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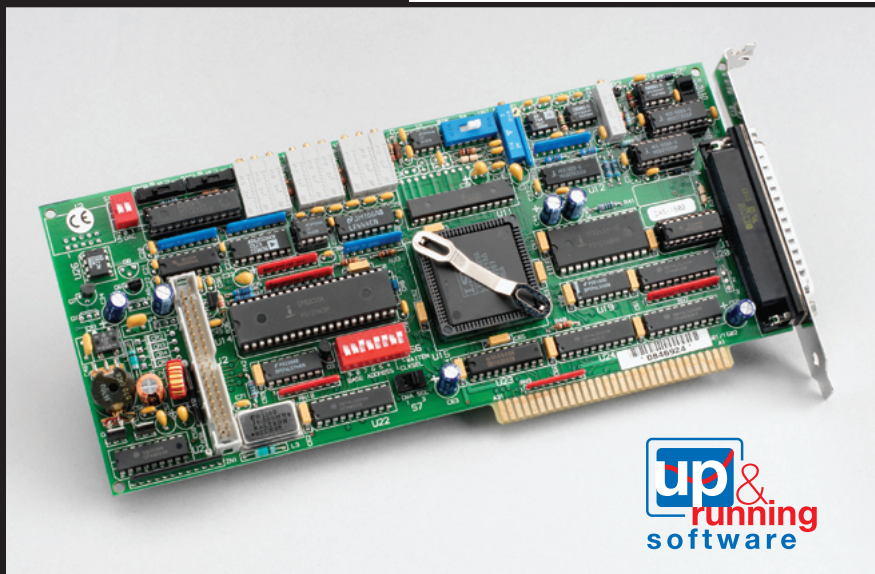
Visit us on the web at www.artisanng.com ↗ for more information on price quotations, drivers, technical specifications, manuals, and documentation

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DAS-1600

50–100kHz, 12-Bit Multifunction Boards

General purpose capabilities



When you need general purpose capabilities, from flexible data transfer to precision triggering, the DAS-1600 Series of high speed analog and digital I/O boards is the answer. This series is ideal for a wide range of product test, process monitoring, and R&D applications.

Specifications

ANALOG INPUTS: 16 single-ended or 8 differential.

MAXIMUM SPEED: Model 01: 100kS/s.
Model 02: 100kS/s

RESOLUTION: 12 bits.

INPUT RANGES: Unipolar: 0 to +10V.
Bipolar: $\pm 10V$.

GAIN SELECTION: Programmable.

GAINS: Model 01: 1, 10, 100, 500.
Model 02: 1, 2, 4, 8.

D/A OUTPUTS: 2.

DIGITAL I/O LINES: 32.

- 16 single-ended or eight differential inputs with two analog outputs
- Up to 100 kSamples/s maximum input rate
- 12-bit resolution
- High speed DMA transfer capability
- Selectable analog input ranges
- Burst mode timing emulates simultaneous sample-and-hold
- 32 digital I/O lines
- Two 12-bit D/A channels
- Backwards-compatible with DAS-16G Series
- 16-bit DriverLINX[®] software drivers for Windows[®] 95/98—ActiveX and DLL based

ACCESSORIES AVAILABLE

C1800	DAS-1600 to STA-16, STA-U, or STP-37 Cable
EXP-16	16-Channel Multiplexer Accessory Board
MB-01*	16-Channel Direct-Connection Module Mounting Rack
MB-05*	8-Channel Direct-Connection Module Mounting Rack
SI600	DAS-1600 Series to EXP-16 cable
STA-16	Screw Terminal Accessory for main I/O connector
STA-MB	Screw Terminal Accessory for the MB-Series Modules
STC-37	Screw Terminal Connector
STA-U	Universal Screw Terminal Accessory for auxiliary I/O connector
STP-37	Cost-effective Screw Terminal Panel

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

Ordering Information

DAS-1601 100kS/s Analog and Digital I/O Board with gains of 1, 10, 100, and 500

DAS-1602 100kS/s Analog and Digital I/O Board with gains of 1, 2, 4, and 8

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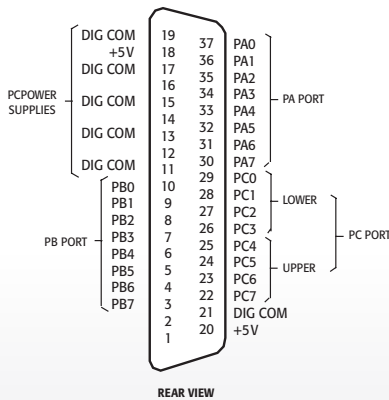
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50–100kHz, 12-Bit Multifunction Boards

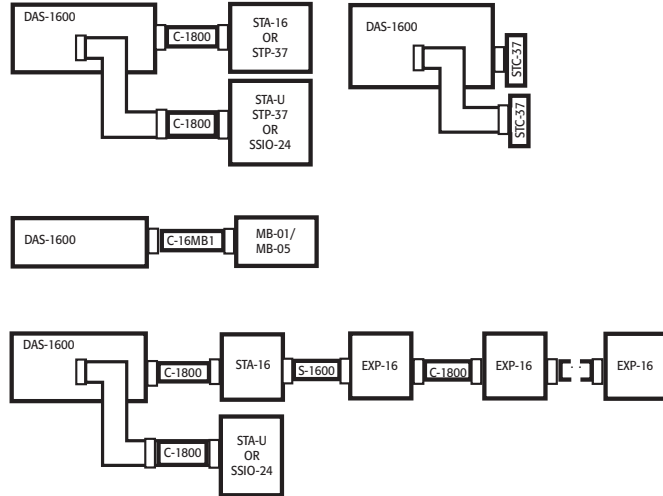
Main I/O Connector

LL GND	19	37	CH0 HI IN
CH0 LO IN /*CH8 HI IN	18	36	CH1 HI IN
CH1 LO IN /*CH9 HI IN	17	35	CH2 HI IN
CH2 LO IN /*CH10 HI IN	16	34	CH3 HI IN
CH3 LO IN /*CH11 HI IN	15	33	CH4 HI IN
CH4 LO IN /*CH12 HI IN	14	32	CH5 HI IN
CH5 LO IN /*CH13 HI IN	13	31	CH6 HI IN
CH6 LO IN /*CH14 HI IN	12	30	CH7 HI IN
CH7 LO IN /*CH15 HI IN	11	29	LL GND
DAC 0 IN	10	28	LL GND
DAC 0 OUT	9	27	DAC 1 OUT
VREF (-5V)	8	26	DAC 1 IN
POWER GND	7	25	IP0 / EXTERNAL CLOCK
IP1/XTRIG	6	24	IP2 / CTR 0 GATE
IP3	5	23	OP0
OP1	4	22	OP2
OP3	3	21	CTR 0 CLOCK IN
CTR 0 OUT	2	20	CTR 2 OUT
+5V PWR	1		

Auxiliary I/O Connector



Configuration Guide



Specifications

ANALOG INPUTS

- NUMBER OF CHANNELS: 8 differential or 16 single-ended; software-selectable.
- ACCURACY: 0.01% of reading ± 1 bit.
- CONVERTER TYPE: Successive approximation.
- RESOLUTION: 12 bits.
- CONVERSION TIME: $8\mu\text{s}$ max ($7.5\mu\text{s}$ typ).
- ACQUISITION TIME: $1.4\mu\text{s}$.
- MONOTONICITY: Guaranteed over operating temperature range.
- LINEARITY: ± 1 bit.
- CODING: Offset binary (bipolar), True binary (unipolar).
- OVERVOLTAGE: $\pm 35\text{V}$ max powered; $\pm 20\text{V}$ unpowered.
- INPUT CURRENT: 250nA max (125nA type) @ 25°C .
- INPUT IMPEDANCE: Greater than $25\text{M}\Omega$.

TEMPERATURE COEFFICIENT:

GAIN DRIFT : ± 50 ppm/°C max of full scale.

ZERO DRIFT : $\pm 10\mu\text{V}/^\circ\text{C} \pm 200\mu\text{V}/\text{gain}$ (bipolar).
 $\pm 10\mu\text{V}/^\circ\text{C} \pm 50\mu\text{V}/\text{gain}$ (unipolar).

MODEL DAS-1601

Gain	Unipolar Input Range	Bipolar Input Range	Throughput
1	0 to +10 V	± 10 V	100 kS/s
10	0 to +1 V	± 1 V	100 kS/s
100	0 to +100 mV	± 100 mV	70 kS/s
500	0 to +20 mV	± 20 mV	30 kS/s

MODEL DAS-1602

Gain	Unipolar Input Range	Bipolar Input Range	Throughput
1	0 to +10 V	± 10 V	100 kS/s
2	0 to +5 V	± 5 V	100 kS/s
4	0 to +2.5 V	± 2.5 V	100 kS/s
8	0 to +1.25 V	± 1.25 V	100 kS/s

DAS-1601		DAS-1602	
Bipolar electrical noise (in counts)			
Gain=1: p-p=1; rms=0.1	Gain=1: p-p=1; rms=0.1	Gain=2: p-p=1; rms=0.1	Gain=4: p-p=1; rms=0.1
Gain=10: p-p=1; rms=0.1	Gain=2: p-p=1; rms=0.1	Gain=4: p-p=1; rms=0.1	Gain=8: p-p=1; rms=0.1
Gain=100: p-p=2; rms=0.2	Gain=4: p-p=1; rms=0.1		
Gain=500: p-p=3; rms=0.5	Gain=8: p-p=1; rms=0.1		
Unipolar electrical noise (in counts)			
Gain=1: p-p=1; rms=0.1	Gain=1: p-p=1; rms=0.1	Gain=2: p-p=1; rms=0.1	Gain=4: p-p=1; rms=0.1
Gain=10: p-p=1; rms=0.1	Gain=2: p-p=1; rms=0.1	Gain=4: p-p=1; rms=0.1	Gain=8: p-p=1; rms=0.1
Gain=100: p-p=2; rms=0.2	Gain=4: p-p=1; rms=0.1		
Gain=500: p-p=3; rms=0.5	Gain=8: p-p=1; rms=0.1		

NOISE

Bipolar electrical noise typical (in counts)

Gain = 1 : p-p = 1; rms = 0.1
 Gain = 10 : p-p = 1; rms = 0.1
 Gain = 100 : p-p = 2; rms = 0.2
 Gain = 500 : p-p = 4; rms = 0.5

Bipolar electrical noise (in counts)

Gain = 1 : p-p = 1; rms = 0.1
 Gain = 2 : p-p = 1; rms = 0.1
 Gain = 4 : p-p = 1; rms = 0.1
 Gain = 8 : p-p = 2; rms = 0.2

D/A CONVERTERS

NUMBER OF CHANNELS: 2 independent.

RESOLUTION: 12 bits.

VOLTAGE RANGE: 0 to 5V, 0 to 10V, ± 5 V, ± 10 V; switch-selectable (other ranges possible with external reference).

OUTPUT DRIVE CURRENT: ± 5 mA max.

SETTLING TIME: 20 μ s to 0.01%.

LINEARITY: $\pm 1/2$ bit.

MONOTONICITY: Guaranteed.

OUTPUT IMPEDANCE: Less than 0.1 Ω .

DIGITAL I/O

(8 bits on main 37-pin D connector)

OUTPUTS (STANDARD LSTTL):

OUTPUT BITS: 4.

OUTPUT LOW: $V_{OL} = 0.5$ V max @ $I_{OL} = 8.0$ mA.

OUTPUT HIGH: $V_{OH} = 2.4$ V min @ $I_{OH} = -0.4$ mA.

INPUTS (AND INTERRUPTS) (LSTTL):

INPUT BITS: 4.

INPUT LOW: $V_{IL} = 0.8$ V max; $I_{IL} = -0.2$ mA max.

INPUT HIGH: $V_{IH} = 2.0$ V min; $I_{IH} = +10\mu$ A max.

DIGITAL I/O

(24 bits on Auxiliary Connector)

TYPE: 82C55A-5.

I/O: 24 bits.

INPUT LOW: $V_{IL} = 0.8$ V max; $I_{IL} = -10\mu$ A max.

INPUT HIGH: $V_{IH} = 2.0$ V min; $I_{IH} = +10\mu$ A max.

OUTPUT LOW: $V_{OL} = 0.45$ V max @ $I_{OL} = 1.7$ mA.

OUTPUT HIGH: $V_{OH} = 2.4$ V min @ $I_{OH} = -200\mu$ A.

GENERAL ENVIRONMENTAL

OPERATING TEMPERATURE: to 70°C.

STORAGE TEMPERATURE: -20 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: 9 in L \times 4.25 in H \times 0.90 in D
 (22.9cm \times 10.8cm \times 2.3cm).

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