VME-AIO16
Intelligent A/D Converter

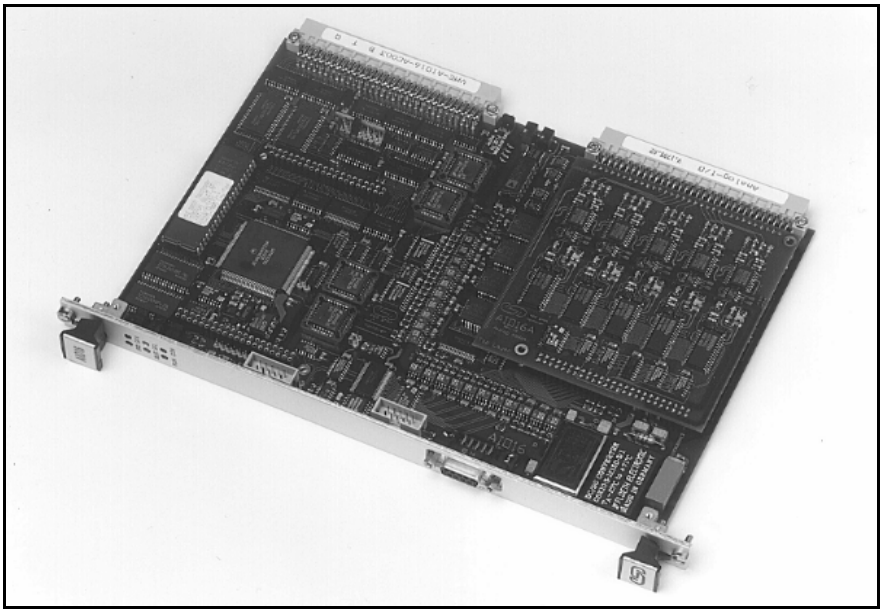
Analog Inputs
- 6 or 16 differential analog inputs ±10 V
- high data throughput by means of local intelligence
- synchronous scan of all 16 channels with a maximum sample rate of 33 kHz
- max. sample rate 45 kHz (only one channel used)

High Resolution
- available A/D converter resolution: 12 or 16 bits

Analog Outputs
- 4 analog outputs ±10 V/16 bits

Software Interface
- easy operation by shared RAM interface

Industrial Standard
- safety of operation by electrical isolation via optocouplers



Intelligent CPU Kernel
VME-AIO16 is an intelligent VMEbus board, containing 6 or 16 analog differential inputs and is ideally suited for fast and flexible data acquisition. It includes all necessary components on a VMEbus 6U board and needs one slot.

The AIO16 contains a local MC 68340 CPU at 25 MHz for the execution of complex data acquisition algorithms. The CPU section of the AIO16 contains 256 kbytes of SRAM, EPROM and two RS-232 interfaces. Configuration parameters may be stored in an EEPROM.

AIO16 contains 256 kbytes of shared SRAM, as well, to form the interface between local CPU and VMEbus.

Powerful Analog Inputs
The AIO16 was designed for use of A/D converters with 16 bits resolution, but can also be equipped with 12 bits resolution converters. The input voltage range with standard components is ±10 V. By varying the resistance values other voltage ranges as well as current measurement (±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.

The following sampling rates can be obtained by means of the software included: The maximum sampling rate from trigger signal until reception of the A/D-data in the SRAM is 33 kHz when all 16 channels are sampled synchronously.

If only 8 channels are sampled synchronously, the maximum sampling rate is 40 kHz, for just one channel it is 45 kHz.

Analog Outputs
In addition to the analog inputs the AIO16 board contains 4 bipolar ±10 V D/A converter outputs with a resolution of 16 bits. These D/A converters allow internal calibration and offset adjustment of the input amplifiers. To achieve this each D/A converter can be connected to one of four A/D inputs via a multiplexer. Of course the user can also use these D/A converter outputs directly as process outputs.

Electrical Isolation
Full electrical isolation of all analog inputs and outputs, proper wiring to the backplane via P2, an integrated power supply with DC to DC converters and LED displays on the front panel make the VME-AIO16 ideally suitable for industrial use.

Software Support
A complete operation package is supplied as firmware for the local CPU. It contains a shared RAM interface and complete parameter settings for sample rate, trigger condition etc.

The multi-channel shared RAM interface makes the implementation of different master operating systems, such as VxWorks, OS-9, PSOS, UNIX or RTOS-UH easy to realize. C drivers for various operating systems are available.

(This product is not recommended for new designs.)

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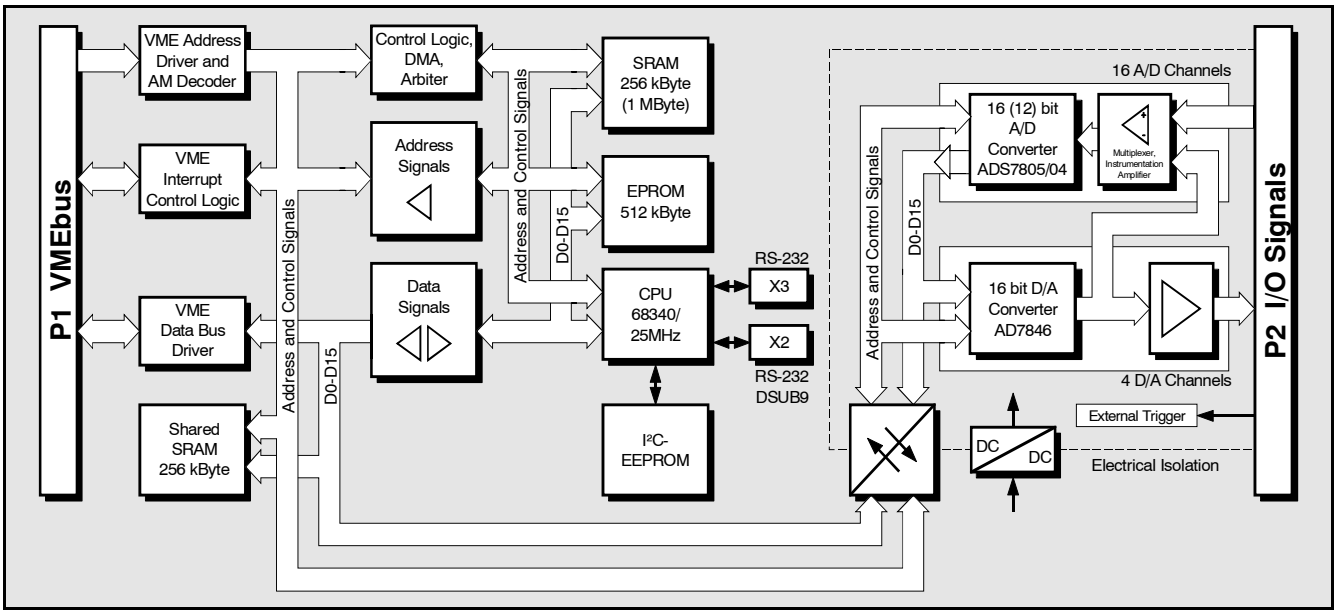

Technical Specifications:

Process section:	
CPU:	*68340-25 MHz, 256 kbytes (1 Mbyte) SRAM, 512 kbytes EPROM, 2 x RS-232 (up to 38.4 kbaud), I²C EEPROM, BDM interface*
Shared RAM:	*256 kbytes SRAM, access via local CPU and VMEbus*

Analog inputs:			
Inputs:	*6 or 16 differential inputs (6 inputs on base board, 10 inputs inserted on A/D add-on), input voltage range ±10 V (standard), other measuring ranges or current measurement (±20 mA) are possible*		
Resolution:	*16 or 12 bits*		
Trigger:	*by software or common external trigger (+5 V)*		
Maximum sample rate:		*without correction*	*with correction*
	16 channels:	*33 kHz*	*10 kHz*
	8 channels:	*40 kHz*	*15 kHz*
	1 channel:	*45 kHz*	*31 kHz*
Electrical isolation:	*by optocouplers and DC/DC converters*		

Analog outputs:	
Outputs:	*4 bipolar outputs ±10 V*
Resolution:	*16 bits*
Load:	*R_L $ 600 S*
Electrical isolation:	*by optocouplers and DC/DC converters*

VMEbus section:	
Base address:	*selectable by jumpers, the board covers 512 kbytes.*
Address modifier:	*AM4 and AM5 are evaluated*
VMEbus rev.:	*IEEE 1014 rev. C.1*
Data transfer options:	*SD16 - slave with A24/D16 access, additionally 'pseudo D32 accesses' possible*

VMEbus section (continued):	
Interrupts:	*programmable levels, interrupt handlers for mailbox interrupts from VMEbus*

General:			
Temperature:	*0...50 /C*		
Humidity:	*max. 90%, non-condensing*		
Connector types:	*P1: DIN 41612-C96, VMEbus* *P2: DIN 41612-C64, process I/Os* *X1: 10-pole post connector, BDM interface* *X2: DSUB9 female, RS-232* *X3: 10-pole post connector, RS-232*		
Board size:	*160 mm x 233 mm (6 U height, 1 slot width)*		
Weight:	*approx. 750 g*		
Power consumption:	*P1:*	*+5 V ±5%* *+12 V ±5%* *-12 V ±5%*	*approx. 2.5 A* *approx. 1.0 A* *approx. 20 mA*

Order information:		
Designation		*Order no.*
VME-AIO16	*CPU 68340, 25 MHz, 256 kbytes SRAM, 16 A/D channels (16 Bit), U_{IN} = ±10 V, 4 D/A channels (16 Bit)*	*V.1705.02*
VME-AIO16-12	*as VME-AIO16, but 16 channels with 12-bit A/D converters*	*V.1705.04*
VME-AIO16-6	*as VME-AIO16, but 6 channels with 16-bit A/D converters*	*V.1705.06*
VME-AIO16-12/6	*as VME-AIO16, but 6 channels with 12-bit A/D converters*	*V.1705.05*
...-AIO16-RAM1M	*1 MByte SRAM, instead of 256 kByte*	*V.1705.10*
VME-AIO16-OS9	*C driver for OS-9 as source*	*P.1705.50*
VME-AIO16-VxW	*C driver for VxWorks as source*	*P.1705.56*

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