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1.0 - Introduction

Each CPCI32FF provides 32-channels of fixed gain and fixed frequency filtering on a 6U, CompactPCI (CPCI) compatible board. Each CPCI32FF has optional single or differential inputs (DC coupled); and single or differential outputs (DC coupled). Frequency Devices provides a one (1) year product warranty from date of shipment for each card. See **Appendix A** for product performance specifications.

2.0 - Unpacking and Inspection

Carefully inspect the exterior of the package for evidence of damage. After noting areas of possible shipping damage, open and unpack the shipping container, being careful to preserve the container and packing materials in case they are needed later.

CAUTION
CPCI32FF's ARE SENSITIVE TO STATIC ELECTRICITY.
USE PROPER GROUNDING TECHNIQUES WHEN HANDING THE BOARD.

Carefully remove the CPCI32FF from its anti-static bag and visually inspect the card for evidence of damage. If the board appears to be damaged in any way, notify the shipping carrier.

3.0 - Hardware Configuration

Once the CPCI32FF has been removed from its anti-static bag and inspected for damage, you are ready to configure the board.

CAUTION
CPCI32FF's ARE SENSITIVE TO STATIC ELECTRICITY.
USE PROPER GROUNDING TECHNIQUES WHEN HANDING THE BOARD.

Lay the CPCI32FF on a static protected flat surface as shown in **Figure 1**.

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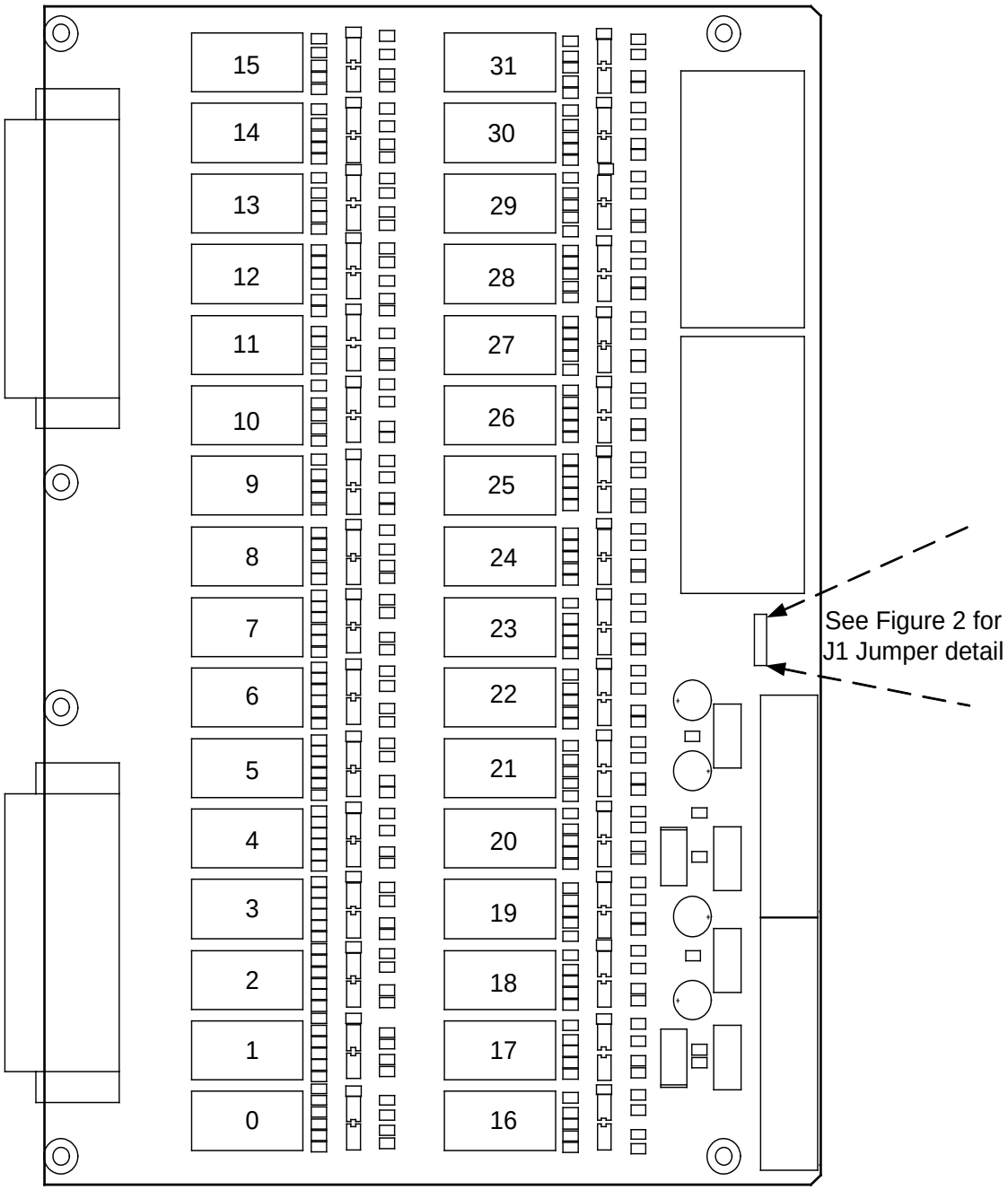

Figure 1
CPCI32FF Top View

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The only user configuration on the CPCI32FF is **Jumper J1 (Figure 2)**, to select the ground reference to the analog circuitry. Jumper J1 allows the analog common of the channel path to float, be referenced to the front panel chassis ground, or be connected to the CPCI back plane power supply return. The best noise performance is obtained by jumpering the Analog Common with the CPCI back plane return.

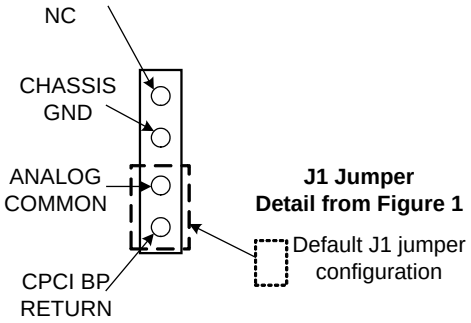

Figure 2
J1 Jumper Configuration

After the J1 jumper has been configured, the CPCI32FF is ready for installation in a CPCI system.

Figure 3 identifies a typical channel for single ended input and differential output configuration.

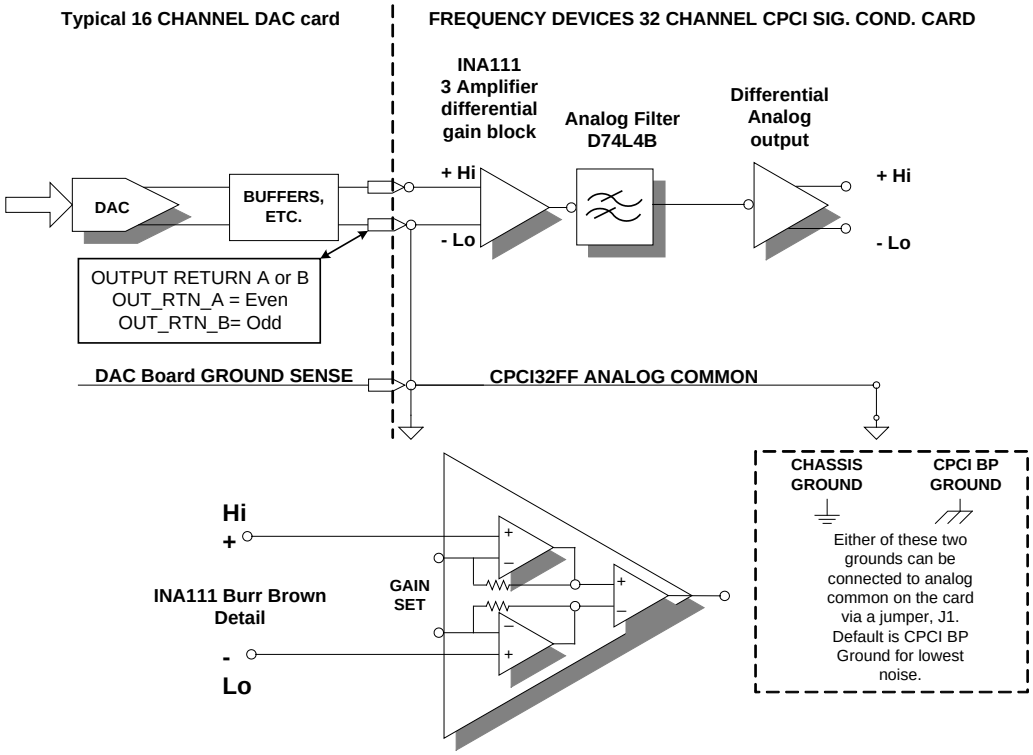

Figure 3
Block Diagram of a Typical Channel

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4.0 - Board Installation

CAUTION
CPCI32FF's ARE SENSITIVE TO STATIC ELECTRICITY. USE PROPER GROUNDING TECHNIQUES WHEN HANDING THE BOARD.

Frequency Devices' Model CPCI32FF mechanically conforms to the single width 6U CPCI form factor.

The CPCI32FF may be installed in any available CPCI slot except Slot 0. The board does not use CPCI interrupts or bus mastering capabilities.

A major consideration when selecting a slot location for the CPCI32FF will be the EMI and I/O signal cabling. To minimize interference from other boards in the system, it is good practice to keep one or more empty slots between analog signal conditioning boards and high-speed digital boards. When cabling the system, it is desirable to keep the analog signal cable as short as possible and physically located away from high speed digital cables and high voltage switching lines.

5.0 - I/O Connections and the Front Panel

The following information is provided to assist the user when installing a CPCI32FF into a CPCI system.

5.1 - Front Panel Layout

The following sections provide detailed information about connectors, pin-out, and cabling. There are no front panel indicators or controls on the CPCI32FF. **Figure 4** shows the layout of the front panel.

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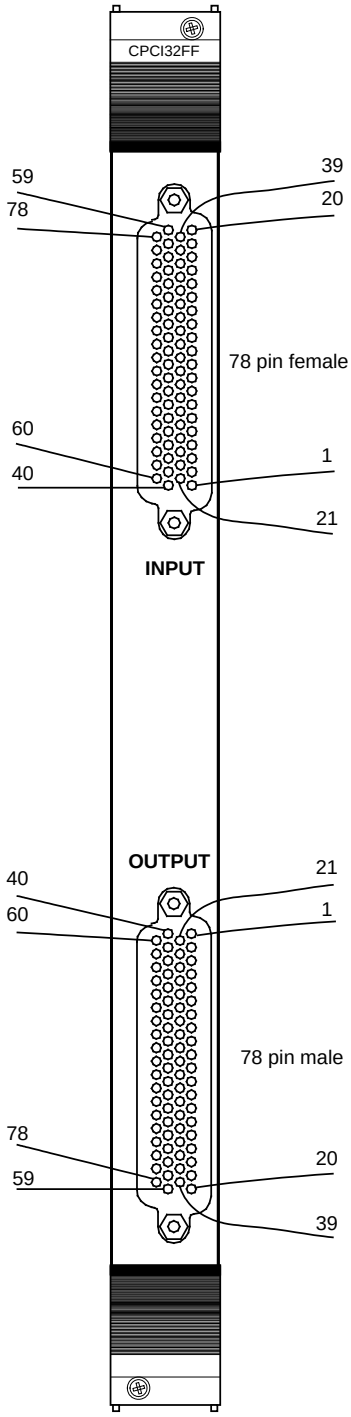

Figure 4
CPCI32FF Front Panel

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5.2. - Input and Output Connector Configurations

The input connector on the board is a female 78 pin high-density D-sub connector. The output connector is a male 78 pin high-density D-sub connector. **Input and output connectors have the same pin out.** Known suppliers for a mating connector are Edac of Canada (633, 634 series), Positronic (ODD series), and AMP. An exact mating connector cannot be recommended because of the large variety of usable connector configuration details such as hoods, cable exit options, etc.

The pins identified **Low** on the input and output connectors, are tied to the analog common when the single ended input or output option is selected.

CH #	PIN#	CH #	PIN#
Channel 0 High	69	Channel 16 High	61
Channel 0 Low	70	Channel 16 Low	62
Channel 1 High	50	Channel 17 High	42
Channel 1 Low	51	Channel 17 Low	43
Channel 2 High	31	Channel 18 High	23
Channel 2 Low	32	Channel 18 Low	24
Channel 3 High	11	Channel 19 High	3
Channel 3 Low	12	Channel 19 Low	4
Channel 4 High	71	Channel 20 High	63
Channel 4 Low	72	Channel 20 Low	64
Channel 5 High	52	Channel 21 High	44
Channel 5 Low	53	Channel 21 Low	45
Channel 6 High	33	Channel 22 High	25
Channel 6 Low	34	Channel 22 Low	26
Channel 7 High	13	Channel 23 High	5
Channel 7 Low	14	Channel 23 Low	6
Channel 8 High	73	Channel 24 High	65
Channel 8 Low	74	Channel 24 Low	66
Channel 9 High	54	Channel 25 High	46
Channel 9 Low	55	Channel 25 Low	47
Channel 10 High	35	Channel 26 High	27
Channel 10 Low	36	Channel 26 Low	28
Channel 11 High	15	Channel 27 High	7
Channel 11 Low	16	Channel 27 Low	8
Channel 12 High	75	Channel 28 High	67
Channel 12 Low	76	Channel 28 Low	68
Channel 13 High	56	Channel 29 High	48
Channel 13 Low	57	Channel 29 Low	49
Channel 14 High	37	Channel 30 High	29
Channel 14 Low	38	Channel 30 Low	30
Channel 15 High	17	Channel 31 High	9
Channel 15 Low	18	Channel 31 Low	10

Pins always available for shielding: 1, 2, 19, 20, 21, 22, 39, 40, 41, 58, 59, 60, 77 & 78.

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6.0 - Troubleshooting and Technical Support

If you have difficulty installing the CPCI32FF, or if the board fails to operate properly, contact Frequency Devices for technical assistance. Technical assistance is available weekdays 8:00 AM to 5:00 PM Eastern time at:

Email: tech@freqdev.com
Telephone: 1-815-434-7800 or at 1-800-252-7074 (US only)
Fax: 1-815-434-8176.

If you would like to contact Frequency Devices in writing, our mailing address is:

Attn: Customer Service
1784 Chessie Lane
Ottawa, IL 61350

7.0 – Warranty Information

The CPCI32FF is warranted against defects in material and workmanship for a period of one (1) year from the date of shipment. During the warranty period, Frequency Devices, Inc. will, at its option, repair or replace products that prove to be defective.

For warranty service or repair:

- Customer must provide a detailed description of the problem.
- Obtain a Return Authorization (RA) number from the factory.
- Properly package and return the product to Frequency Devices.

Limited Warranty

This warranty shall not apply to defects that are the result of improper use, unauthorized modification or repair, or improper installation or maintenance.

No other warranty is expressed or implied. Frequency Devices, Inc. specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

The remedies provided herein are the Buyer's sole and exclusive remedies. Frequency Devices, Inc. shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contact, tort, or any other legal history.

Certification

Frequency Devices, Inc. certifies that this product met its published specification at the time of shipment from our factory. Frequency Devices, Inc. further certifies that its calibration measurements are traceable to the United States National Bureau of Standards, to the extent allowed by the bureau's calibration facility.

8.0 - Repair

Frequency Devices, Inc. maintains a repair facility at its factory in Ottawa, Illinois that is available for both in-warranty and non-warranty repairs. We suggest that you contact Frequency Devices at sales@freqdev.com for a Return Authorization (RA) number before taking steps to return equipment for repair.

Return Authorization

All products being returned to Frequency Devices, Inc. must have a Return Authorization (RA) number. You may obtain an RA number by calling Frequency Devices, Inc. at Tel.: 815/434-7800 or emailing sales@freqdev.com before returning the product.

The RA number should be clearly displayed on the outside of the package being returned and should be placed on all correspondence concerning the instrument.

Frequency Devices, Inc. may refuse to accept shipment and will not be responsible for shipping charges of product returned without an RA number.

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Specifications

APPENDIX A

(Typical @ 25°C and rated Power Input)

Analog Input

1. Impedance	1 GΩ / 47pF
2. Input Range	±10V pk. linear
3. Maximum Input	±40V
4. Common Mode Rejection	75 dB min. @ 60 Hz.

Analog Output (each leg)

5. Impedance	1.0 Ω typ., 10 Ω max.
6. Linear Operating Range	±10V pk.
7. Channel to Channel Crosstalk	<-80 dB max. @ 10 kHz
8. Maximum Current	±5mA
9. Offset Voltage	±5mV max.
10. Offset Temp. Coeff.	20μV/°C
11. Short Circuit Protection	Short to Ground
12. Peak Distortion @ 1 kHz, 3.54 Vrms	-80 dBc max.

Filter Characteristics

13. See D72 or D74 Series specifications	
14. Fixed Cut-off Frequency fc (-3dB)	Available 1 Hz to 100 kHz - Factory set

Gain

15. Nominal Gain	1X, 10X, 100X, 1000X – Factory set
16. Accuracy	±1%

Power Supply

17. From CPCI Backplane	+12 V and -12 V, ± 5%, 1.0 A max. each
18. Isolation (default)	Analog ground isolated from backplane and chassis. Connection to ground / backplane common by jumper, can be changed by customer or factory specified.

Environmental

19. Operating	0°C to +70°C
20. Storage	-25°C to +85°C
21. Humidity	0-95% non-condensing

Mechanical

22. Card Size	CPCI 6U single slot 9.17 x 6.3 inches, (233 x160 mm)
23. No. of Input Channels	32 Single or differential, DC coupled, factory set.
24. No. of Output Channels	32 Single or differential, DC coupled, factory set.
25. Mating Connectors	Input: Female high-density 78-pin D-sub Output: Male high-density 78-pin D-sub
26. Weight	~2 lbs., (0.91 kg.)

Ordering Information

Gain Options
1X, 10X, 100X, 1000X

CPCI32FF-S32D-10X

Input
S – Single Ended
D – Differential

Output
S – Single Ended
D – Differential

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