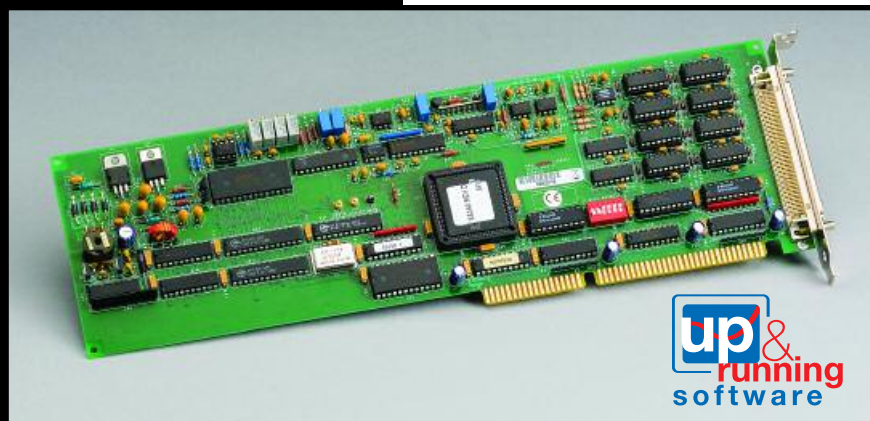


DAS-1800

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 nonsequential 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

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DAS-1800

333kHz, 12-Bit Multifunction Boards

DAS-1800 specifications

DATA ACQUISITION PRODUCTS

| | 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 | DACO OUT |
| -15 V | 37 | 37 | +15 V |
| DGND | 38 | 38 | DGND |
| NC | 39 | 39 | D10 / XPCLK |
| SSHO | 40 | 40 | D11 / TGIN |
| TGOUT | 41 | 41 | D12 |
| DOSTB | 42 | 42 | D15 |
| 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 |

| | 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) ODAC 2 | 10 | 35 | ODAC 0 (DAS-180xAO/HR-DA/ST-DA) |
| (DAS-1800ST-DA) ODAC 3 | 11 | 36 | ODAC 1 (DAS-180xAO/HR-DA/ST-DA) |
| +15V | 12 | 37 | -15V |
| LLGND | 13 | 38 | LLGND |
| DGND | 14 | 39 | GEXT |
| D11 | 15 | 40 | D10 |
| D13 | 16 | 41 | D12 |
| 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 |

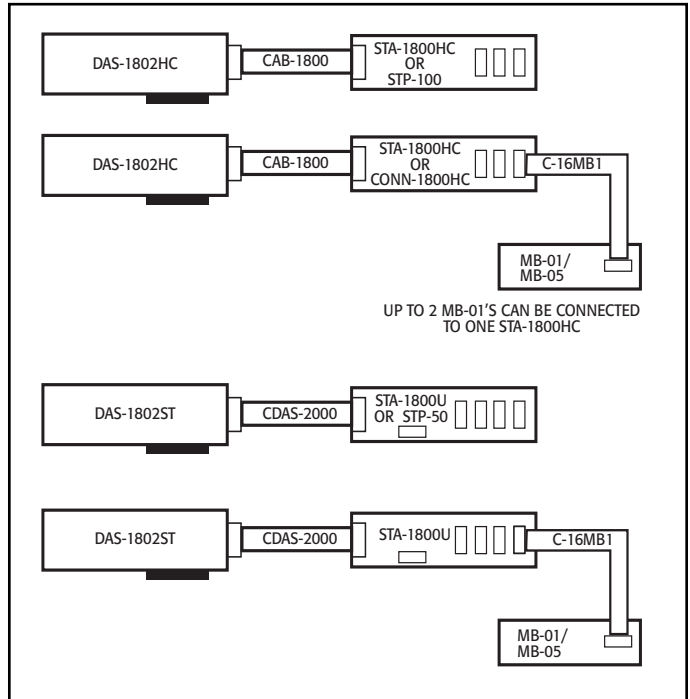
DAS-1802HC

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 output, analog input, 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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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:** $\pm 10V$, $\pm 5V$, $\pm 2.5V$, $\pm 1.25V$. **Unipolar:** 0–10V, 0–5V, 0–2.5 V, 0–1.25V.

INPUT RANGE SELECTION: Software programmable.

INPUT OVERVOLTAGE: $\pm 15V$ continuous, powered; $\pm 15V$ continuous, unpowered.

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

INPUT IMPEDANCE: $>100M\Omega$ 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:** $\pm \frac{1}{2}$ LSB typical, ± 1 LSB max. **Differential:** ± 1 LSB.

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

TEMPERATURE COEFFICIENTS:

Offset - Unipolar: $\pm 10\mu V/^\circ C \pm (14\mu V/^\circ C \div \text{gain})$ max.

Offset - Bipolar: $\pm 10\mu V/^\circ C \pm (12\mu V/^\circ C \div \text{gain})$ max.

GAIN: Gain < 50: $\pm 20ppm/^\circ C$ of FS max.

CONVERSION TIME: 3.0 μs 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: $\pm 10V$.

ABSOLUTE ACCURACY: ± 1 LSB max.

OUTPUT DRIVE CURRENT: $\pm 5mA$ max.

CAPACITIVE LOAD DRIVE: 100 μF .

LINEARITY: **Integral:** $\pm \frac{1}{4}$ LSB typ.; $\pm \frac{1}{2}$ LSB max.

POWER-UP STATE: 0.0V.

GLITCH ENERGY: 300nV-seconds.

DATA TRANSFER MODES: Interrupt or programmed I/O.

ENVIRONMENTAL

OPERATING TEMPERATURE: $^\circ C$ to $+50^\circ C$

STORAGE TEMPERATURE: $-20^\circ C$ to $+70^\circ C$

HUMIDITY: 0 to 95% (non-condensing)

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

SAFETY: Meets EN61010-1/IEC 1010.

DIMENSIONS: 13.3in L \times 4.25in H \times 0.75in D (33.8cm \times 10.8cm \times 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 |
| TESTPOINT | TestPoint Software Package |

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

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