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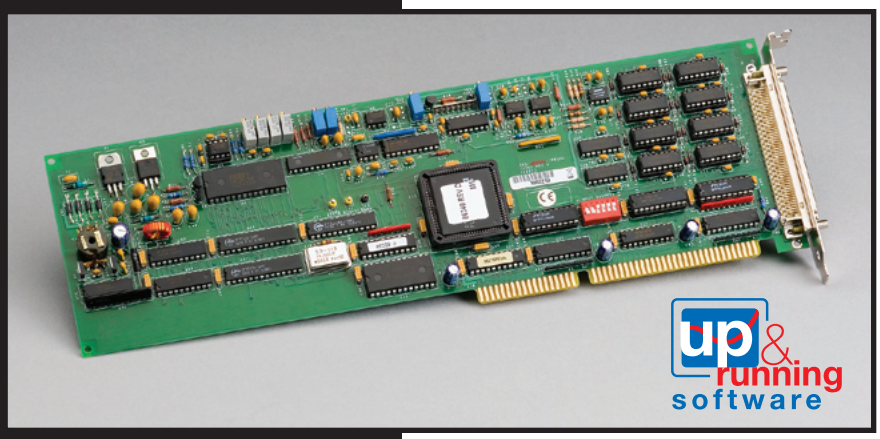
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DAS-1800

333kHz, 12-Bit Multifunction Boards



This family of high performance boards provides analog and digital I/O, optimal performance with Windows, and continuous, gap-free data acquisition on up to 64 channels. With these boards you can sample a few high speed signals, or you can sample a large number of medium-speed signals and monitor various sources and sensors at different voltage levels. Even when you use channels with different gains or in non-sequential order, these boards maintain their high speed acquisition.

- **333 kSamples/s maximum input rate**
- **Channel-gain queue for high speed acquisition at different gains**
- **1K word FIFO**
- **Programmable burst mode sampling emulates simultaneous sample-and-hold**
- **Pre-, post- and about-triggering**
- **32-bit DriverLINX® drivers plus a suite of bundled software including ExceLINX™, VisualSCOPE™, TestPoint™, and LabVIEW® drivers**

Ordering Information

DAS-1802HC
High Channel Count 333 kS/s Analog and Digital I/O Board with gains of 1, 2, 4, 8

DAS-1802ST
Standard 333 kS/s Analog and Digital I/O Board with gains of 1, 2, 4, 8

DAS-1800 Series Selector Guide

	DAS-1802HC	DAS-1802ST
Analog Inputs	64 single-ended or 32 differential	16 single-ended or 8 differential
Maximum Sampling Rate	333 kS/s	333 kS/s
Multiple Channel Aggregate Sampling Rate	312.5 kS/s	312.5 kS/s
Resolution	12-bit	12-bit
FIFO	1024 locations	1024 locations
Gain-Channel Queue Length	64	256
Gains	1, 2, 4, 8	1, 2, 4, 8
Input Ranges	±10 V, ±5 V, ±2.5 V, ±1.25 V 0–10 V, 0–5 V, 0–2.5 V, 0–1.25 V	±10 V, ±5 V, ±2.5 V, ±1.25 V 0–10 V, 0–5 V, 0–2.5 V, 0–1.25 V
D/A Outputs	2	
D/A Update Speed	10k typical, CPU dependent	
D/A FIFO Size	1 location	
Digital Inputs	4	4
Digital Outputs	8	4

APPLICATIONS

- **Product test**
- **Process monitoring**
- **Data logging**

High speed data acquisition

DATA ACQUISITION PRODUCTS

1.888.KEITHLEY (U.S. only)

www.keithley.com

KEITHLEY

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DAS-1800

333kHz, 12-Bit Multifunction Boards

	Bank A Pin	Bank B Pin	
AGND	1	1	AGND
CH16 HI	2	2	CH00 HI
CH16 LO / CH48 HI	3	3	CH00 LO / CH32 HI
CH17 HI	4	4	CH01 HI
CH17 LO / CH49 HI	5	5	CH01 LO / CH33 HI
CH18 HI	6	6	CH02 HI
CH18 LO / CH50 HI	7	7	CH02 LO / CH34 HI
CH19 HI	8	8	CH03 HI
CH19 LO / CH51 HI	9	9	CH03 LO / CH35 HI
CH20 HI	10	10	CH04 HI
CH20 LO / CH52 HI	11	11	CH04 LO / CH36 HI
CH21 HI	12	12	CH05 HI
CH21 LO / CH53 HI	13	13	CH05 LO / CH37 HI
CH22 HI	14	14	CH06 HI
CH22 LO / CH54 HI	15	15	CH06 LO / CH38 HI
CH23 HI	16	16	CH07 HI
CH23 LO / CH55 HI	17	17	CH07 LO / CH39 HI
AGND	18	18	AGND
CH24 HI	19	19	CH08 HI
CH24 LO / CH56 HI	20	20	CH08 LO / CH40 HI
CH25 HI	21	21	CH09 HI
CH25 LO / CH57 HI	22	22	CH09 LO / CH41 HI
CH26 HI	23	23	CH10 HI
CH26 LO / CH58 HI	24	24	CH10 LO / CH42 HI
CH27 HI	25	25	CH11 HI
CH27 LO / CH59 HI	26	26	CH11 LO / CH43 HI
CH28 HI	27	27	CH12 HI
CH28 LO / CH60 HI	28	28	CH12 LO / CH44 HI
CH29 HI	29	29	CH13 HI
CH29 LO / CH61 HI	30	30	CH13 LO / CH45 HI
CH30 HI	31	31	CH14 HI
CH30 LO / CH62 HI	32	32	CH14 LO / CH46 HI
CH31 HI	33	33	CH15 HI
H31 LO / CH63 HI	34	34	CH15 LO / CH47 HI
AGND	35	35	AGND
DAC1 OUT	36	36	DAC0 OUT
-15 V	37	37	+15 V
DGND	38	38	DGND
NC	39	39	DI0 / XPCLK
SSHO	40	40	DI1 / TGIN
TGOUT	41	41	DI2
DOSTB	42	42	DI3
DO4	43	43	DO0
DO5	44	44	DO1
DO6	45	45	DO2
DO7	46	46	DO3
+5 V	47	47	+5 V
+5 V	48	48	+5 V
DGND	49	49	DGND
DGND	50	50	DGND

DAS-1802HC

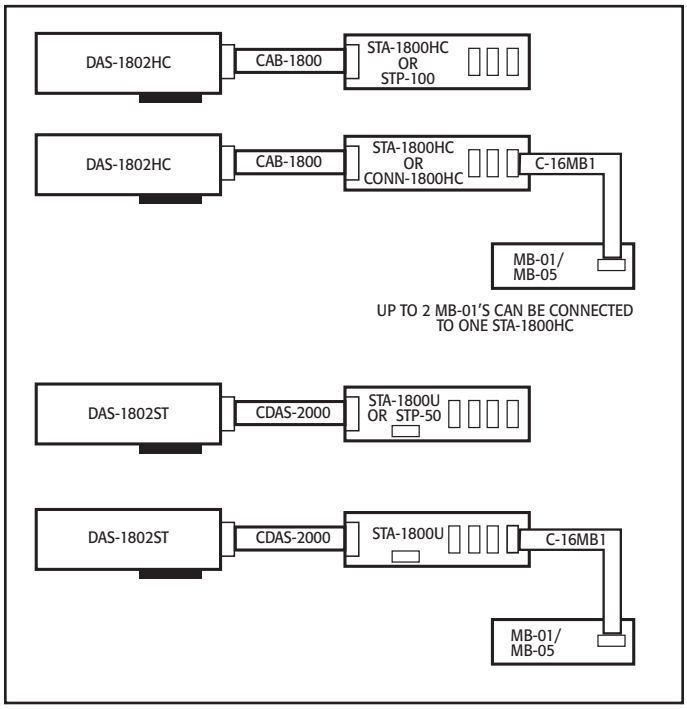
	Pin	Pin	
(User Common Mode)U_CM MD	1	26	CH00HI
CH00LO or CH08HI	2	27	CH01HI
CH01LO or CH09HI	3	28	CH02HI
CH02LO or CH10HI	4	29	CH03HI
CH03LO or CH11HI	5	30	CH04HI
CH04LO or CH12HI	6	31	CH05HI
CH05LO or CH13HI	7	32	CH06HI
CH06LO or CH14HI	8	33	CH07HI
CH07LO or CH15HI	9	34	LLGND
(DAS-1800ST-DA) 0DAC 2	10	35	0DAC 0 (DAS-180xAO/HR-DA/ST-DA)
(DAS-1800ST-DA) 0DAC 3	11	36	0DAC 1 (DAS-180xAO/HR-DA/ST-DA)
+15V	12	37	-15V
LLGND	13	38	LLGND
DGND	14	39	GEXT
DI1	15	40	DI0
DI3	16	41	DI2
DO1	17	42	DO0
DO3	18	43	DO2
DOSTB	19	44	XPCLK
TGOUT	20	45	SSHO
MUX03	21	46	TGIN
MUX05	22	47	MUX04
MUX07	23	48	MUX06
+5V	24	49	+5V
DGND	25	50	DGND

DAS-1802ST

Connector Pin Assignments

The analog input and digital input and output connections of the DAS-1802ST are made with a 50-pin D-type connector at the rear of the computer. The analog input, analog output, and digital input and output connections of the DAS-1802HC are made with a 100-pin D-type connector at the rear of the computer.

Configuration Guide



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DAS-1800 333kHz, 12-Bit Multifunction Boards

ANALOG INPUTS (DAS-1802HC/ST)

NUMBER OF CHANNELS:

8 differential or 16 single-ended; software-configurable with software selectable remote sense (DAS-1802ST).

32 differential or 64 single-ended; software-configurable (DAS-1802HC).

A/D FIFO BUFFER SIZE: 1024 words.

CHANNEL/GAIN QUEUE LENGTH:
256 locations (DAS-1802ST); 64 locations (DAS-1802HC).

RESOLUTION: 12 bits.

INPUT GAINS: 1, 2, 4, 8.

INPUT RANGES: Bipolar: ±10V, ±5V, ±2.5V, ±1.25V. **Unipolar:** 0–10V, 0–5V, 0–2.5 V, 0–1.25V.

INPUT RANGE SELECTION: Software programmable.

INPUT OVERVOLTAGE: ±15V continuous, powered; ±15V continuous, unpowered.

INPUT BIAS CURRENT: ±40nA max. @ 25°C; ±60nA max. over operating temperature.

INPUT IMPEDANCE: >100MΩ in parallel with 90pF.

THROUGHPUT–SINGLE CHANNEL: 333kS/s for any gain or range.

THROUGHPUT (multiple channels, at the same gain): 312.5kS/s for all ranges.

LINEARITY: Integral: ±½ LSB typical, ±1 LSB max. **Differential:** ±1 LSB.

ABSOLUTE ACCURACY: ±0.01% of reading ±1 LSB for all ranges, typical.

TEMPERATURE COEFFICIENTS:
Offset - Unipolar: ±10μV/°C ± (14μV/°C ÷ gain) max.
Offset - Bipolar: ±10μV/°C ± (12μV/°C ÷ gain) max.

GAIN: Gain < 50: ±20ppm/°C of FS max.

CONVERSION TIME: 3.0μs max.

NOISE: p-p = 1; rms = 0.1, for all gains and ranges.

COMMON MODE REJECTION RATIO: **Gain = 1:** 74dB.
Gain = 2, 4: 80dB.
Gain = 8: 86dB.

DATA TRANSFER MODES: DMA (single or dual channel), interrupt, or programmed I/O.

ANALOG OUTPUTS
(DAS-1802HC only)

NUMBER OF CHANNELS: 2.

RESOLUTION: 12 bits.

RANGE: ±10V.

ABSOLUTE ACCURACY: ±1 LSB max.

OUTPUT DRIVE CURRENT: ±5mA max.

CAPACITIVE LOAD DRIVE: 100μF.

LINEARITY: Integral: ±¼ LSB typ., ±½ LSB max.

POWER-UP STATE: 0.0V.

GLITCH ENERGY: 300nV·seconds.

DATA TRANSFER MODES: Interrupt or programmed I/O.

ENVIRONMENTAL

OPERATING TEMPERATURE: °C to +50°C

STORAGE TEMPERATURE: –20°C to +70°C

HUMIDITY: 0 to 95% (non-condensing)

EMC: Conforms to European Union Directive 89/336/EEC.

SAFETY: Meets EN61010-1/IEC 1010.

DIMENSIONS: 13.3 in L × 4.25 in H × 0.75 in D (33.8cm × 10.8cm × 1.9cm).

ACCESSORIES AVAILABLE

C2600	26-inch ribbon cable for the MB Series signal conditioning rack
C-16MB1	MB-01 backplane to STA-1800HC or STA-1800U cable
CAB-1800	DAS-1802HC to STA-1800HC 100-pin, 18-inch cable
CAB-1800/S	DAS-1802HC to STA-1800HC 100-pin, 18-inch shielded cable
CAB-1801/S	DAS-1802HC to STA-1800HC 100-pin, 36-inch shielded cable
CAB-1802/S	DAS-1802HC to STA-1800HC 100-pin, 72-inch shielded cable
CAB-1803/S	120 inch shielded cable
CDAS-2000	DAS-1802HR or DAS-1802ST to STA-1800U cable
CONN-1800HC	Connector Accessory for the DAS-1802HC
MB-01*	16-Channel Direct-Connection Module Mounting Rack
MB-05*	8-Channel Direct-Connection Module Mounting Rack
STA-1800HC	Screw Terminal Accessory for the DAS-1802HC Series w/CJC for Thermocouples
STA-1800U	Universal Screw Terminal Accessory for the DAS-1802HR and DAS-1802ST
STP-100	Screw Terminal Panel for 100-pin connectors
STP-50	Screw Terminal Panel for 50-pin connectors

*Signal conditioning modules for the MB-01 and MB-05 can be found in the Signal Conditioning and Accessories section.

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