

# VME-AIO8-4

## Analog Inputs and Outputs

### Analog I/O

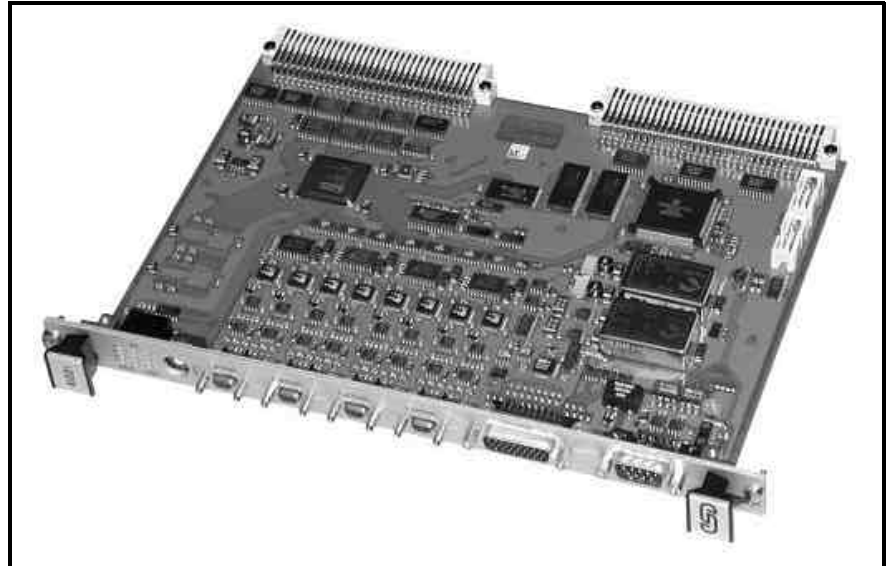
- 8 analog inputs
- 4 analog outputs
- 8 sigma-delta converter inputs

### CAN

- 1 CAN interface ISO11898

### Industrial Standard

- safety of operation by electrical isolation via optocouplers



### Intelligent CPU Kernel

VME-AIO8-4 is an intelligent VMEbus board, that is equipped with an 68331 microcontroller and a FPGA for local data control.

The CPU section of the VME-AIO8-4 contains 256 kbytes of SRAM, 1 Mbyte Flash-EPROM and a RS-232 interface. Configurations may be stored in an EEPROM

### Powerful Analog Inputs

The VME-AIO8-4 offers 8 analog inputs with a resolution of 16 bits each. The input voltage range is  $\pm 10$  V. By varying the resistance values other voltage ranges as well as current measurement ( $\pm 20$  mA) are possible.

The A/D-converters can be synchronized via an external trigger signal. Of course triggering is possible by software as well.

A maximum sampling rate of up to 200 000 samples/s can be obtained by means of the software included.

### Analog Outputs

In addition to the analog inputs the VME-AIO8-4 board contains 4 bipolar  $\pm 10$  V D/A-converter outputs with a resolution of 16 bits.

The I/O-groups are accessible via 4 Micro-DSUB connectors in the front panel.

### Sigma-Delta Converter Inputs

In addition the VME-AIO8-4 is equipped with a sigma-delta converter ADS1216 which offers 8 analog inputs with a resolution of up to 22 bits.

These signals are also accessible via the front panel.

The VME-AIO8-4 offers 3 digital I/Os with RS-485 level as further interfaces.

### Power Supply Of Analog Circuits

The supply voltages of the analog circuits ( $\pm 15$  V, 5 V) is generated of the +12 V VMEbus supply voltage by DC/DC-converters.

### Electrical Isolation

Full electrical isolation of all analog inputs and outputs, proper wiring via the front-panel, an integrated power supply with DC- to DC-converters and LED displays on the front panel make the VME-AIO8-4 ideally suitable for industrial use.

### CAN Interface

The CAN interface is electrically isolated and designed according to ISO 11898. The maximum bit rate is 1 Mbit/s.

### Clock Signal

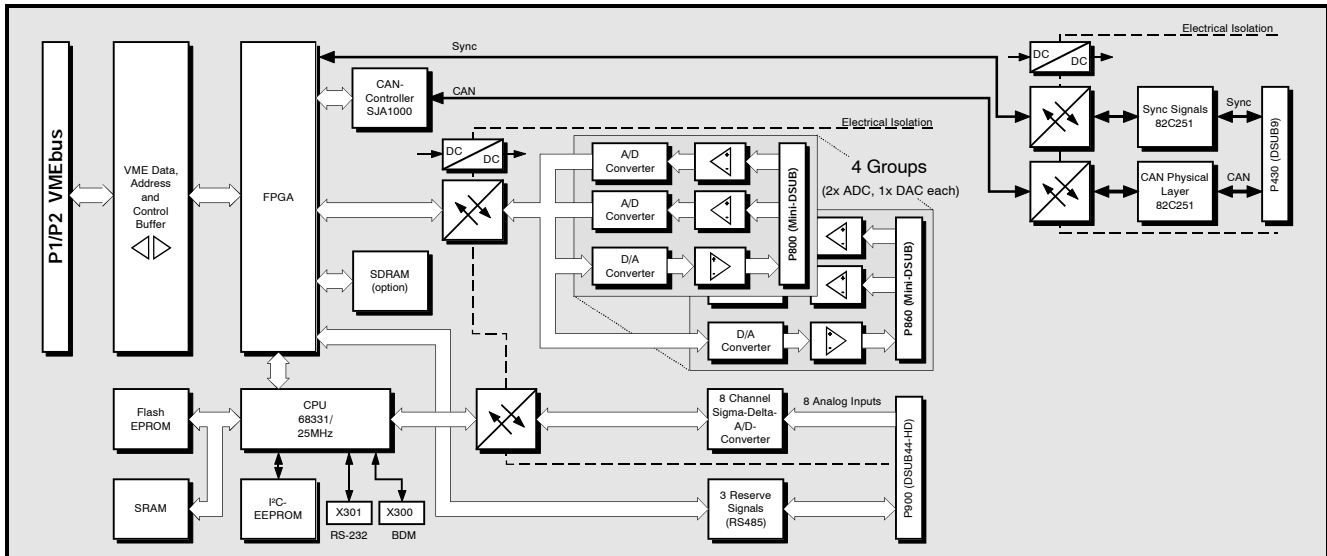
At use of several VME-AIO8-4 boards in one system the analog inputs can get synchronized via a special external clock signal.

### Software Support

A complete operation package is supplied as firmware for the local CPU.

# VME-AIO8-4

## Analog Inputs and Outputs



### Technical Specifications:

#### Process section:

CPU: 68331-25 MHz, 256 kbytes SRAM, 1 Mbytes Flash-EPROM, 1 x RS-232 (19.2 kbit/s default), I2C EEPROM, BDM interface

#### Analog inputs:

Inputs: 8 differential inputs, input voltage range  $\pm 10$  V,  $R_{in} = 1$  M $\Omega$ , current measurement ( $\pm 20$  mA) with shunt possible

Resolution: 16 bits

Trigger: by timer or external trigger

Maximum sample rate: up to 200000 samples/s

Electrical isolation: by optocouplers and DC/DC converters

#### Analog outputs:

Outputs: 4 bipolar outputs  $\pm 10$  V

Resolution: 16 bits

Load:  $R_L \geq 600$   $\Omega$

Electrical isolation: by optocouplers and DC/DC converters

#### Sigma-delta converter inputs:

Converter: ADS1216, configurable by software

Inputs: 8 inputs, input voltage range 0...+5 V

Effective resolution: 22 bits (PGA=1), 19 bits (PGA=128)

Data output: programmable 10 Hz ... 1 kHz

Electrical isolation: by optocouplers and DC/DC converters

#### CAN:

CAN-controller: SJA1000, CAN 2.0A/B

CAN-interface: differential, 1 Mbit/s, ISO11898

#### VMEbus section:

Base address: selectable by coding switch

VMEbus rev.: IEEE 1014 rev. C.1

Data transfer options: A16/D16

Interrupts: programmable levels

#### General:

Temperature: 0...50 °C

Humidity: max. 90%, non-condensing

Connector types: P1, P2: DIN 41612-C96, VMEbus/process I/Os  
P430: DSUB9, CAN  
P800, P820, P840, P860: Micro-DSUB, process I/Os  
P900 DSUB26-HD, process I/Os, BDM interface  
X300: 10-pole post connector, BDM  
X301: 10-pole post connector, RS-232

Board size: 160 mm x 233 mm (6 U height, 1 slot width)

Weight: 380 g

Power P1: +5 V  $\pm 5$  % : approx. 600 mA  
+12 V  $\pm 5$  % : approx. 330 mA

#### Order information:

Designation Order no.

VME-AIO8-4 8 analog inputs, 4 analog outputs, 8 sigma-delta inputs, 1 CAN interface V.1707.02

VME-AIO8-4 user manual english V.1707.21