Dual RVDT / LVDT Conditioner

CEL DPM290A
Technical Specification

Features:

- Two channels per card for maximum versatility.
- Up to 8 cards may be inserted in a SCU290A chassis.
- Accommodates a variety of position measurement transducers.
- On-board modular oscillator provides excitation to transducers, if required.
- Each channel has been designed with mini-circuit function blocks that are jumper selectable; circuit blocks can be jumpered for different applications.

Dual RVDT / LVDT Conditioner

Typical Applications:

- Aircraft engine test cell
- Automotive engine test cell
- Industrial data acquisition
- Position control systems

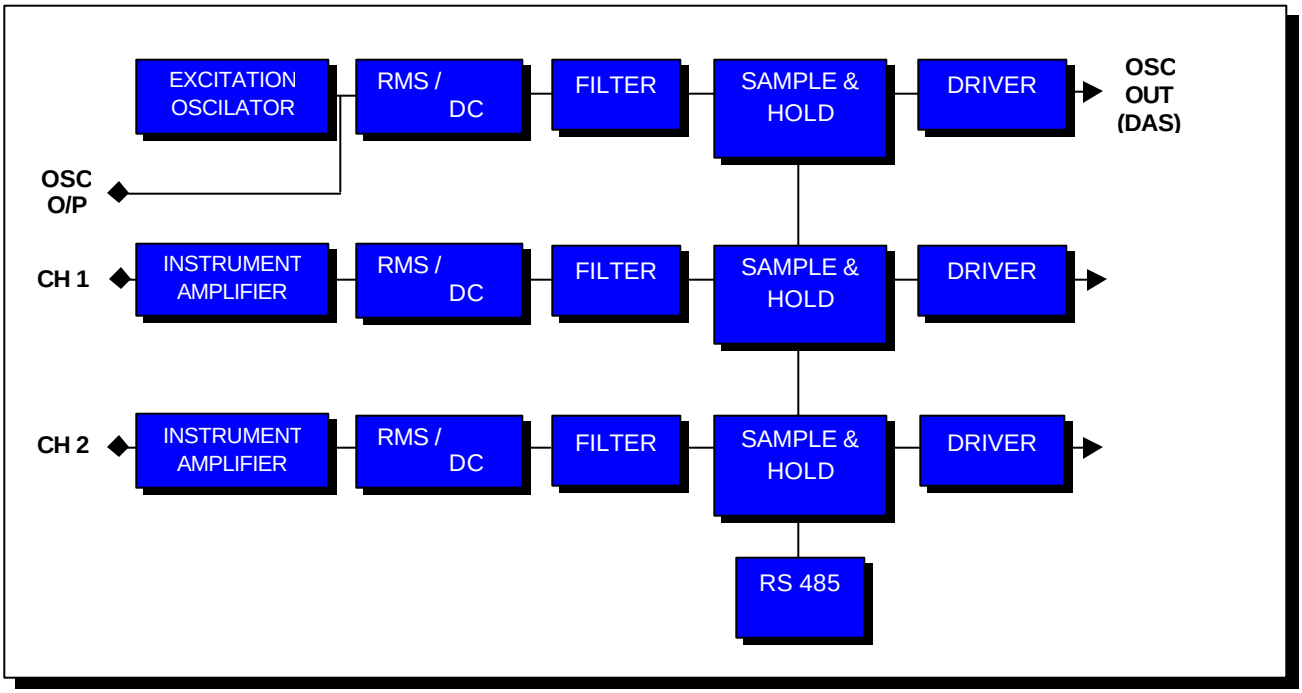
General Description:

The DPM290A (Dual Position Measurement card) is a dual channel device. An oscillator channel is also included for transducer excitation. There are a variety of different oscillators available. Oscillator amplitude and trim frequency adjustments are provided. Up to 8 RVDT/LVDT conditioners may be installed in a single SCU290A card cage. The module is packaged on a 3u board, 133 mm (5.25 in) high x 220 mm (6.3) deep.

The RVDT/LVDT conditioner performs the following:

1) Amplifies or attenuates the incoming signal depending on application
2) Converts RMS signal to direct current (DC) signal
3) Subjects signal to an anti-aliasing filter
4) Provides a sample & hold circuit for synchronized data acquisition
5) Provides a scaleable output amplifier.

DPM290A RVDT/LVDT Block Diagram:



Specifications

Parameter	Value
Number of channels	2
Oscillator channel	1
Anti-aliasing filter	8 pole,modular
Operating voltage	+/- 15 vdc, + 5vdc

Environmental Characteristics

Temperature	0 deg. C to 50 deg. C.

Specifications for mini-circuit function blocks

Instrumentation amplifier:

- Adjustable gain 0.1 to 10,000
- Input offset voltage 50 uv
- Low offset drift 0.3 uv / degree c max.
- Thermal shut-down circuit prevents destruction of output transistors during overload conditions.

R.M.S. to D.C. converter:

- Computes true r.m.s. value of any complex waveform
- Crest factor up to 10 with less than 1 % additional error
- Measures signals up to 600 KHZ with inputs of 200 mv and up to 8 MHZ when input levels are above 1 v r.m.s.
- .02% max non-linearity, 0 to 2 volt
- r.m.s input, 0.10% additional error to crest factor of 3.

Anti-aliasing filter:

- Low harmonic distortion and wide signal to noise ratio to 16 bit resolution.
- 8 pole, 6 zero elliptic, 2.00 (-100 db) range: fc, fr, 1HZ 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 uv r.m.s. yyp

Sample & hold: - 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.

- Acquisition time: 3.0 usec to +/- 0.01% max.
- Sample / hold offset step 3 mv max.
- Aperture jitter 0.5 nsec.

Scaleable driver amplifier:

- 100 ohm drive capability
- High slew rate 2.6 v/ usec typ.
- Bandwidth 3.5 MHZ typ.
- DC output 1 to 10 vdc.
- AC output (stand alone) 24 pk to pk.

Oscillator:

- Range, 100 HZ to 50.0 KHZ
- Tolerance, +/- 1%
- Frequency stability .02%/ deg. C
- Amplitude: 1 to 20 v p-p.
- Harmonic distortion: 100 HZ to 10.0 KHZ 0.1 %
- Output: 6 v p-p into 600 ohm
- Output is short circuit protected

Ordering Information

Model #	Description	Type	Part #
DPM290A-1	Dual channel RVDT/LVDT Conditioner	With oscillator	YY64203-01
DPM290A-2	Dual channel RVDT/LVDT Conditioner	No oscilator	YY64203-02

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