



OPAL-RT
TECHNOLOGIES

**OP5342 Analog to Digital Converter
2 MSPS
User Manual**

Published by

OPAL-RT Technologies, Inc. 1751 Richardson, suite 2525 Montréal (Québec) Canada H3K 1G6

www.opal-rt.com

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OP5342 ANALOG TO DIGITAL CONVERTER (2 MSPS)

DESCRIPTION

The OP5342 is a part of the type B mezzanine modules for OPAL-RT's state of the art HIL (hardware-in-the-loop) systems. Designed for OPAL-RT's simulation systems, the OP5342 converts analog signals to digital.

Each ADC can sample up to 2 MSPS, giving a total throughput of 32 MS/s, all channels are simultaneously sampled. The on-board EEPROM provides offset and gain data adjustment written during the factory calibration process.

The OP5342 provides 16 differential analog input channels. Each channel uses a 16-bit resolution analog-to-digital converter. The OP5342 module also has a maximum input signal is factory configured to ± 20 volts.

FEATURES

- 16 analog input channels, 16 bits, 2 MSPS
- Any input to ground has 500k Ω 1M Ω differential input impedance
- ± 20 V input voltage

OFFSET CALIBRATION

The OP5342 contains a serial EEPROM to store the module identification, calibration information and any other important information. Each OP5342 module is calibrated after assembly; during calibration, gain and offset are adjusted to ensure accuracy.

SCHEMATICS

Figure 1 represents a simplified schematic of the input stage of the OP5342 modules. The first filter remove the excessive noise. The signal is then attenuate to keep the maximum input voltage range of ± 20 Volts with no additional resistors.

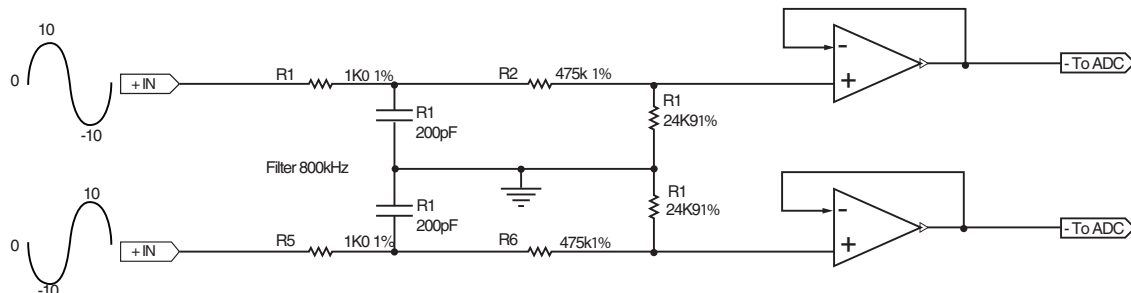
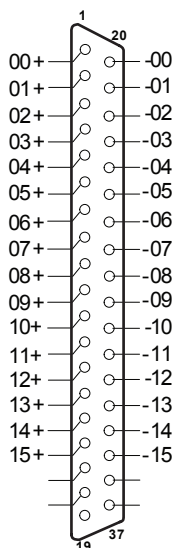


Figure 1: Differential input ADC circuit

DB37 PIN ASSIGNMENTS

Ch. 0-15			
DB37F	OP5342 pin assignment	DB37F	OP5342 pin assignment
1	+IN00	20	-IN00
2	+IN01	21	-IN01
3	+IN02	22	-IN02
4	+IN03	23	-IN03
5	+IN04	24	-IN04
6	+IN05	25	-IN05
7	+IN06	26	-IN06
7	+IN07	27	-IN07
9	+IN08	28	-IN08
10	+IN09	29	-IN09
11	+IN10	30	-IN10
12	+IN11	31	-IN11
13	+IN12	32	-IN12
14	+IN13	33	-IN13
15	+IN14	34	-IN14
16	+IN15	35	-IN15
17		36	
18	Reserved	37	Reserved
19			



SPECIFICATIONS

Product name	OP5342 analog to digital converter (16 analog inputs - 1 MSPS)
Part number	126-0559
Number of channels	16
Resolution	16 bits
Input impedance	1 M Ω
Max. Sampling Frequency	2 MSPS
Min Conversion / Acquisition Time	500 nanoseconds per channel
ADC Type	8 x Dual ADC
Input voltage range	\pm 20V
Bandwidth	Small signal (-3 dB): 400 kHz
Accuracy	\pm 10mV on the entire \pm 20V range
System noise max.	5mVrms
Recommended warm-up time	5 min.
Dimensions	6.60 cm x 12.50 cm (2.6" x 4.92")
Operating temperature	0 to 50 °C (32 to 122°F)
Storage temperature	-55 to 85°C (-67 to 185°F)
Relative humidity	10 to 90%, non condensing
Maximum altitude	2,000 m (6562 ft.)

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Note:

While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines.

This publication is not intended to form the basis of a contract.



UM17-17116 RVN_1.1.2
04/2017

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