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TB8201
32-CHANNEL ANALOGUE I/O VME64X TRANSITION BOARD

USERS MANUAL

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1. INTRODUCTION

The Hytec TB8201 is a single-width VME64X Transition Board which routes 32 channels of analogue I/O with the following characteristics:-

- 4 groups of 8 analogue channel pairs
- 2 SCSI connectors 1-2 routed to 8002 Carrier Board sites A-D respectively
- 8 channels of differential filters condition 8401 inputs
- Filter circuits enabled by jumper selection
- Common mode bias resistors for differential inputs
- 4 DC-DC Converter socketed sites allow 5V to +/-12V isolated power for each group
- 4 signal pairs for External Trigger
- 4 signal pairs for External Clock
- Analogue Ground connections
- Ground discharge limited on insertion

2. PRODUCT SPECIFICATIONS

Size:	Single width Transition Board 6U x 80mm
Operating temp:	0 to 45 deg C ambient
Power Requirements:	+5V @ 2A from VME bus (4A fuse fitted) for DC-DC converters
Number of channels:	32 signal pairs
Number of strobes:	8 signal pairs
Connectors:	2 SCSI 50-way sockets mounted on the rear panel
	160 way DIN mates with P2 pins
	5x19 way 2mm socket mates with P0

3. BOARD DESCRIPTION

The board is primarily intended to route 4 groups of 8 analogue outputs to IP-8401-ADC boards from two rear panel connectors. However, it may also be used for IP-8402-DACs. It has provision to fit R-C filters across the differential inputs of the ADCs.
Viewing the component side of the board there are four similar groups each with two 5-pin sockets. These allow Hytec DC-DC Converter boards to be fitted which supply +/-12V to their respective sites via the P0/P2 VME connectors. Each converter's output is smoothed by two 100uF tantalum bead capacitors.
The P2 mating connector is the 160 way DIN connector at the base of the board. The P0 mating connector is situated above it. The four analogue groups are designated A-D from the base upwards.
Front panel SCSI connectors 1-4 feed sites A-D and are numbered upwards from the lowest connector.
Provision is made to fit noise filters in the 8 channels of each group.
The capacitors for these are situated to the left of the jumpers (C1-C8 for the first group). Values of up to 22uF can be fitted. A typical value is 3900pF.
The filters usually incorporate 1K in series with each analogue signal (high and low). The first channel uses R1 and R3, the second R5 and R7 and so on.
Common mode biasing resistors may also be fitted for the ADC inputs. These usually have the values 1Mohms. These are R2/R4 for channel 1, R6/R8 for channel 2 and so on.

The jumpers can be used to select straight through connection (positions 2-3) or filtered (positions 1-2).
Ground discharge resistors are fitted at the base of the board.

4. OPERATION

Select straight-through or filtered mode according to whether an 8402 DAC or 8401 ADC is used by setting the jumpers 2-3 (right position) for straight-through or 1-2 (left) for filtered mode.
If isolated power is required plug-in the DC-DC Converter boards and if necessary secure them with appropriate screws through the holes provided. Ensure that a 4A fuse is fitted at the base of the board.
LK1-LK4 connect isolated analogue grounds to VME ground for each group 1-4.
These should only be inserted if isolation is not required.
Connect signals according to the table of connections shown in appendix A.

APPENDIX A

Connection tables for TB8201 Analogue I/O Transition Board

Connector: 1 IP Site: A & B							
SCSI Pin	VME	IP	Signal	SCSI Pin	VME	IP	Signal
1	P2-C6	A-2	Sig_Lo1	26	P2-A6	A-1	Sig_Hi1
2	P2-C7	A-4	Sig_Lo2	27	P2-A7	A-3	Sig_Hi2
3	P2-C8	A-6	Sig_Lo3	28	P2-A8	A-5	Sig_Hi3
4	P2-C9	A-8	Sig_Lo4	29	P2-A9	A-7	Sig_Hi4
5	P2-C10	A-10	Sig_Lo5	30	P2-A10	A-9	Sig_Hi5
6	P2-C11	A-12	Sig_Lo6	31	P2-A11	A-11	Sig_Hi6
7	P2-C12	A-14	Sig_Lo7	32	P2-A12	A-13	Sig_Hi7
8	P2-C13	A-16	Sig_Lo8	33	P2-A13	A-15	Sig_Hi8
9	P2-D15	B-2	Sig_Lo9	34	P2-Z15	B-1	Sig_Hi9
10	P2-Z17	B-4	Sig_Lo10	35	P2-D16	B-3	Sig_Hi10
11	P2-D18	B-6	Sig_Lo11	36	P2-D17	B-5	Sig_Hi11
12	P2-D19	B-8	Sig_Lo12	37	P2-Z19	B-7	Sig_Hi12
13	P2-Z21	B-10	Sig_Lo13	38	P2-D20	B-9	Sig_Hi13
14	P2-D22	B-12	Sig_Lo14	39	P2-D21	B-11	Sig_Hi14
15	P2-D23	B-14	Sig_Lo15	40	P2-Z23	B-13	Sig_Hi15
16	P2-Z25	B-16	Sig_Lo16	41	P2-D24	B-15	Sig_Hi16
18	P2-C23	A-36	XTrig N1	43	P2-A23	A-35	XTrig P1
19	P2-D27	B-36	XTrig N2	44	P2-Z27	B-35	XTrig P2
20	P2-C25	A-40	XClk N1	45	P2-A25	A-39	XClk P1
21	P2-D30	B-40	XClk N2	46	P2-D29	B-39	XClk P2
24	P2-C30	50	Agnd 1	49	P2-C29	48	Agnd 1
25	P2-C5	50	Agnd 2	50	P2-C4	48	Agnd 2

Connector: 2 IP Site: C & D							
SCSI Pin	VME	IP	Signal	SCSI Pin	VME	IP	Signal
1	P0-B11	C-2	Sig_Lo17	26	P0-A11	C-1	Sig_Hi17
2	P0-D11	C-4	Sig_Lo18	27	P0-C11	C-3	Sig_Hi18
3	P0-A12	C-6	Sig_Lo19	28	P0-E11	C-5	Sig_Hi19
4	P0-C12	C-8	Sig_Lo20	29	P0-B12	C-7	Sig_Hi20
5	P0-E12	C-10	Sig_Lo21	30	P0-D12	C-9	Sig_Hi21
6	P0-B13	C-12	Sig_Lo22	31	P0-A13	C-11	Sig_Hi22
7	P0-D13	C-14	Sig_Lo23	32	P0-C13	C-13	Sig_Hi23
8	P0-A14	C-16	Sig_Lo24	33	P0-E13	C-15	Sig_Hi24
9	P0-B1	D-2	Sig_Lo25	34	P0-A1	D-1	Sig_Hi25
10	P0-D1	D-4	Sig_Lo26	35	P0-C1	D-3	Sig_Hi26
11	P0-A2	D-6	Sig_Lo27	36	P0-E1	D-5	Sig_Hi27
12	P0-C2	D-8	Sig_Lo28	37	P0-B2	D-7	Sig_Hi28
13	P0-E2	D-10	Sig_Lo29	38	P0-D2	D-9	Sig_Hi29
14	P0-B3	D-12	Sig_Lo30	39	P0-A3	D-11	Sig_Hi30
15	P0-D3	D-14	Sig_Lo31	40	P0-C3	D-13	Sig_Hi31
16	P0-A4	D-16	Sig_Lo32	41	P0-E3	D-15	Sig_Hi32
18	P0-A18	C-36	XTrig N3	43	P0-E17	C-35	XTrig P3
19	P0-A8	D-36	XTrig N4	44	P0-E7	D-35	XTrig P4
20	P0-E18	C-40	XClk N3	45	P0-D18	C-39	XClk P3
21	P0-E8	D-40	XClk N4	46	P0-D8	D-39	XClk P4
24	P0-D3	C-50	Agnd 3	49	P2-D2	C-48	Agnd 3
25	P0-E10	D-50	Agnd 4	50	P0-C10	D-48	Agnd 4

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