

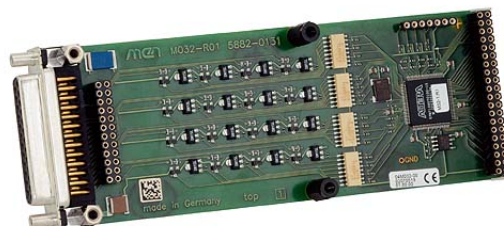
## M32 – 16 Binary Inputs

- **16 inputs 5..180 V**
- **Constant current inputs**
- **Debouncing circuit**
- **Interrupt generation**
- **Load on supply voltage**
- **Optical isolation**
- **-40 to +85°C with qualified components**

The mezzanine card M32 is a 16-bit binary input M-Module with latching and comparator capabilities for industrial applications. The inputs are optically isolated with a high isolation voltage of 500V DC.

A current limit for each input guarantees a wide input voltage range of 5 to 180V.

Each input signal edge generates a maskable interrupt for each channel.

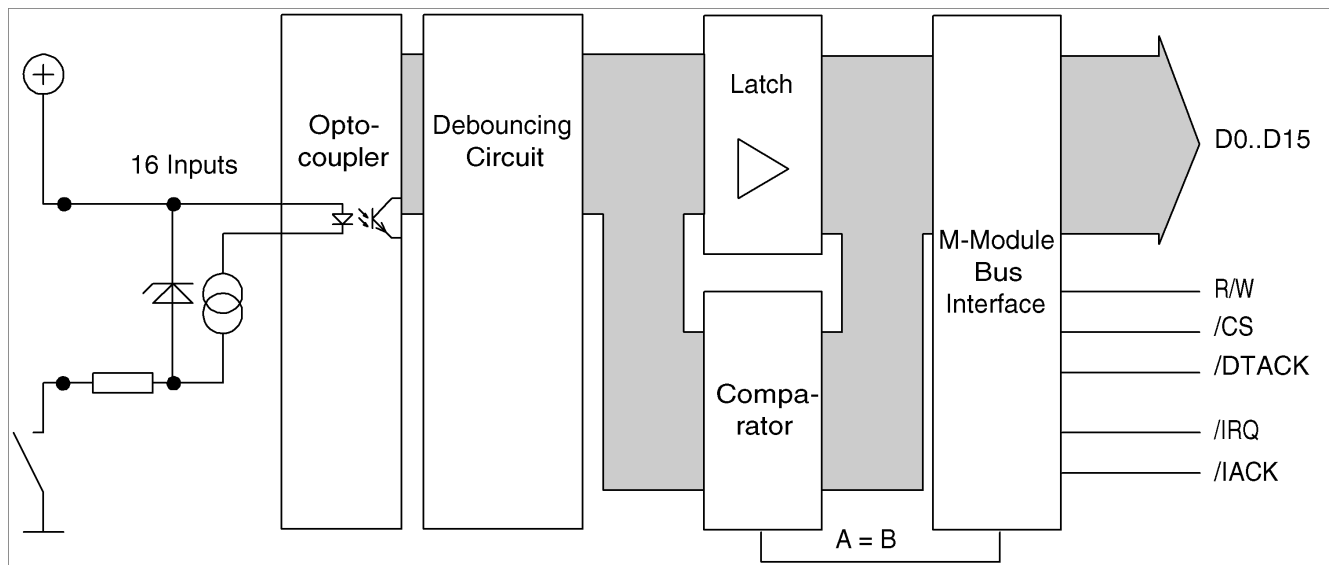


The signals of mechanical switches are debounced by a digital circuit. The precision debouncing time of 300ns to 100ms is software programmed in a PLD.

The M32 has its input load on supply voltage which means that switching an input to ground activates the respective optocoupler.

The M32 is based on the M-Module ANSI mezzanine standard. It can be used as an I/O extension in any type of bus system, i.e. CPCI, VME or on any type of stand-alone SBC. Appropriate M-Module carrier cards in 3U, 6U and other formats are available from MEN or other manufacturers.

# Diagram



## Technical Data

<b>Binary Inputs</b>	<ul style="list-style-type: none"> <li>■ Input load on supply voltage</li> <li>■ FET constant current source inputs</li> <li>■ Input voltage ranges: <ul style="list-style-type: none"> <li>□ 5..40V; 2.5..3.5mA (high level)</li> <li>□ 5..180V (M-Module version for extended temperature range)</li> <li>□ 0..1V; 0..0.2mA (low level)</li> </ul> </li> <li>■ Input clamping voltage: 39V, ±15%</li> <li>■ Switching time for input change: 3µs typ.</li> </ul>
<b>Debouncing Time</b>	<ul style="list-style-type: none"> <li>■ 14ms (defined by PLD programming)</li> </ul>
<b>Miscellaneous</b>	<ul style="list-style-type: none"> <li>■ Debouncing circuit</li> <li>■ Interrupt generation with maskable interrupt</li> </ul>
<b>Peripheral Connections</b>	<ul style="list-style-type: none"> <li>■ Via front panel on a shielded 25-pin D-Sub receptacle connector</li> <li>■ Via carrier board (rear I/O)</li> </ul>
<b>M-Module Characteristics</b>	<ul style="list-style-type: none"> <li>■ A08, D16, INTA, INTB, IDENT</li> </ul>
<b>Electrical Specifications</b>	<ul style="list-style-type: none"> <li>■ Isolation voltage: <ul style="list-style-type: none"> <li>□ 500V DC between isolated side and digital side</li> <li>□ Voltage between the connector shield and isolated ground is limited to 180V using a varistor; AC coupling between connector shield and isolated ground through 47nF capacitor</li> </ul> </li> <li>■ Supply voltage/power consumption: +5V (4.85V..5.25V), 50mA typ.</li> <li>■ MTBF: 300,000h @ 50°C (derived from MIL-HDBK-217F)</li> </ul>
<b>Mechanical Specifications</b>	<ul style="list-style-type: none"> <li>■ Dimensions: conforming to M-Module Standard</li> <li>■ Weight: 67.5g</li> </ul>
<b>Environmental Specifications</b>	<ul style="list-style-type: none"> <li>■ Temperature range (operation): <ul style="list-style-type: none"> <li>□ 0..+60°C or -40..+85°C</li> <li>□ Airflow: min. 10m³/h</li> </ul> </li> <li>■ Temperature range (storage): -40..+85°C</li> <li>■ Relative humidity range (operation): max. 95% non-condensing</li> <li>■ Relative humidity range (storage): max. 95% non-condensing</li> <li>■ Altitude: -300m to + 3,000m</li> <li>■ Shock: 15g/11ms</li> <li>■ Bump: 10g/16ms</li> <li>■ Vibration (sinusoidal): 2g/10..150Hz</li> <li>■ Conformal coating on request</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers</li> </ul>
<b>EMC</b>	<ul style="list-style-type: none"> <li>■ Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)</li> </ul>
<b>Software Support</b>	<ul style="list-style-type: none"> <li>■ MEN Driver Interface System (MDIS for Windows®, Linux, VxWorks®, QNX®, OS-9®)</li> <li>■ <a href="#">For more information on supported operating system versions and drivers see Downloads.</a></li> </ul>

## Ordering Information

<b>Standard M32 Models</b>	<b>04M032-00</b>	16 binary source inputs, 0..+60°C
<b>Miscellaneous Accessories</b>	<b>05M000-00</b>	M-Module cable, 2m, with 25-pin D-Sub plug/housing to pig tail
	<b>05M000-17</b>	25 mounting screw sets to fix M-Modules on carrier boards
<b>Software: Linux</b>	This product is designed to work under Linux. See below for all available separate software packages.	
	<b>13MD05-90</b>	MDIS5 System (and Device Driver) Package (MEN) for Linux. This software package includes most standard device drivers available from MEN.
<b>Software: Windows®</b>	This product is designed to work under Windows®. See below for all available separate software packages.	
	<b>13M031-70</b>	MDIS4/2004 / MDIS5 Windows® driver (MEN) for M31, M32 and M82
<b>Software: VxWorks®</b>	This product is designed to work under VxWorks®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	<b>13M031-06</b>	MDIS5 low-level driver sources (MEN) for M31, M32 and M82
<b>Software: QNX®</b>	This product is designed to work under QNX®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	<b>13M031-06</b>	MDIS5 low-level driver sources (MEN) for M31, M32 and M82
<b>Software: OS-9®</b>	This product is designed to work under OS-9®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	<b>13M031-06</b>	MDIS5 low-level driver sources (MEN) for M31, M32 and M82
<b>For operating systems not mentioned here <a href="#">contact MEN sales</a>.</b>		
<b>Documentation</b>	Compare Chart binary I/O M-Modules » <a href="#">Download</a>	
	<b>20M000-00</b>	M-Module Draft Specification, Rev. 3.0
	<b>20M032-00</b>	M32 User Manual

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