Hardware Installation Guide
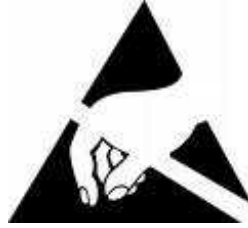
ACQ164CPCI

64 Channel Simultaneous Analog Input CPCI Card

1   Installation Notes

The ACQ164CPCI Card is a complex electronic sub-assembly. Special care should be taken in handling. The card is susceptible to damage by ESD and improper power connections.

1.1 Be aware of ESD (Electro Static Discharge) precautions

[chassis, body grounding] are taken before opening card from packaging.

1.2 Please be very careful when handling the card.

It has lots of small components that are easily damaged, either mechanically or by static.

If you have to put it down outside the crate, place on the antistatic bag. Do not stack cards.

1.3 This card only fits in 6U CPCI Backplane Systems.

The backplane shall be fitted with J1, J2 connectors.

It is recommended that the backplane shall be fitted with J3 and J5 connectors.

1.4 If a Rear Transition Module RTM is fitted, ensure that it is ACQ1xx compatible. Connection to third party RTM may cause damage to your board.

Please note that ACQ32, ACQ2xx RTM modules are not compatible with ACQ1xx.

1.5 Ensure proper ESD precautions are taken during installation.

1.6 Please be extremely careful to ensure correct card guide alignment when plugging in the cards to avoid backplane pin damage.

2   Operating Mode

2.1 Standalone Jumper

ACQ164CPCI is designed to operate either as a Peripheral Card / System Slot Card or a Stand Alone Card. When in Stand Alone mode the card ignores all PCI signals and only derives power from the CPCI Backplane. PXI signaling is available in all modes.

The Stand Alone mode is selected via a jumper, System Slot / Peripheral Mode is determined by which slot the board is plugged into. This Jumper must be set for correct system operation.

JP900   Jumper Fitted = Stand Alone Operation [Factory Default]

JP900   Jumper Not Fitted = PCI Operation, System Slot / Peripheral Slot
                auto sensed

The location of JP900 is at the middle of the card near the memory SODIMM module as shown in the diagram below.

2.2 Front Panel Gigabit Ethernet

JP900	Slot	Mode	Gigabit Front Panel	100T RTM (if fitted)
1 (Fit)	Any	Standalone	ETH0	ETH1
0	1	System Slot	ETH0	ETH1
0	!= 1	Peripheral**	n/a	ETH0
** ACQ164 is unlikely to be used in Peripheral mode.				

The card ships with DHCP addressing as default. It is possible to select a static IP address in the field, or D–TACQ can ship with a fixed address on request.

3   Standards Compatibility

Product conforms to PICMG2.0 rev 3.0.

The PCI interface supports Universal [3.3 or 5V] signaling.

The card is capable of performing the CPCI System Slot function.

4   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 sections explains each connector configuration.

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

4.1 Front Panel External Clock and Trigger Connectors

Currently fitted with LEMO type EPL.00.250.NTN. Various connector can be used LEMO. Please refer to LEMO catalogue or website (www.lemo.com). A readily available type is FFA.00.250.CTAC29Z for use with RG174, RG179 and RG188 co-axial cable

Signal Requirements: Signal is opto-coupled. Recommend 5V, centre positive, current in the ON state will be ~5mA. Clock and Trigger are both edge triggered, but for interlock reasons it is recommended that the Trigger signal be active for a duration longer than one Clock.

4.2 Front Panel Ethernet

Standard RJ45 connector, for connection to 10/100/1000 Base T Ethernet.

4.3 Front panel Layout

View on Front Panel as
viewed in a vertical chassis

68 34

Channel   01-32
68 WAY SCSII Connector

35 1

68 34

Channel   33-64
68 WAY SCSII Connector

35 1

Trigger
Lemo EPL.00.250.NTN

Clock
Lemo EPL.00.250.NTN

1000 Base T Ethernet   RJ-45
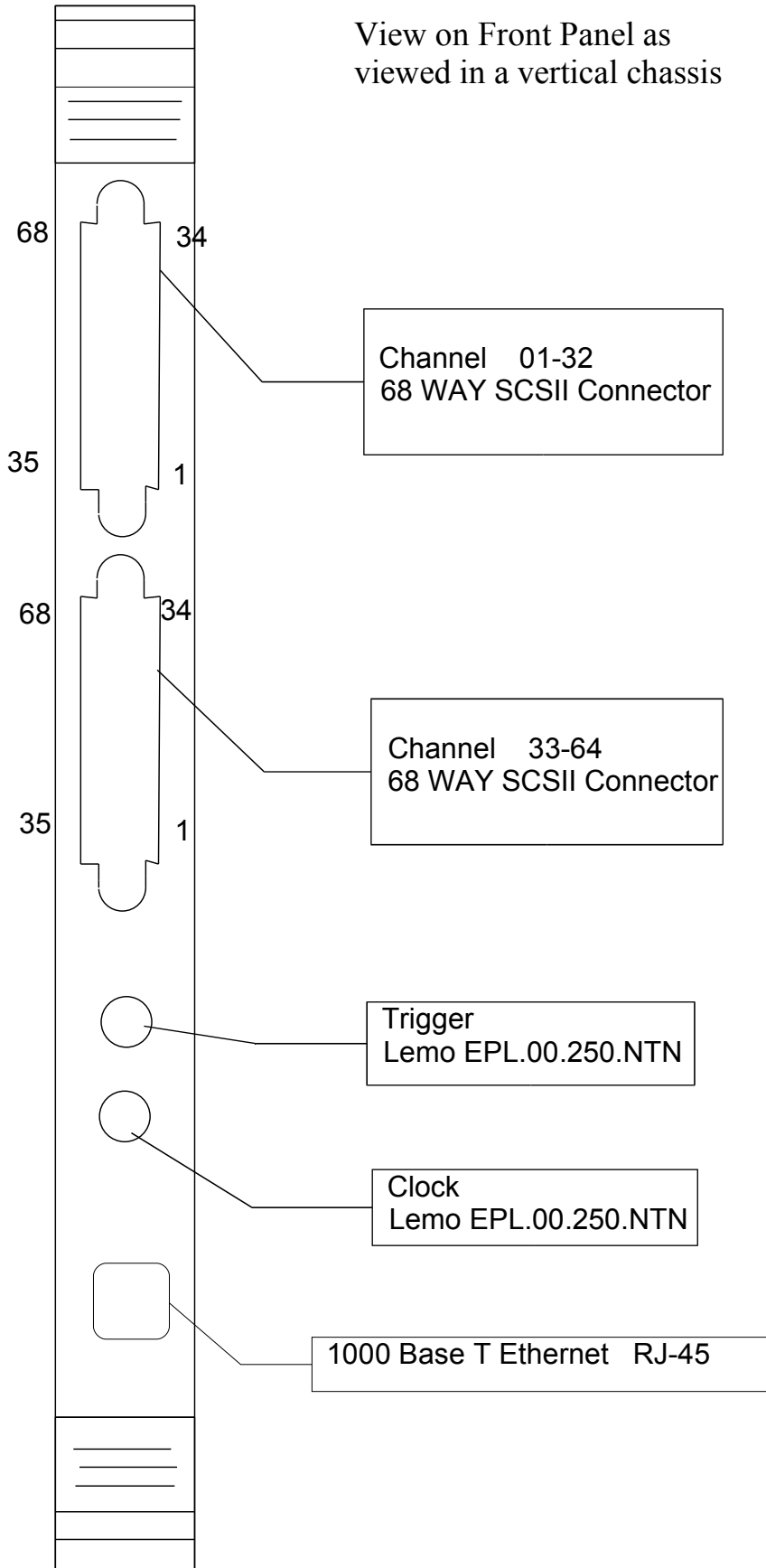
4.4 Analog Input Connector on Front Panel for Channel 01 to 32

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

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

4.5 Analog Input Connector on Front Panel for Channel 17 to 32

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog In 33+	37	Analog In 33-
4	Analog In 34+	38	Analog In 34-
5	Analog In 35+	39	Analog In 35-
6	Analog In 36+	40	Analog In 36-
7	Analog In 37+	41	Analog In 37-
8	Analog In 38+	42	Analog In 38-
9	Analog In 39+	43	Analog In 39-
10	Analog In 40+	44	Analog In 40-
11	Analog In 41+	45	Analog In 41-
12	Analog In 42+	46	Analog In 42-
13	Analog In 43+	47	Analog In 43-
14	Analog In 44+	48	Analog In 44-
15	Analog In 45+	49	Analog In 45-
16	Analog In 46+	50	Analog In 46-
17	Analog In 47+	51	Analog In 47-
18	Analog In 48+	52	Analog In 48-
19	Analog In 49+	53	Analog In 49-
20	Analog In 50+	54	Analog In 50-
21	Analog In 51+	55	Analog In 51-
22	Analog In 52+	56	Analog In 52-
23	Analog In 53+	57	Analog In 53-
24	Analog In 54+	58	Analog In 54-
25	Analog In 55+	59	Analog In 55-
26	Analog In 56+	60	Analog In 56-
27	Analog In 57+	61	Analog In 57-
28	Analog In 258	62	Analog In 58-
29	Analog In 59+	63	Analog In 59-
30	Analog In 60+	64	Analog In 60-
31	Analog In 61+	65	Analog In 61-
32	Analog In 62+	66	Analog In 62-
33	Analog In 63+	67	Analog In 63-
34	Analog In 64+	68	Analog In 64-

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

5 Rear Transition Module RTM Compatibility.

The ACQ164CPCI does NOT require a Rear transition Module for operation, however where additional functionality is required, it is compatible with the ACQ196-RTM's:

ACQ196CPCI-RTM1 – Digital Inputs, Ethernet, RS232.

ACQ196CPCI-RTM-DIO32 – Digital Inputs, Ethernet, RS232, 32 Digital I/O.

ACQ196CPCI-RTM1-A0 – Digital Inputs, Ethernet, RS232, 32 Digital I/O and 16 channels of analog output, which can be used for control and/or waveform generation.

Please refer to ACQ196CPCI installation guide for RTM pinouts.