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# 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**
- **±5V and ±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 µS update time**
- **Short circuit proof, 5 ma output current**

## Digital I/O

- **Two 8-bit ports**
- **±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 µS conversion, and a ±5V or ±10V input range (153µV or 305µV 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.

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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: $>10^{10}\Omega$, 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.

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