



HYTEC ELECTRONICS Ltd

HEAD OFFICE: 5 CRADOCK ROAD, READING, BERKS. RG2 0JT, UK
Telephone: +44 (0) 118 9757770 Fax: +44 (0)118 9757566

E-mail: sales@hytec-electronics.co.uk

SCB 9305
Digital Input/Output Signal Conditioning Board

Product Specification

Document Nos.: SCB9305/PS/2

Date: 12/07/2007

Author: AB



1. INTRODUCTION

The SCB 9305 is a small optically isolated 16-channel signal conditioning board used to route signals from Industry Pack I/O to front panel SCSI connectors in the IOC 9010 and VME64X VTB 8307 Mixed Signal Transition Board . Sixteen pairs of circuits organised as eight inputs and eight outputs are optically isolated together with two input strobes and two output strobes. All input circuit pairs are current limited and all circuits are protected from over-voltage by zener diodes. A power connector accepts isolated +/- 12V power from the main board and routes it to particular pins 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 pins 49 and 50.

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 (8)

PL2/1 to PL2/16 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 opto-coupler 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 8 times for compatibility with the 8001 and 8505

Digital Outputs (8)

PL2/17 to PL2/32 are arranged as 8 circuit pairs

PL2/17 is an opto-coupler photo-transistor collector output

PL2/18 is an opto-coupler photo-transistor emitter output

PL1/17 is the cathode of the opto-coupler photodiode which has its anode pulled up to +5V via 270 ohms

When PL1/17 is switched low to the GND connection PL1/18, current flows in the photodiode and the output phototransistor conducts

This circuit is repeated 8 times and provides optically coupled output switches for the 8001 and 8505

Strobe Inputs (2)

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

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

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

PL1/34 is the 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 signal pairs

PL2/35 is the photo-transistor collector output

PL2/36 is the 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

Table of Signal Allocation PL1-PL2

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

**9010 or 8307 SCSI Pin Allocation**

Pin	Signal	Pin	Signal
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	Output 1 -	34	Output 1 +
10	Output 2 -	35	Output 2 +
11	Output 3 -	36	Output 3 +
12	Output 4 -	37	Output 4 +
13	Output 5 -	38	Output 5 +
14	Output 6 -	39	Output 6 +
15	Output 7 -	40	Output 7 +
16	Output 8 -	41	Output 8 +
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

PL3 Connections

Pins 1,2 +5V

Pins 3 GND

Pin 4 N/C

Pin 5 +12V

Pin 6 -12V