

# VCM-DAS-2

PC/104 Data Acquisition & Control Module

**200 kHz 16-bit analog input, analog output and digital I/O module.**

## Analog Input

- 16 channels
- 16-bit input resolution
- Single ended, high impedance inputs
- Electronic digital calibration
- Up to 200 K samples/second
- $\pm 5V$  and  $\pm 10V$  input ranges
- On board timer for periodic readings
- Auto retrigger mode
- Auto Channel Increment Mode
- DMA support
- Compatible with industry standard 5B01 series signal conditioners

## Analog Output

- 2 channels
- 12-bit resolution
- Electronic digital calibration
- 0-5V and 0-10V output range
- 40  $\mu S$  update time
- Short circuit proof, 5 ma output current

## Digital I/O

- Two 8-bit ports
- $\pm 24$  ma output drive
- Programmable read-only or read/write
- Opto 22 compatible
- EEPROM storage for user data



## Description

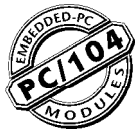
The VCM-DAS-2 module provides a combination of analog I/O, digital I/O, and non-volatile storage, which makes it ideal for data acquisition and control applications. All of its functions are provided on a single 3.8 x 3.6" PC/104 module.

The analog input section features 16 single-ended input channels with 16-bit resolution, fast 5  $\mu S$  conversion, and a  $\pm 5V$  or  $\pm 10V$  input range (153 $\mu V$  or 305 $\mu V$  resolution). Throughput of up to 200 kHz may be realized with conversions on one channel and up to 100 kHz when scanning between channels. A variety of automatic channel scanning and triggering modes are available, including DMA support.

The analog output section includes two 12-bit analog output channels. Each may be jumpered independently for 0-5V or 0-10V output.

Both sections feature simplified calibration using programmable digital pots. In addition, the on-board EEPROM which is used to store the calibration values has free space available for user data. The digital pots power up and reset to mid-scale, and can be set to any calibration value during system initialization.





# VCM-DAS-2

## PC/104 Data Acquisition & Control Module

The digital I/O section provides 16 digital I/O lines which feature high current TTL drivers. The two 8-bit ports are byte configurable as inputs only or outputs with readback. The digital interface is plug compatible with Opto 22 type modular I/O racks.

### Software Support

Complete C Language source code drivers are included. Also includes DOS-based diagnostic and calibration routines.

### Ordering Information

VCM-DAS-2..... 200 kHz Analog I/O Module  
VL-HDW-101..... Standoff Pkg. Metric Thread  
VL-CBL-2602..... 1.5' 26-pin/26-pin socket

### Specifications

Specifications are typical at 25°C with 5.0V and ±12.0V supplies unless otherwise noted.

#### Board Size:

3.8" x 3.6" (PC/104 standard)  
0.6" component height

#### Storage Temperature:

-40°C to 85°C

#### Free Air Operating Temperature:

0°C to +60°C

#### Power Requirements:

+5V @ 510 ma typical  
±12V @ ±20 ma typical

#### Analog Input:

Channels: 16 channels  
Resolution: 16 bits, no missing codes  
Accuracy: ±0.003% (±3 LSBs)  
Input Mode: Single ended  
Range: ±5V or ±10V (jumper selectable, all channels the same)

Conversion Time: 5 µS

Settling Time: 5 µS (applies only when switching channels)

Protection: ±35V overvoltage protection

Impedance: >10<sup>10</sup>Ω, 20pF

Retrigger Timer: Programmable 20 µS, 50 µS, 100 µS, 250 µS, 500 µS, 1 mS

Interrupt Channel: IRQ 10, 11, or 12

DMA Channel: DMA 5, 6, or 7

#### Humidity:

Less than 95%, noncondensing

#### Analog Output:

Channels: 2 channels

Range: 0 to 5V or 0 to 10V (jumper selectable, each channel independent)

Resolution: 12 bits

Accuracy: ±1.5 LSB

Update/Settling Time: 40 µS

Output Drive: 5 ma, 200 pF (each channel)

Access: Bitwise serial

#### Digital I/O:

Channels: 16 (non-inverting)

Input Threshold: TTL compatible

Output Drive (H): -24 ma @ 2.4V

Output Drive (L): +24 ma @ 0.55V

Signal Direction: Byte programmable as input or output with readback

Short Protection: Short circuit to ground, indefinite duration

I/O Interface: Occupies 16 ports on any 16-bit boundary

#### EEPROM:

Organization: Sixty-four 16-bit words

Allocation: Two words used for digital pots, 62 words available for general purpose storage

Access: Bitwise serial

#### External Connectors:

Analog In/Out: 26-pin .1" header

Opto 22: 34-pin .1" header

#### Compatibility:

PC/104: Full compliance, 16-bit data bus

Specifications are subject to change without notice. PC/104 and the PC/104 logo are trademarks of the PC/104 Consortium.

