



Dual Frequency Conditioner

CEL-DFC290A Technical Specification

Features:

- Two channels per card for maximum versatility.
- Up to 8 cards may be inserted in a SCU290A chassis.
- Each frequency card may be addressed in the chassis
- Overspeed circuitry for aircraft or automotive engine testing.
- 16 bit accuracy when used with A/D at 333,000 samples per second.
- Both channels have channel selection circuitry. This permits 8 different range selections per channel.
- Voltage trip lines are included to activate overspeed circuitry.
- Each channel has been designed with mini- circuit function blocks that are jumper selectable depending on application.
- Anti- aliasing filter with low harmonic distortion and wide signal to noise ratio to 16 bit resolution.
- Has a complete sample & hold circuit, consisting of a high performance operational amplifier in series with an ultra-low leakage analog switch and a FET input integrating amplifier.



Dual Frequency Conditioner

Typical Applications:

- Aircraft multi - engine test cell
- Automotive engine test cell
- Industrial data acquisition
- Rotational speed measurement

General Description:

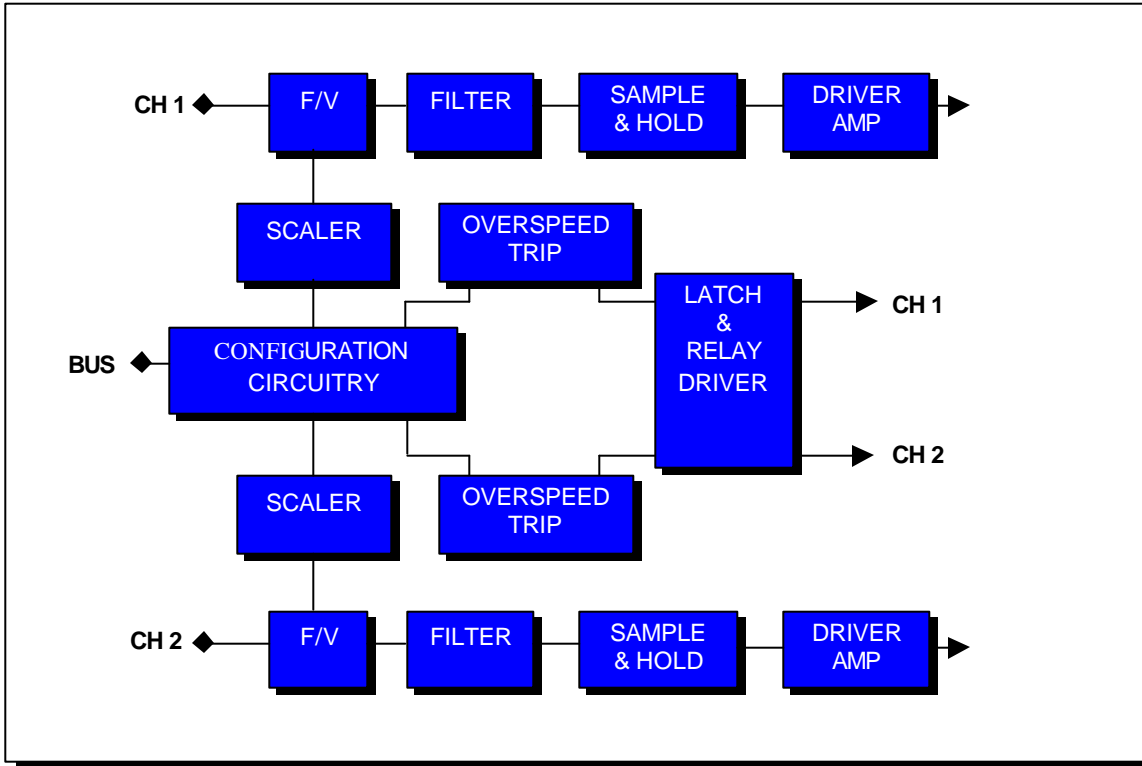
The DFC290A (Dual Frequency Conditioner card) is a 2-channel device that accepts TTL signals. It operates in conjunction with the DFC290A-PC PRE- Conditioner. Up to 8 frequency signal conditioners can be installed in a single SCU290A card cage. The module is packaged on a 3u card, 133 mm (5.25 in.) high x 220 mm (8.6 in) deep.

The frequency conditioner performs the following:

- 1) Converts TTL signal to voltage.
- 2) Subjects signal to an anti-aliasing filter.
- 3) Sample & hold circuitry for synchronized data acquisition .
- 4) Compares output levels to reference voltages to detect overspeed conditions.
- 5) Provides drive circuitry to activate overspeed Military grade relay circuits.



DFC290A Frequency Conditioner Block Diagram:



Specifications

Parameter	Value
Number of channels	2
Frequency scaling of F/V per channel	8
Output- scaleable	1- 10 vdc
Anti-aliasing filter	8 pole, modular
Input signal	TTL
Operating voltage	+/- 15 vdc, +5 vdc

Environmental Characteristics

Temperature	0 deg. C. to 50 deg. C.
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Specifications for mini - circuit function blocks

Frequency to voltage :

- Output 1-10vdc
- Max range 1 MHZ
- Min range 500 HZ
- Input TTL
- Operating voltage +/- 15 vdc, +5 vdc.
- Linearity .03%

Anti-aliasing filter:

- 8 pole, 6 zero elliptic 2.00 (-100 db) range
- fc , fr 1 HZ to 5 KHZ.
- DC voltage gain 0 +/- 0.1 db max, 0 +/- 0.05 db typ.
- Stopband attenuation rate; 100 db min.
- Total harmonic distortion @ 1 KHZ < -80 db typ.
- Narrow band noise (20 HZ – 100 KHZ) 75 uvrms typ.

Sample & hold:

- Acquisition time: 3.0 usec to +/- 0.01 % max.
- Sample / hold offset step : 3 mv max.
- Aperture jitter : 0.5 nsec
- Operating temperature 0- 50 deg C.

Scaleable driver amp:

- 100 drive capability
- High slew rate 2.6 v/ usec typ.
- Bandwidth 3.5 MHZ typ.
- Scaleable DC output 0-10 vdc.

Channel selector:

- 7 bit TTL signal, 3 data, 3 address, 1 strobe

Ordering Information

Model	Description	Type	Part #
DFC290A-1	Dual channel Frequency Conditioner	Overspeed Channel selection Auto-calibration	00937224-01
DFC290A-2	Dual channel Frequency Conditioner	No overspeed No channel selection Auto-calibration	00937224-02

CEL Aerospace Test Equipment Ltd. 715, Delage Suite 100, Longueuil, Quebec Canada J4G
 2P8 Tel. : 450-442-9994 Fax : 450-442-1149 Web : www.cel-aerospace.ca