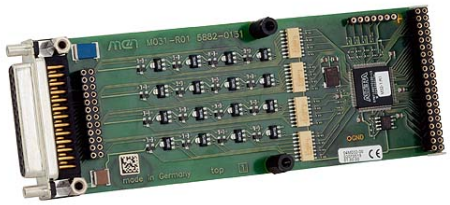
M31

Mezzanine Card with 16 Digital Inputs, High-Side Switching

M-Module

- *16 inputs 0 V to 155 V*
- *Constant current inputs*
- *Debouncing circuit*
- *Interrupt generation*
- *Load on ground*
- *Optical isolation*
- *-40 °C to +85 °C*



16-Bit Digital Input M-Module

The mezzanine card M31 is a 16-bit digital input M-Module with latching capabilities for industrial applications. The inputs are optically isolated with a high isolation voltage of 500 V DC.
A current limit for each input guarantees a wide input voltage range of 0 V to 155 V.
Each input signal edge generates a maskable interrupt for each channel.
The signals of mechanical switches are debounced by a digital circuit with the precision debouncing time of 300 ns to 14 ms.

High-Side Switching

The M31 has its input load on ground which means that switching an input to supply voltage activates the respective optocoupler.

Based on ANSI Standard

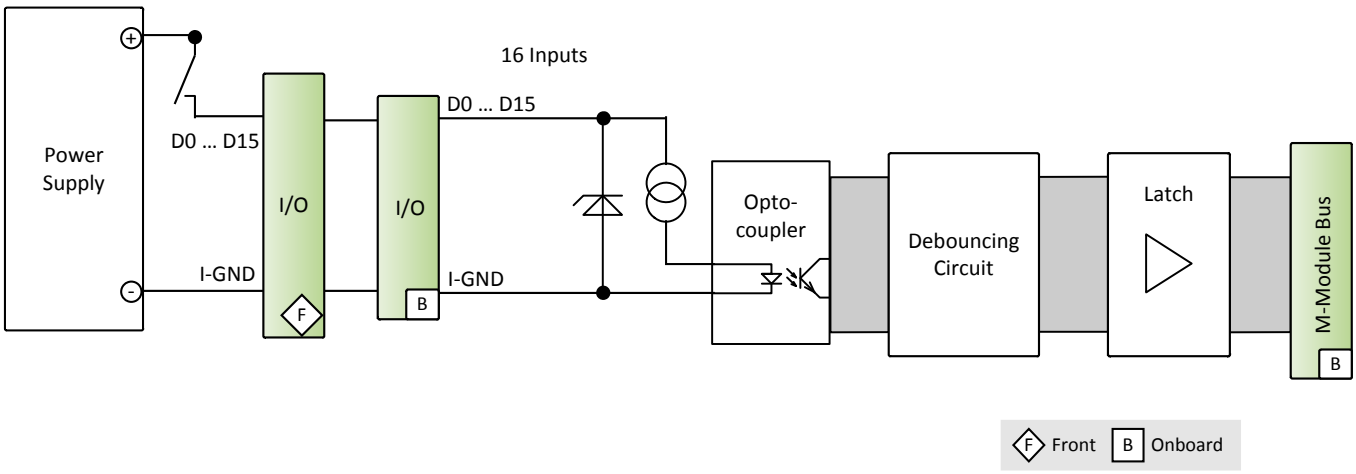
The M31 is based on the M-Module ANSI mezzanine standard. It can be used as an I/O extension in any type of bus system, i.e. CPCI, VME or on any type of stand-alone SBC.
Appropriate M-Module carrier cards in 3U, 6U and other formats are available from MEN or other manufacturers.

Reliable and Robust

The M31 can operate in a -40 °C to +85 °C temperature range. The board withstands shock and vibration for reliable operation.

Data Sheet

Connection example



Diagram

Digital Inputs

- Input load on ground
- FET constant current source inputs
- Input voltage: Logical low max. 1 V
- Input voltage: Logical low min. 0 V
- Input current: Logical low max. 0.2 mA
- Input current: Logical low min. 0 mA
- Input voltage: Logical high max. 40 V
- Input voltage: Logical high max. 155 V (M-Module version for extended temperature range)
- Input voltage: Logical high min. 5 V
- Input current: Logical high max. 3.5 mA
- Input current: Logical high min. 2.5 mA
- Switching time for input change: 3µs typ.
- Debouncing time: 14ms (defined by PLD programming)

Interfaces

- Digital I/O
  - 16x digital input, isolated, D-Sub, 25-pin, receptacle
  - 16x digital input, isolated, board to board
- M-Module
  - 1x A08/D16/INTA/INTB/IDENT, board to board

Product Standard

- M-Module: ANSI/VITA 12-1997 (S2012)

Electrical Specifications

- Supply voltage
  - +5 V (-3 % / +5 %)
- Power consumption
  - 0.25 W typ.
- Isolation voltage
  - 500 V DC between isolated side and digital side
  - Voltage between the connector shield and isolated ground is limited to 180 V using a varistor; AC coupling between connector shield and isolated ground through 47 nF capacitor

Mechanical Specifications

- Dimensions standard: M-Module: (W) 149 mm, (D) 53 mm
- Weight: 67.5 g

Environmental Specifications

- Operating temperature
  - 0 °C to +60 °C, or
  - -40 °C to +85 °C
  - Airflow: min. 10 m³/h
- Storage temperature: -40 °C to +85 °C
- Relative humidity range (operation): max. 95% non-condensing
- Relative humidity range (storage): max. 95% non-condensing
- Altitude: -300 m to +3000m
- Shock: 15g / 11ms
- Bump: 10g / 16ms
- Vibration (sinusoidal): 2g / 10 Hz to 150Hz

Reliability

- MTBF: 2 496 550 h predicted @ 40 °C according to IEC/TR 62380 (RDF 2000)

Safety

- Flammability (PCBs)
  - UL 94 V-0

EMC

- EN 55022 (radio disturbance)
- IEC 61000-4-2 (ESD)
- IEC 61000-4-4 (burst)

Software Support

- Linux
- Windows
- VxWorks
- QNX
- OS-9
- For more information on supported operating system versions and drivers see Software.

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www.men.de/products/m31/

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