Hardware Installation Guide

AO32CPCI

32 Channel Simultaneous Analog Output CPCI Card

1 Installation Notes

The AO32CPCI 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 Ensure ESD precautions [chassis, body grounding] are taken before opening card from packaging.

1.2 This card only fits in 6U CPCI Systems.

1.3 Ensure proper ESD precautions are taken during installation.

1.4 Please be extremely careful to ensure correct card guide alignment when plugging in the cards to avoid back-plane pin damage.

The AO32CPCI is designed to operate only as a Peripheral Card : fit only in slots 2..8 in the CPCI chassis. AO32CPCI requires a System Slot controller card in order to function.

2 Standards Conformance

Product conforms to PICMG2.0 rev 3.0.

Compact PCI Peripheral device.

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

3 System Compatibility.

3.1 ACQ196CPCI Accessory

The primary use of AO32CPCI is as an accessory to ACQ196CPCI.

Typically, ACQ196CPCI performs the CPCI System Slot function, controlling one or more AO32CPCI cards. AO32CPCI has the _same_ front panel layout as ACQ196CPCI, and the front panel signal connector pinouts are complementary. This makes it very easy to set up a loop-back test simply by connecting each AO, DO connector on the AO32CPCI front panel to the corresponding AI connector on the ACQ196CPCI front panel. The AO32CPCI device driver for ACQ196CPCI includes an automated test to show this functionality.

Slot 1: ACQ196CPCI

Slots 2..N AO32CPCI

3.2 PC Accessory

It is possible to control AO32CPCI direct from a host PC using a suitable bus extender.

Please not: this configuration is only recommended for DC output, it will not be possible to transfer data at high rates owing to lack of a standard DMA engine on the PC.

Slot 1: PC (usually via bus extender)

Slots 2..N AO32CPCI

3.3 In a Low Latency Control System

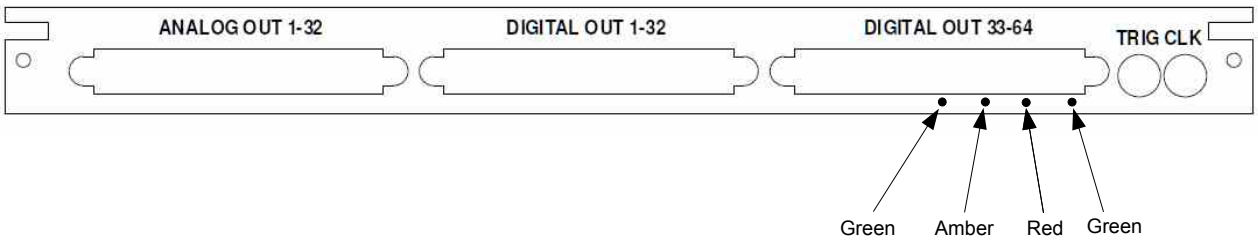
Slot 1: PC (usually via bus extender)

Slot 2, [3]: ACQ196CPCI

Slot 4..N AO32CPCI.

In this scenario, the PC enumerates the CPCI bus, but the ACQ196CPCI orchestrates an efficient data transfer between PC memory and AWG memory on the AO32CPCI.

3.4 Front panel Layout



3.5 Rear Transition Module RTM Compatibility.

The AO32CPCI module does not use an RTM

4 Connectors

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 Analog Out AO32 Connector

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog Out AO01	37	0V
4	Analog Out AO02	38	0V
5	Analog Out AO03	39	0V
6	Analog Out AO04	40	0V
7	Analog Out AO05	41	0V
8	Analog Out AO06	42	0V
9	Analog Out AO07	43	0V
10	Analog Out AO08	44	0V
11	Analog Out AO09	45	0V
12	Analog Out AO10	46	0V
13	Analog Out AO11	47	0V
14	Analog Out AO12	48	0V
15	Analog Out AO13	49	0V
16	Analog Out AO14	50	0V
17	Analog Out AO15	51	0V
18	Analog Out AO16	52	0V
19	Analog Out AO17	53	0V
20	Analog Out AO18	54	0V
21	Analog Out AO19	55	0V
22	Analog Out AO20	56	0V
23	Analog Out AO21	57	0V
24	Analog Out AO22	58	0V
25	Analog Out AO23	59	0V
26	Analog Out AO24	60	0V
27	Analog Out AO25	61	0V
28	Analog Out AO26	62	0V
29	Analog Out AO27	63	0V
30	Analog Out AO28	64	0V
31	Analog Out AO29	65	0V
32	Analog Out AO30	66	0V
33	Analog Out AO31	67	0V
34	Analog Out AO32	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, preferably, 34 shielded twisted pairs.

4.3 Digital Out DO32 Connector #1

Pin No.	Signal	Pin No.	Signal
1	NC	35	0V
2	NC	36	0V
3	Digital Out DO01	37	0V
4	Digital Out DO02	38	0V
5	Digital Out DO03	39	0V
6	Digital Out DO04	40	0V
7	Digital Out DO05	41	0V
8	Digital Out DO06	42	0V
9	Digital Out DO07	43	0V
10	Digital Out DO08	44	0V
11	Digital Out DO09	45	0V
12	Digital Out DO10	46	0V
13	Digital Out DO11	47	0V
14	Digital Out DO12	48	0V
15	Digital Out DO13	49	0V
16	Digital Out DO14	50	0V
17	Digital Out DO15	51	0V
18	Digital Out DO16	52	0V
19	Digital Out DO17	53	0V
20	Digital Out DO18	54	0V
21	Digital Out DO19	55	0V
22	Digital Out DO20	56	0V
23	Digital Out DO21	57	0V
24	Digital Out DO22	58	0V
25	Digital Out DO23	59	0V
26	Digital Out DO24	60	0V
27	Digital Out DO25	61	0V
28	Digital Out DO26	62	0V
29	Digital Out DO27	63	0V
30	Digital Out DO28	64	0V
31	Digital Out DO29	65	0V
32	Digital Out DO30	66	0V
33	Digital Out DO31	67	0V
34	Digital Out DO32	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, preferably, 34 shielded twisted pairs.

4.4 Digital Output DO32 Connector #2

Pin No.	Signal	Pin No.	Signal
1	NC	35	0V
2	NC	36	0V
3	Digital Out DO33	37	0V
4	Digital Out DO34	38	0V
5	Digital Out DO35	39	0V
6	Digital Out DO36	40	0V
7	Digital Out DO37	41	0V
8	Digital Out DO38	42	0V
9	Digital Out DO39	43	0V
10	Digital Out DO40	44	0V
11	Digital Out DO41	45	0V
12	Digital Out DO42	46	0V
13	Digital Out DO43	47	0V
14	Digital Out DO44	48	0V
15	Digital Out DO45	49	0V
16	Digital Out DO46	50	0V
17	Digital Out DO47	51	0V
18	Digital Out DO48	52	0V
19	Digital Out DO49	53	0V
20	Digital Out DO50	54	0V
21	Digital Out DO51	55	0V
22	Digital Out DO52	56	0V
23	Digital Out DO53	57	0V
24	Digital Out DO54	58	0V
25	Digital Out DO55	59	0V
26	Digital Out DO56	60	0V
27	Digital Out DO57	61	0V
28	Digital Out DO58	62	0V
29	Digital Out DO59	63	0V
30	Digital Out DO60	64	0V
31	Digital Out DO61	65	0V
32	Digital Out DO62	66	0V
33	Digital Out DO63	67	0V
34	Digital Out DO64	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, preferably, 34 shielded twisted pairs.