

VME-IPOS

Position Controller for 5 Axes

Intelligent Motion Controller

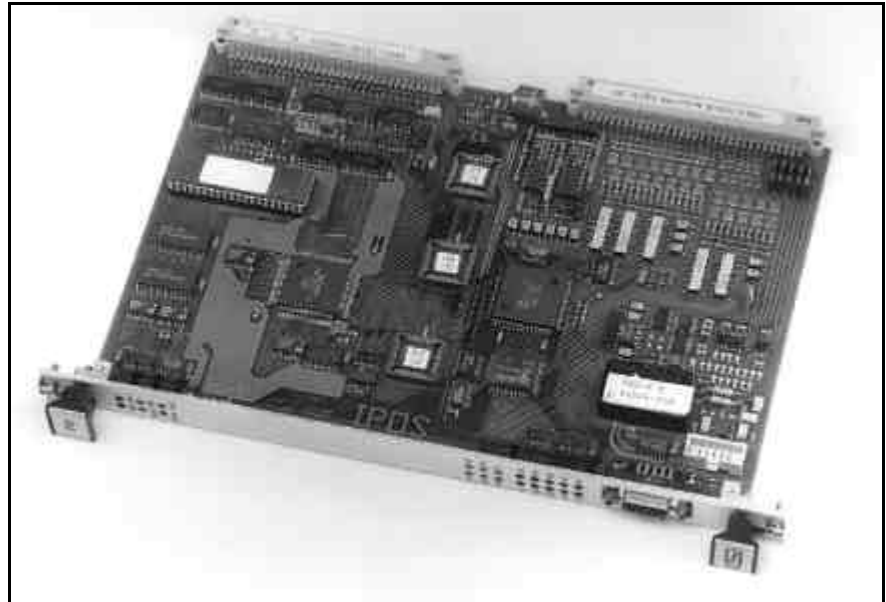
- Incremental encoder inputs
- 2 limit switch inputs per axis
- Analog outputs for servo amplifier connection
- Enable outputs
- Easy handling by means of a shared RAM interface
- Intelligence on board makes the controlling fast and relieves the VMEbus

Industrial Standard

- Safety of operation by optoisolation
- Easy diagnosis by displays on the front panels
- Proper wiring to the backplane via P2

Applications

- Handling systems
- Positioning systems



Process Controller using 68303/16MHz

The VME-IPOS is an intelligent position controller for 5 axes. It covers all necessary components on a VMEbus 6U board and needs only 1 slot.

IPOS is equipped with a local 68303 CPU at 16 MHz for processing of complex track controls as well as synchronous movement of all drives.

Incremental Inputs

The actual positions are acquired by electrically isolated incremental encoder inputs using 24 V and 16 bits resolution. Drive of the motors is done by D/A converters using ± 10 V and 12 bits resolution.

Protected I/O Lines

Additionally, 10 digital inputs using 24 volts are designed for use as limit switches, each two per axis. For digital output signals 5 sustained-short-circuit protected output drivers are available (0.3 A at 24 V). The analog outputs are equipped with industrial output protection diodes.

Electrical Isolation

All signals between VMEbus and process plant - including the analog signals - are optoisolated.

Firmware On-Board

The firmware of the local CPU is completely coded in real-time language PEARL, basing on the multitasking operating system RTOS-UH. A channel-oriented shared RAM interface defines the sectors of parameters and commands for each channel and for the synchronous control.

This makes it easy to implement master systems like an OS-9 system. C drivers for various operating systems are available.

Control of the axes is performed by the local software. The user can access all PID controller parameters, including the limiting of the integrator. For multiple uses, switch-overs or run-in tests, the parameter sets can be stored in a 256 kbytes battery backed SRAM.

Mailbox in the Shared RAM

An additional communication level between master board and VME-IPOS slave board is realized by bi-directional mailbox interrupts via VMEbus.

Monitor/Debugger

Moreover, at a local serial interface (RS-232) an EPROM-resident terminal program is available for the user, that emulates all master commands from the VMEbus, and displays all actual data and status values. Taking advantage of the multi tasking feature of the operating system, the terminal program is able to check the self-developed master software of the user in parallel, e. g. for run-in tests. An additional serial port can be used for service and diagnostic purposes as well as for program development of complex motion algorithms locally running on the IPOS.

Displays on the Front Panel

A useful feature is the display of all digital signals on the IPOS front panel.

Watchdog

For security control of hardware and software a watchdog function is integrated,

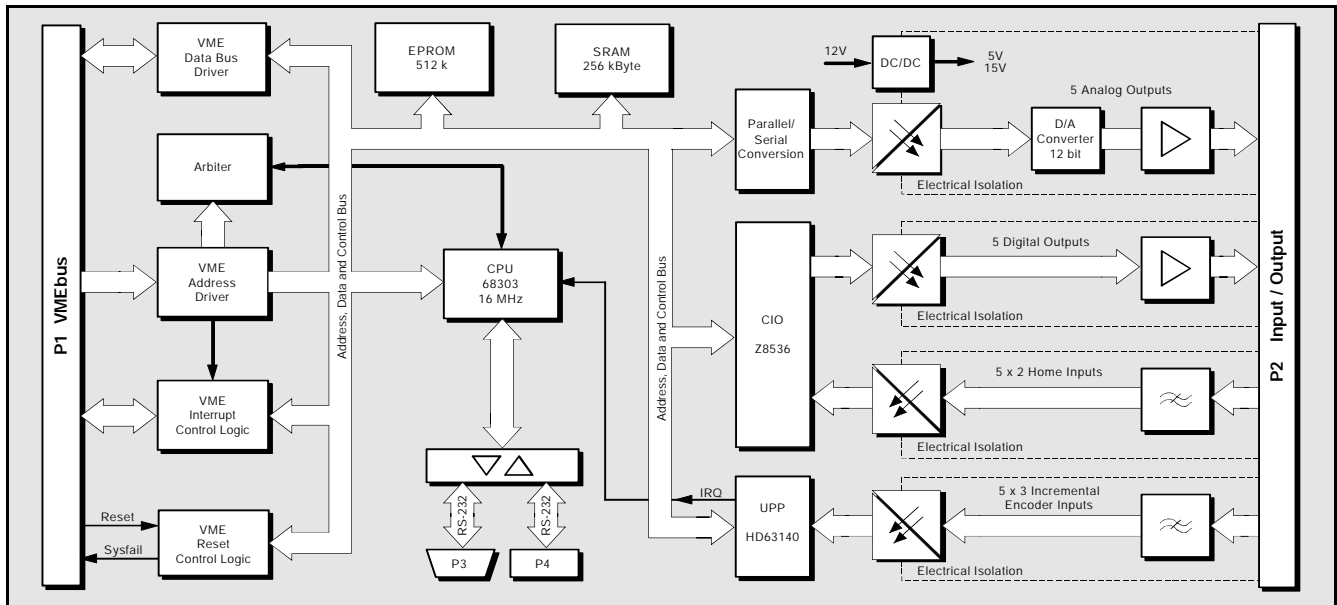
which generates a local or optionally a global RESET on error conditions.

VME Interface

The VME-IPOS as a VME slave board is equipped with an A24/D16 interface, selectable by jumper. Interrupts can be generated at software-programmed interrupt levels.

VME-IPOS

Position Controller for 5 Axes



Technical Specifications:

Process section:

CPU:	68303/16 MHz
Memory:	256 kbytes battery-backed SRAM with CRC check and 512 kbytes EPROM
Pulse processor:	HD63140, 16 bits ALU, 24 registers of 16 bits, 15 inputs used for incremental encoders.
Parallel interface controller:	CIO Z8536, evaluation of 10 limit switch inputs, control of 5 enable outputs
Interrupts:	Interrupts on the VMEbus with programmable level, interrupt handler for mailbox interrupts
Analog outputs:	5 outputs for DC and servo motors, ± 10 V/ 12 bits, electrical isolation
Digital outputs:	5 enable outputs 24 V/ 0.3 A, short-circuit-proof, electrical isolation
Digital inputs:	10 limit switch inputs 24 V, 5 incremental encoder inputs with each an index input using 24 V, all inputs electrically isolated
LED displays:	6 LEDs for VMEbus and local status, 6 LEDs for digital outputs, 10 LEDs for limit switch outputs

VMEbus section:

Base address:	selectable via jumpers, the board covers 1 Mbyte
Address Modifier:	AM4 and AM5 selectable via jumpers, all 'standard' accesses possible
VMEbus revision compatibility:	IEEE 1014 rev. C.1
Data transfer:	D0...D15

General:

Temperature:	0...50 EC
Humidity:	max. 90%, non-condensing
Connector types:	P1: DIN 41612-C96 P2: DIN 41612-C64 P3: DSUB9 male P4: 10-pole post connector
Board size:	160 mm x 233 mm
VME dimensions:	6 U height, 1 slot width
Weight:	approx. 300 g
Power supply:	± 15 V and +5 V via DC/DC converter
Power consumption:	P1: +5 VDC $\pm 5\%$: 1.0 A +12 VDC $\pm 5\%$: 200 mA -12 VDC $\pm 5\%$: 5 mA P2: 24 V current consumption is load-dependent

Order information:

Designation	Order no.
VME-IPOS position controller for 5 axes incl. firmware, 256 kbytes SRAM	V.1810.24
VME-IPOS-OS9 C driver for OS-9 as source code	P.1810.50
VME-IPOS-VxW C driver for VxWorks as source code	P.1805.56