

DASCON-1

Compatible with existing applications.
For new applications see Selection Guide.

General Purpose ISA-Bus
Analog and Digital I/O Board

Functional Description

The DASCON-1 is a multifunction analog/digital I/O expansion board for the ISA-bus compatible PCs. It is designed to allow use of the IBM PC/XT in low-speed, high-precision data acquisition and control.

Channels 0 and 1 of the A/D converter are equipped with instrumentation amplifiers with switch-selectable gains of 1, 10, 100, or 1000. Channels 2 and 3 are switch-selectable for direct input or use with the built-in interfaces for 2-, 3-, or 4-wire RTDs for temperature measurement. If input signals are unavoidably noisy, a low-pass filter (30dB of attenuation at 60Hz) can be switched into each channel.

There are 2 optional channels of 12-bit D/A output available. Output ranges of $\pm 10V$, $\pm 5V$, $\pm 2.5V$, and $+5V$ are DIP-switch selectable.

Two precision, adjustable voltage reference outputs are included, and each output can be adjusted between $\pm 6.8V$ at 5mA. Two precision 1mA constant current sources are provided (-10 to $+2.5V$ compliance).

Twelve bits of digital I/O (4 input and 4 output) are available as one port of 8 bits and another of 4 bits.

External interrupt control is provided so that you can select any of the IBM PC interrupt levels (2-5) for programmed interrupt routines.

Two built-in RTD interfaces can be switched into analog input channels 2 and 3.

Software

The DASCON-1 provides a simple-to-use Call Driver accessed by single BASIC "CALL" statements.

ORDER DESCRIPTION

DASCON-1 General Purpose Analog and Digital I/O Board with software on 3.5 inch disks

OPTIONS

STA-01 Screw Terminal Accessory Board

STP-37 Screw Terminal Panel

C1800 STA-01 or STP-37 to DASCON-1 Cable

DAC-12 D/A Chip (max 2 per board)

See page 479 for descriptions of all accessories.

FEATURES

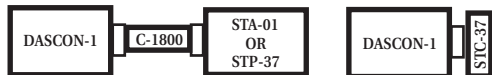
- 12-bit plus sign low noise dual slope integrating A/D converter
- 12 bits of digital I/O
- 4 analog input channels with overvoltage protection to 120V rms
- 4 analog input 30dB (60Hz) switchable filters
- 2 switch-selectable RTD interfaces
- 2 analog output channels (optional)
- 2 precision adjustable voltage references
- 2-, 3-, 4-wire RTD operation
- 2 precision 1mA constant current sources
- 30 samples per second throughput

Connector Pin Assignments

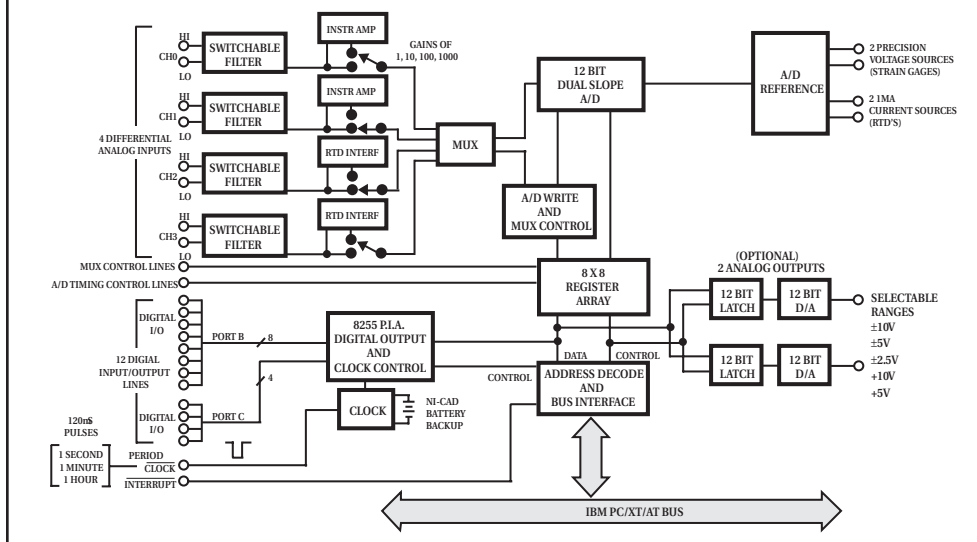
| | | | |
|---------------|----|----|------------|
| LOW LEVEL GND | 19 | 37 | CH0 HI IN |
| CH0 LO IN | 18 | 36 | CH1 HI IN |
| CH1 LO IN | 17 | 35 | CH2 HI IN |
| CH2 LO IN | 16 | 34 | lexe2 |
| lexe3 | 15 | 33 | CH3 HI IN |
| CH3 LO IN | 14 | 32 | REF #0 OUT |
| REF #1 OUT | 13 | 31 | D/A #0 OUT |
| D/A #1 OUT | 12 | 30 | CLOCK |
| DIG COM | 11 | 29 | PC0 |
| PB0 | 10 | 28 | PC1 |
| PB1 | 9 | 27 | PC2 |
| PB2 | 8 | 26 | PC3 |
| PB3 | 7 | 25 | BUSY |
| PB4 | 6 | 24 | CH ADDR 0 |
| PB5 | 5 | 23 | CH ADDR 1 |
| PB6 | 4 | 22 | ID CH ADDR |
| PB7 | 3 | 21 | RUN/ HOLD |
| CONV COMP | 2 | 20 | +5V |
| IRQ IN | 1 | | |

REAR VIEW OF EACH 37-PIN D CONNECTOR

Configuration Guide



Block Diagram



SPECIFICATIONS

Analog Inputs

RESOLUTION: 12 bits plus sign (0.5mV/bit)
ACCURACY: 0.01% of reading ± 1 bit
FULL SCALE: $\pm 2.0475V$
CONVERSION RATE: 30 conversions/s max
SWITCHABLE GAIN RANGES: 1, 10, 100, or 1000

RTD Interfaces

ALLOCATED CHANNELS: 2 and/or 3.
RTD TYPE: 100 Ω Alpha = 0.00385 (DIN or European) platinum 2/3/4 wire.
EXCITATION CURRENT: 1.000mA.
LEAD RESISTANCE COMPENSATION: Included for 3 & 4 wire RTD types.

D/A Output Channels

SWITCH-SELECTABLE OUTPUT RANGES: 0 to $+10V$, 0 to $+5V$ (unipolar), $\pm 2.5V$, $\pm 5V$, $\pm 10V$ (bipolar).
OUTPUT CURRENT: $\pm 5mA$ min.

Voltage and Current Sources

VOLTAGE SOURCES: $\pm 6.8V$ at 5mA max (user-adjustable).
CURRENT SOURCES: 1.000mA with 1000M Ω output impedance at DC.

Power Supplies

+5V SUPPLY: 450mA typ./600mA max.
-5V SUPPLY: 8mA typ./15mA max.
+12V SUPPLY: 70mA typ./100mA max.
-12V SUPPLY: 60mA typ./100mA max.