



Hardware Installation Guide

ACQ32PCI

32 Channel Data Acquisition PCI Card

Any specifications, drawings or reprints or data furnished to bidder or seller shall remain D-TACQ Solutions Ltd property, shall be kept confidential, shall be used for the purposes of complying with D-TACQ Solutions' requests for quotation or with D-TACQ solutions purchase orders and shall be returned at D-TACQ Solutions request. Patent rights embodied in designs, tools, patterns, drawings, devices, information and equipment supplied by D-TACQ solutions pursuant to this request for quotation or purchase order and exclusive rights for use in reproduction thereof are reserved by D-TACQ Solutions Ltd unless otherwise agreed on purchase order.

1 Installation Notes

The ACQ32PCI Card is a complex multilayer, full length PCI Card. Special care should be taken in handling the ACQ32PCI, and avoid undue flexing of the PCB. The card is susceptible to damage by ESD and improper power connections.

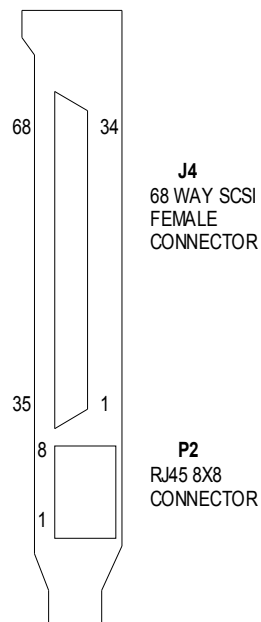
- 1.1 Ensure ESD precautions are taken before opening card from packaging.**
- 1.2 This card only fits in full length PCI Bus slots.**
- 1.3 This card requires both 3.3V @ 0.5A and 5V @ 2.5A per board from motherboard/backplane**
- 1.4 Ensure proper ESD precautions are taken during installation.**

2 Connectors

It is common practice for customers to manufacture their own cables and termination units, to fit in with their own sensor requirements. The following section explains each connector configuration.

D-TACQ Solutions supply a standard range of cable and termination accessories, and can also produce custom solutions.

2.1 Analog I/O Connector J4



2.2 Analog I/O Connector J4 on Front Panel

Pin No.	Signal	Pin No.	Signal
1	Analog Out 1	35	0V
2	Analog Out 2	36	0V
3	Analog In 1	37	0V
4	Analog In 2	38	0V
5	Analog In 3	39	0V
6	Analog In 4	40	0V
7	Analog In 5	41	0V
8	Analog In 6	42	0V
9	Analog In 7	43	0V
10	Analog In 8	44	0V
11	Analog In 9	45	0V
12	Analog In 10	46	0V
13	Analog In 11	47	0V
14	Analog In 12	48	0V
15	Analog In 13	49	0V
16	Analog In 14	50	0V
17	Analog In 15	51	0V
18	Analog In 16	52	0V
19	Analog In 17	53	0V
20	Analog In 18	54	0V
21	Analog In 19	55	0V
22	Analog In 20	56	0V
23	Analog In 21	57	0V
24	Analog In 22	58	0V
25	Analog In 23	59	0V
26	Analog In 24	60	0V
27	Analog In 25	61	0V
28	Analog In 26	62	0V
29	Analog In 27	63	0V
30	Analog In 28	64	0V
31	Analog In 29	65	0V
32	Analog In 30	66	0V
33	Analog In 31	67	0V
34	Analog In 32	68	0V

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or 34 sheathed wire pairs. The latter is preferable.

2.3 Front Panel RJ45 connector P2

P2 Connector RJ45 is used for external clock and triggers.

AO= Analog Out AI=Analog In

Pin No.	Description	Default Usage
1	Digital I/O 3	AO Trigger
2	Digital I/O 1	AO Clock
3	Digital I/O 2	AI Trigger
4	+5V	Not Used
5	0V	
6	Digital I/O 0	AI Clock
7	+5V	Not Used
8	0V	

For short runs (less than 300mm) a standard Ethernet/CAT5 cable can be used. For longer runs a special cable should be made up to utilize the twisted pairs of standard CAT5 cable, but wired to connector pins as follows:-

Pin No.	Usage	Wire
1	AO Trigger	Orange
2	AO Clock	Green
3	AI Trigger	Blue
4	+5V	Green / White
5	0V	Orange / White
6	AI Clock	Brown
7	+5V	Blue / White
8	0V	Brown / White

2.4 Multi board synchronization J1

High Speed Digital I/O is used in an ACQ32PCI multi board system to enable clocks and triggers to be passed between ACQ32PCI boards in the same chassis. The appropriate ribbon cable is supplied by D-TACQ Solutions Ltd as required. It is a standard 20 way Ribbon cable with the following pin out.

Pin No.	Signal	Pin No.	Signal
1	Digital I/O 0 - AI Clock	2	0V
3	Digital I/O 2 - AI Trigger	4	0V
5	Digital I/O 1 - AO Clock	6	0V
7	Digital I/O 3 - AO Trigger	8	0V
9	Digital I/O 4 – Not Used	10	0V
11	Digital I/O 5– Not Used	12	0V
13	Digital I/O 6– Not Used	14	0V
15	Digital I/O 7– Not Used	16	0V
17	Digital I/O 8– Not Used	18	0V
19	Digital I/O 9– Not Used	20	0V

2.5 Digital I/O Connector J2

J2 Connector is used for general I/O interface. It provides for a proprietary Data/Address Bus and a 16 bit general purpose I/O bus. It also duplicates the High Speed I/O from J1 within the general purpose I/O Bus.

Pin No.	Signal	Pin No.	Signal
1	DIG I/O DATA 0	35	DIG I/O DATA 1
2	DIG I/O DATA 2	36	DIG I/O DATA 3
3	0VD	37	DIG I/O DATA 4
4	DIG I/O DATA 5	38	DIG I/O DATA 6
5	DIG I/O DATA 7	39	0VD
6	+5V	40	+3V3
7	DIG I/O DATA 8	41	DIG I/O DATA 9
8	DIG I/O DATA 10	42	DIG I/O DATA 11
9	0VD	43	DIG I/O DATA 12
10	DIG I/O DATA 13	44	DIG I/O DATA 14
11	DIG I/O DATA 15	45	0VD
12	+5V	46	+3V3
13	DIG I/O ADDR 8	47	DIG I/O ADDR 9
14	DIG I/O ADDR 2	48	DIG I/O ADDR 3
15	0VD	49	DIG I/O ADDR 4
16	DIG I/O ADDR 5	50	DIG I/O ADDR 6
17	DIG I/O ADDR 7	51	0VD
18	+5V	52	+3V3
19	Digital I/O 0	53	Digital I/O 1
20	Digital I/O 2	54	Digital I/O 0
21	0VD	55	Digital I/O 4
22	Digital I/O 5	56	Digital I/O 6
23	Digital I/O 7	57	0VD
24	+5V	58	+3V3
25	Digital I/O 8	59	Digital I/O 9
26	Digital I/O 10	60	Digital I/O 11
27	0VD	61	Digital I/O 12
28	Digital I/O 13	62	Digital I/O 14
29	Digital I/O 15	63	0VD
30	RS232 IN	64	0VD
31	RS232 OUT	65	0VD
32	XIORBn	66	0VD
33	XIOWBn	67	0VD
34	XCS2Bn	68	0VD

Current onboard is Thomas & Betts 311-068072E 68 way box header type. Use matching or equivalent connector with 68 ribbon cable.