
10	+IN09	29	-IN09
11	+IN10	30	-IN10
12	+IN11	31	-IN11
13	+IN12	32	-IN12
14	+IN13	33	-IN13
15	+IN14	34	-IN14
16	+IN15	35	-IN15
17		36	
18		37	
19			



Specifications

Product name	OP7816-2
Part number	126-0389
Product type	OP7000 back 16 Din opto-isolated board
Number of channels	16 digital inputs
Isolation	Optical isolator
Input current	12 Vcc @ 1.5A
Maximum reverse voltage protection	30 Volts
Bandwidth	500 kHz
Voltage range	0 to 5 Vcc or 5 to 50 Vcc
Delay Low-to-High (minimum)	40 ns
Delay High-to-Low (maximum)	75 ns
Dimensions	18.8 x 16.4 cm (7.4 in x 6.46 in)
I/O connector	DB37F
Operating temperature	10 to 40 °C (50 to 104°F)
Storage temperature	-55 to 85°C (-67 to 185°F)
Relative humidity	10 to 90%, non condensing
Maximum altitude	2,000 m (6562 ft.)