

ANALOG INPUTS

NUMBER OF CHANNELS:

32 Differential or 64 Single Ended; Software Configurable

A/D FIFO BUFFER SIZE:

2048 Samples

CHANNEL GAIN QUEUE LENGTH:

64 Entries

A/D RESOLUTION:

12 Bits

INPUT GAIN AND RANGE:

Gain	Range (Bipolar)	Range (Unipolar)
1	$\pm 5V$	0 – 5V
5	$\pm 1V$	0 – 1V
50	$\pm 100mV$	0 – 100mV
250	$\pm 20mV$	0 – 20mV

INPUT RANGE SELECTION:

Software selectable via channel gain queue entry

INPUT OVERVOLTAGE:

 $\pm 15V$ continuous, powered or unpowered.

INPUT BIAS CURRENT

 $\pm 40nA$ maximum @25°C; $\pm 60nA$ max. over operating range.

INPUT IMPEDANCE;

 $> 100M\Omega$ or greater in parallel with 300pF or less, all gains.

SINGLE CHANNEL THROUGHPUT:

333kS/s.

SCANNING THROUGHPUT:

(multiple channels scanned at the same gain)

Gain	Throughput (Bipolar)	Throughput (Unipolar)
1	312.5kS/s	312.5kS/s
5	312.5kS/s	312.5kS/s
50	312.5kS/s	200kS/s
250	75kS/s	60kS/s

LINEARITY:

Integral: ± 1 LSB Max.Differential: ± 1 LSB Max.

ERROR:

 $\pm 0.02\%$ Reading ± 1 LSB max. for gains < 250 , @25°C (typical) $\pm 0.03\%$ Reading ± 1 LSB max. for gain = 250, @25°C (typical)

TEMPERATURE COEFFICIENTS:

Offset – Unipolar: $\pm 10 \mu V/^\circ C \pm (14 \mu V/^\circ C + \text{Gain})$ (typical)Offset – Bipolar: $\pm 10 \mu V/^\circ C \pm (12 \mu V/^\circ C + \text{Gain})$ (typical)Gain: $< 50 \pm 20ppm/^\circ C$ (typical)Gain = 50: $\pm 30ppm/^\circ C$ max. (typical)Gain = 250: $\pm 35ppm/^\circ C$ max. (typical)

Bipolar Input Error							
Range	Resolution (V)	25°C ± 5°C		25°C ± 25°C		Noise (counts, typical)	
		%FSR	%RDG	%FSR	%RDG	p-p	rms
±5 V	0.002441	0.051%	0.030%	0.060%	0.070%	2	0.2
±1 V	0.000488	0.065%	0.030%	0.080%	0.070%	2	0.1
± 100 mV	0.0000488	0.120%	0.040%	0.305%	0.095%	11	1.1
± 20 mV	0.00000976	0.300%	0.048%	1.305%	0.118%	17	1.7

Unipolar Input Error							
Range	Resolution (V)	25°C ± 5°C		25°C ± 25°C		Noise (counts, typical)	
		%FSR	%(RDG-(FSR/2))	%FSR	%(RDG-(FSR/2))	p-p	rms
0 - 5 V	0.001221	0.027%	0.030%	0.036%	0.070%	4	0.4
0 - 1 V	0.000244	0.040%	0.030%	0.056%	0.070%	4	0.4
0 - 100 mV	0.0000244	0.120%	0.040%	0.305%	0.095%	22	2.2
0 - 20 mV	0.00000488	0.276%	0.048%	1.281%	0.118%	34	3.4

Note: Accuracies and r.m.s. calculations are based on an average of 5000 samples. Add noise to get maximum uncertainty of a single sample. "FSR" = "Full Scale Range". "RDG" = "Reading".

COMMON MODE REJECTION (TYPICAL):

Gain = 1; 74dB @ 60 Hz

Gain = 5; 80dB @ 60 Hz

Gain ≥ 50; 100dB @ 60 Hz

DATA TRANSFER MODES:

DMA (PCI Bus Master), Interrupt (Target-mode transfer), Polled (Target-mode transfer)

ANALOG OUTPUTS

NUMBER OF CHANNELS:

Two

RESOLUTION:

12 Bits

RANGE:

$\pm 10V$

ACCURACY:

$\pm 5mV$, typical unloaded; Output impedance = 4 Ohms.

OUTPUT CURRENT:

$\pm 5 mA$ max.

MAXIMUM CAPACITIVE LOAD:

100 μF

DATA TRANSFER MODES:

DMA (PCI Bus Master), Interrupt (Target-mode transfer), Polled (Target-mode transfer)

D/A FIFO BUFFER SIZE:

16 Samples

CLOCK/TIMER

INTERNAL PACER CLOCK RATE:

333 kHz, max.

0.0012 Hz, min.

EXTERNAL PACER CLOCK RATE:

333kHz, max.

EXTERNAL PACER CLOCK PULSE WIDTH:

10 ns, min.

BURST CLOCK RATE:

333 kHz, max.

TRIGGER:

External digital; pre, post, about modes

Internal software; start, stop, pre, post, about modes.

EXTERNAL TRIGGER PULSE WIDTH:

10ns, min.

DIGITAL I/O

INPUT BITS:

4; Two share connector pins for external pacer and trigger.

INPUT LOW:

$V_{IL} = 0.8 \text{ V max.}; I_{IL} = -0.5 \text{ mA max.}$

INPUT HIGH:

$V_{IH} = 2.0 \text{ V min.}; I_{IH} = -350 \mu\text{A max.}$

OUTPUT BITS:

Eight, with strobe.

OUTPUT LOW:

$V_{OL} = 0.5 \text{ V max.}; I_{OL} = 4 \text{ mA max.}$

OUTPUT HIGH:

$V_{OH} = 2.7 \text{ V min.}; I_{OH} = -400 \mu\text{A max.}$

DOSTRB PULSE WIDTH:

300nsec, typ.; Data latched on rising edge.

DATA TRANSFER MODE:

Target mode.

POWER

POWER INPUT:

+5 V; 430mA typ., 870mA max.

+12 V; 300mA typ., 450 mA max.

POWER OUTPUT:

5 V; 1.0A max. (May also be limited by computer or bus capability)

$\pm 15 \text{ V}; 30 \text{ mA max.}$

ENVIRONMENT

TEMPERATURE, OPERATING:

0°C to 50°C

TEMPERATURE, NONOPERATING:

-20°C to 70°C

HUMIDITY:

0 to 95% Relative (non-condensing), operating or nonoperating.

DIMENSIONS:

8 in L \times 4.25 in. H \times 0.75 in. D

ACCESSORIES

TERMINATION:

STP-100

CONN-1800HC

STA-1800HC

SIGNAL CONDITIONING / EXPANSION:

MB-Series

CABLES:

CAB-1800

CAB-1801

CAB-1802

CAB-1800/S (Shielded cable required for CE emissions test)

CAB-1801/S

CAB-1802/S