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# **SCB 9301**

## **Digital Input Signal Conditioning Board**

### **Product Specification**

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## 1. INTRODUCTION

The SCB 9301 is a small optically isolated 16-channel signal conditioning board used to route signals from front panel SCSI connectors to Industry Pack I/O in the IOC 9010 and VME64X VTB 8307 Mixed Signal Transition Board. Sixteen pairs of circuits are isolated together with two input strobes and two output strobes. All circuit pairs are current limited to 4.7mA and protected from over-voltage by zener diodes. A power connector accepts isolated +/-12V power from the main board and routes it to pins 49 and 50 on the SCSI connector.

## 2. PRODUCT SPECIFICATIONS

### 2.1 Power Requirements

+/-12V is accepted from main-board mounted DC-DC converters for routing to the main unit SCSI connector.

### 2.2 Operating Temperature Range

0 to +45 deg Celsius ambient.

### 2.3 Mechanical

Printed circuit board with two 50-way sockets PL1, PL2 and 6 way power plug PL3 (+5V, +/-12V and GND)

Board Dimensions: 2.55 x 1.80 inches

### 2.4 Signal Specifications

#### Digital Inputs (16)

PL2/1 to PL2/32 are arranged in pairs

PL2/1 to PL2/2 has a 4.7mA current diode in series with an opto-coupler input photodiode

PL1/1 is the photo-transistor collector output with 10K pull-up resistor to +5V

PL1/2 is the photo-transistor emitter output connected to GND

Hence PL2/1 and PL2/2 form a current circuit which saturates the output transistor when current flows

This circuit is repeated 16 times for compatibility with the 8001 and 8505

#### Strobe Inputs (2)

PL2/33 and PL2/34, PL2/39 and PL2/40 are arranged in pairs

PL2/33 to PL2/34 has a 4.7mA current diode in series with an opto-coupler photodiode

PL1/33 is the opto-coupler photo-transistor collector output with 10K pull-up resistor to +5V

PL1/34 is the opto-coupler photo-transistor emitter output connected to GND

Hence PL2/33 and PL2/34 form a current circuit which saturates the output transistor when current flows

This circuit is repeated for pins 39 and 40

#### Strobe Outputs (2)

PL2/35 and PL2/36, PL2/37 and PL2/38 are arranged in pairs

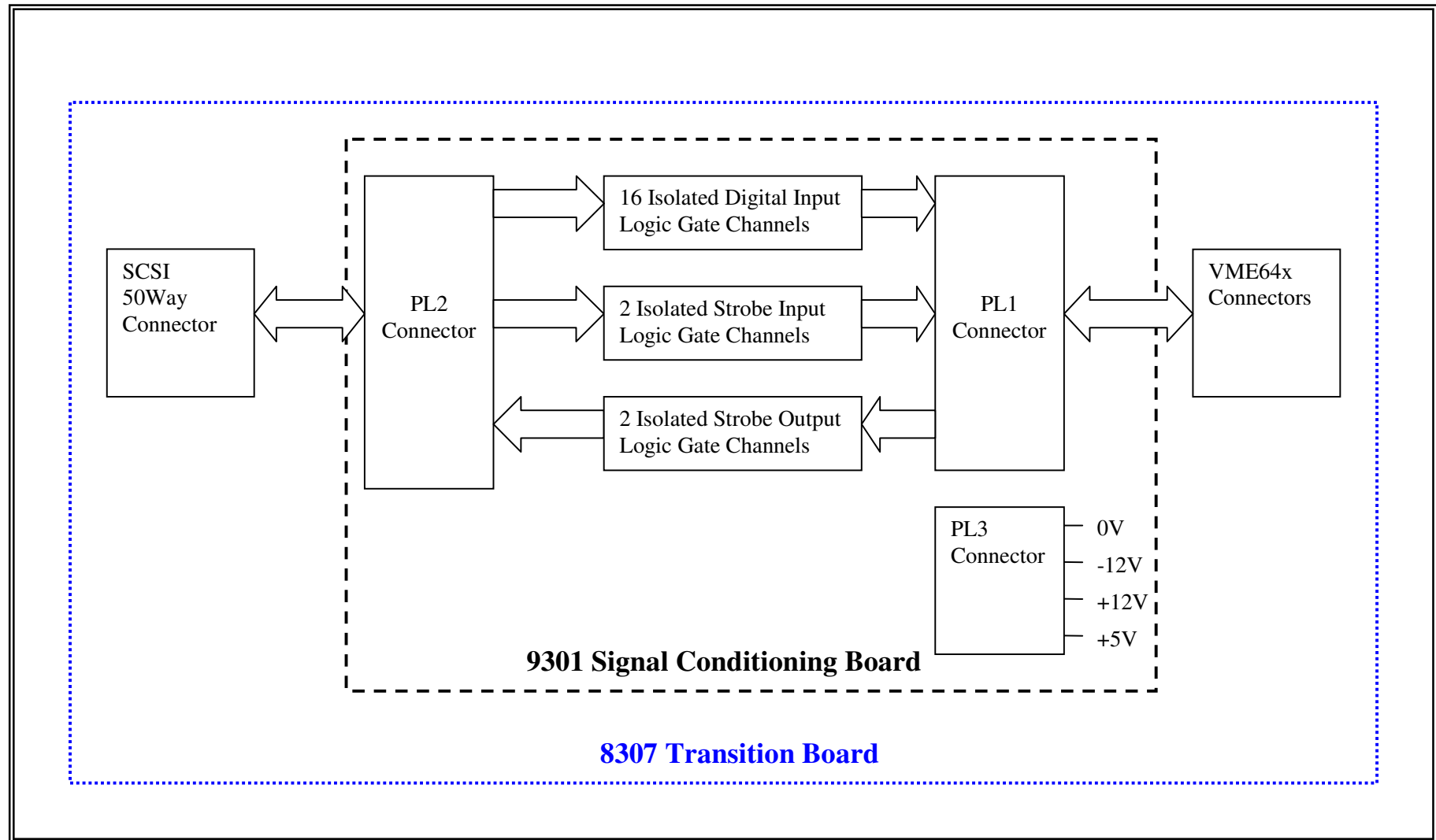
PL2/35 is the opto-coupler photo-transistor collector output

PL2/36 is the opto-coupler photo-transistor emitter output

PL1/35 is the cathode of a photodiode which has its anode pulled up to +5V via 270 ohms

When PL1/35 is switched low, current flows in the photodiode and the output phototransistor conducts

This circuit is repeated for pins 37 and 38



Block Diagram Example of connections between the 8307 transition card and 9301 SCB module

**Table1 of Signal Allocation PL1**

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	VME Isolated digital Input 1 +ve	26	VME Isolated digital Input 13 -ve
2	VME Isolated digital Input 1 -ve	27	VME Isolated digital Input 14 +ve
3	VME Isolated digital Input 2 +ve	28	VME Isolated digital Input 14 -ve
4	VME Isolated digital Input 2 -ve	29	VME Isolated digital Input 15 +ve
5	VME Isolated digital Input 3 +ve	30	VME Isolated digital Input 15 -ve
6	VME Isolated digital Input 3 -ve	31	VME Isolated digital Input 16 +ve
7	VME Isolated digital Input 4 +ve	32	VME Isolated digital Input 16 -ve
8	VME Isolated digital Input 4 -ve	33	VME Isolated Strobe Input 1 +ve
9	VME Isolated digital Input 5 +ve	34	VME Isolated Strobe Input 1 -ve
10	VME Isolated digital Input 5 -ve	35	VME Isolated Strobe Output 1 +ve
11	VME Isolated digital Input 6 +ve	36	VME Isolated Strobe Output 1 -ve
12	VME Isolated digital Input 6 -ve	37	VME Isolated Strobe Output 2 +ve
13	VME Isolated digital Input 7 +ve	38	VME Isolated Strobe Output 2 -ve
14	VME Isolated digital Input 7 -ve	39	VME Isolated Strobe Input 2 +ve
15	VME Isolated digital Input 8 +ve	40	VME Isolated Strobe Input 2 -ve
16	VME Isolated digital Input 8 -ve	41	Not Connected
17	VME Isolated digital Input 9 +ve	42	Not Connected
18	VME Isolated digital Input 9 -ve	43	Not Connected
19	VME Isolated digital Input 10 +ve	44	Not Connected
20	VME Isolated digital Input 10 -ve	45	Not Connected
21	VME Isolated digital Input 11 +ve	46	Not Connected
22	VME Isolated digital Input 11 -ve	47	Not Connected
23	VME Isolated digital Input 12 +ve	48	Not Connected
24	VME Isolated digital Input 12 -ve	49	Not Connected
25	VME Isolated digital Input 13 +ve	50	Not Connected

**Table2 of Signal Allocation PL2**

Pin	Signal	Pin	Signal
1	Digital Input 1 +ve from SCSI	26	Digital Input 13 -ve from SCSI
2	Digital Input 1 -ve from SCSI	27	Digital Input 14 +ve from SCSI
3	Digital Input 2 +ve from SCSI	28	Digital Input 14 -ve from SCSI
4	Digital Input 2 -ve from SCSI	29	Digital Input 15 +ve from SCSI
5	Digital Input 3 +ve from SCSI	30	Digital Input 15 -ve from SCSI
6	Digital Input 3 -ve from SCSI	31	Digital Input 16 +ve from SCSI
7	Digital Input 4 +ve from SCSI	32	Digital Input 16 -ve from SCSI
8	Digital Input 4 -ve from SCSI	33	Strobe Input 1 +ve from SCSI
9	Digital Input 5 +ve from SCSI	34	Strobe Input 1 -ve from SCSI
10	Digital Input 5 -ve from SCSI	35	Strobe Output 1 +ve from SCSI
11	Digital Input 6 +ve from SCSI	36	Strobe Output 1 -ve from SCSI
12	Digital Input 6 -ve from SCSI	37	Strobe Output 2 +ve from SCSI
13	Digital Input 7 +ve from SCSI	38	Strobe Output 2 -ve from SCSI
14	Digital Input 7 -ve from SCSI	39	Strobe Input 2 +ve from SCSI
15	Digital Input 8 +ve from SCSI	40	Strobe Input 2 -ve from SCSI
16	Digital Input 8 -ve from SCSI	41	Not Connected
17	Digital Input 9 +ve from SCSI	42	Not Connected
18	Digital Input 9 -ve from SCSI	43	Not Connected
19	Digital Input 10 +ve from SCSI	44	Not Connected
20	Digital Input 10 -ve from SCSI	45	Not Connected
21	Digital Input 11 +ve from SCSI	46	Not Connected
22	Digital Input 11 -ve from SCSI	47	Not Connected
23	Digital Input 12 +ve from SCSI	48	Not Connected
24	Digital Input 12 -ve from SCSI	49	-12VX
25	Digital Input 13 +ve from SCSI	50	+12VX

**PL3 Connections**

Pins 1&2 +5V  
 Pins 3 GND  
 Pin 4 N/C  
 Pin 5 +12V  
 Pin 6 -12V

**Table 3 9010 or 8307 SCSI Pin Allocation**

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Input 1 -	26	Input 1 +
2	Input 2 -	27	Input 2 +
3	Input 3 -	28	Input 3 +
4	Input 4 -	29	Input 4 +
5	Input 5 -	30	Input 5 +
6	Input 6 -	31	Input 6 +
7	Input 7 -	32	Input 7 +
8	Input 8 -	33	Input 8 +
9	Input 9 -	34	Input 9 +
10	Input 10 -	35	Input 10 +
11	Input 11 -	36	Input 11 +
12	Input 12 -	37	Input 12 +
13	Input 13 -	38	Input 13 +
14	Input 14 -	39	Input 14 +
15	Input 15 -	40	Input 15 +
16	Input 16 -	41	Input 16 +
17	Strobe In 1 -	42	Strobe In 1 +
18	Strobe Out 1 -	43	Strobe Out 1 +
19	Strobe Out 2 -	44	Strobe Out 2 +
20	Strobe In 2 -	45	Strobe In 2 +
21		46	
22		47	
23		48	
24		49	
25	+12V	50	-12V