



Quad AC/DC Signal Conditioner

CEL-QSC290A Technical Specification

Features:

- Four channels per card for maximum versatility.
- Up to 8 cards may be inserted in a SCU290A chassis.
- Differential inputs on all channels may be single-ended if required.
- 16 bit accuracy when used with A/D, at 333,000 Samples per second.
- Card may be configured as stand-alone with input/output connectors or may be used with a QSC290A-PC
- Each channel has been designed with in-circuit function blocks that are jumper selectable depending on application. Many configurations are available.
- Each channel consists of:
 - 1) Instrumentation amplifier
 - 2) R.M.S. to DC converter
 - 3) anti-aliasing filter
 - 4) sample & hold amplifier
 - 5) Scaleable driver/buffer circuit



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Typical Applications:

- Aircraft engine test cell
- Automotive engine test cell
- Industrial data acquisition
- Bridge measuring devices
- 4-20 ma measuring devices

General Description:

The QSC290A (Quad Signal Conditioner card) is a 4-channel device. All inputs are differential and outputs single-ended.

The card accommodates a variety of bridge measuring transducers and can be configured to accept 4-20 ma Inputs. Up to 8 AC/DC conditioners may be installed in a single SCU290A card cage.

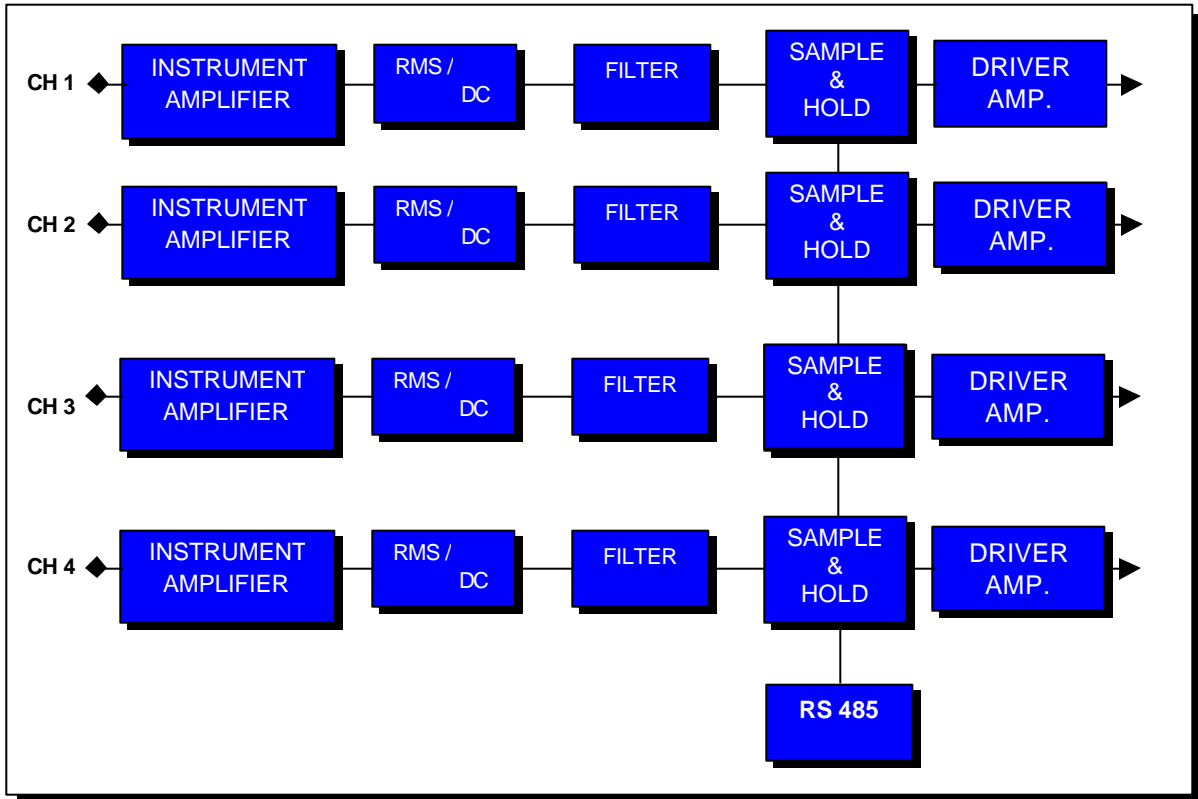
The module is packaged on a 3u board, 133 mm (5.25 in.) high x 220mm (6.3 in) deep.

The QSC290A AC/DC conditioner performs the following:

- 1) Amplifies or attenuates the incoming signal, depending on application.
- 2) Converts RMS signal to direct current (DC) voltages.
- 3) Subjects signal to an anti-aliasing filter,
- 4) Provides a sample & hold circuit for synchronized data acquisition,
- 5) Provides a buffer/driver for stand-alone operation.



QSC290A AC/DC Conditioner Block Diagram:



Specifications

Parameter	Value
Number of channels	4
Output- scaleable	1-10vDC
Anti-aliasing filter	8 pole , modular
Operating voltage	+/- 15vDC, +5vDC
Input	Configured per customer request

Environmental characteristics

Temperature	0 deg. C to 50 deg. C
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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 DC 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
rms. 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 gains 0 +/- 0.1 db max,
0 +/- 0.05 db typ.
- Stop band 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. typ.

**Sample & hold:**

- A complete sample & hold (s&h) 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 jitters 0.5 nsec.

Scaleable driver amplifier:

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

Ordering Information

Model	Description	Type	Part#
QSC290A-1	Quad ACDC Conditioner	With filter With s&h	YY64204-01
QSC290A-2	Quad ACDC Conditioner	With filter No s&h	YY64204-02
QSC290A-3	Quad ACDC Conditioner	Stand – alone With I/O connections	YY64204-03

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