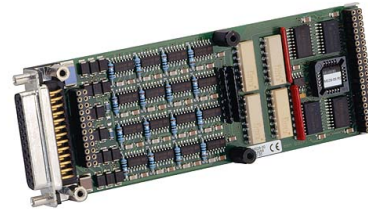


M28 – 16 Binary Outputs

- **16 outputs 8..36 V**
- **500 mA output current per channel**
- **Thermal and short-circuit protection**
- **Load on ground**
- **Optical isolation**

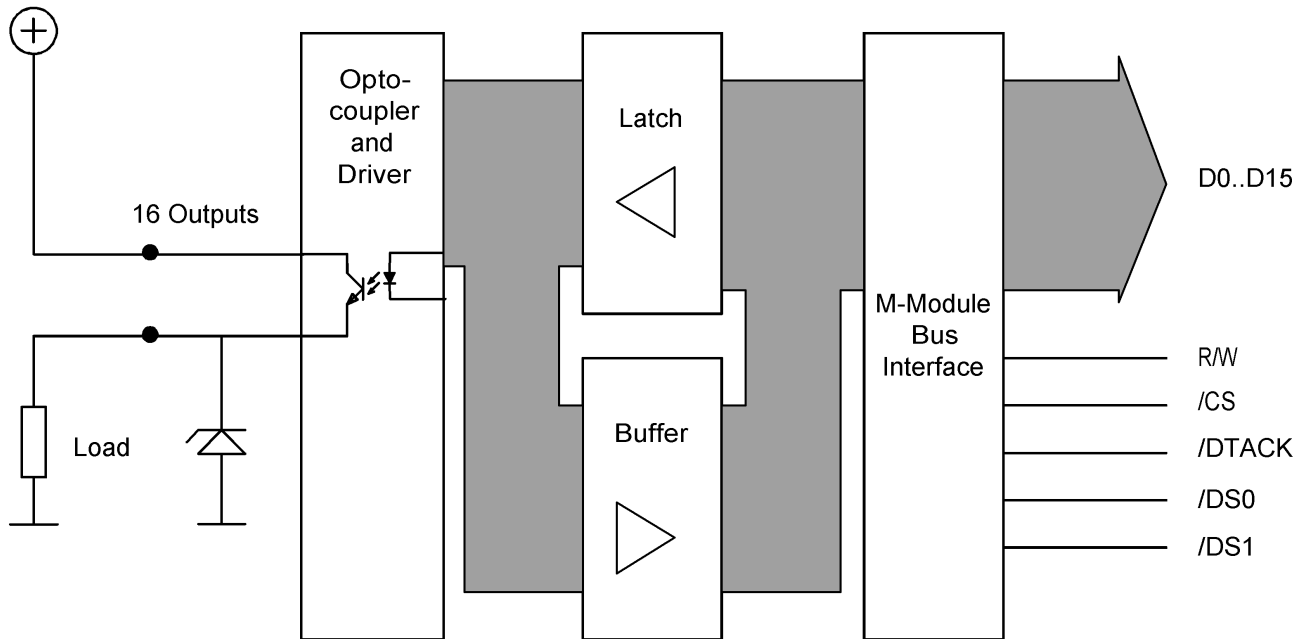
The mezzanine card M28 with its open-emitter outputs can be used in process I/O applications (cf. M27 with open-collector outputs). If there are currents of above 500mA an intelligent power switch guarantees that the respective transistor is switched off.



The M-Module is equipped with suppressor diodes for protection against overvoltage caused by inductive loads. The output registers can be read back.

The M28 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

Output Voltage	<ul style="list-style-type: none"> ■ 8..36V; 500mA (closed) ■ 2V max.; 10µA max. (open)
Output Current	<ul style="list-style-type: none"> ■ Max. 500mA per channel ■ No derating
Miscellaneous	<ul style="list-style-type: none"> ■ Load on ground ■ Thermal and short circuit protection
Peripheral Connections	<ul style="list-style-type: none"> ■ Via front panel on a shielded 25-pin D-Sub receptacle connector ■ Via carrier board (rear I/O)
M-Module Characteristics	<ul style="list-style-type: none"> ■ A08, D16, IDENT
Electrical Specifications	<ul style="list-style-type: none"> ■ Isolation voltage: <ul style="list-style-type: none"> □ 500V DC between isolated side and digital side □ 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 ■ Supply voltage/power consumption: +5V (4.85V..5.25V), 100mA typ. ■ MTBF: 58,000h @ 50°C (derived from MIL-HDBK-217F)
Mechanical Specifications	<ul style="list-style-type: none"> ■ Dimensions: conforming to M-Module Standard ■ Weight: 82g
Environmental Specifications	<ul style="list-style-type: none"> ■ Temperature range (operation): <ul style="list-style-type: none"> □ 0..+60°C □ Industrial temperature range on request □ Airflow: min. 10m³/h ■ Temperature range (storage): -40..+85°C ■ Relative humidity range (operation): max. 95% non-condensing ■ Relative humidity range (storage): max. 95% non-condensing ■ Altitude: -300m to + 3,000m ■ Shock: 15g/11ms ■ Bump: 10g/16ms ■ Vibration (sinusoidal): 2g/10..150Hz ■ Conformal coating on request
Safety	<ul style="list-style-type: none"> ■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC	<ul style="list-style-type: none"> ■ Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)
Software Support	<ul style="list-style-type: none"> ■ MEN Driver Interface System (MDIS for Windows®, Linux, VxWorks®, QNX®, OS-9®) ■ For more information on supported operating system versions and drivers see Downloads.

Ordering Information

Standard M28 Models	04M028-00	16 binary source outputs, 0..+60°C
Miscellaneous Accessories	05M000-00	M-Module cable, 2m, with 25-pin D-Sub plug/housing to pig tail
	05M000-17	25 mounting screw sets to fix M-Modules on carrier boards
Software: Linux	This product is designed to work under Linux. See below for all available separate software packages.	
	13MD05-90	MDIS5 System (and Device Driver) Package (MEN) for Linux. This software package includes most standard device drivers available from MEN.
Software: Windows®	This product is designed to work under Windows®. See below for all available separate software packages.	
	13M027-70	MDIS4/2004 / MDIS5 Windows® driver (MEN) for M27, M28 and M81
Software: VxWorks®	This product is designed to work under VxWorks®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	13M027-06	MDIS5 low-level driver sources (MEN) for M27, M28 and M81
Software: QNX®	This product is designed to work under QNX®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	13M027-06	MDIS5 low-level driver sources (MEN) for M27, M28 and M81
Software: OS-9®	This product is designed to work under OS-9®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	13M027-06	MDIS5 low-level driver sources (MEN) for M27, M28 and M81
For operating systems not mentioned here contact MEN sales.		
Documentation	Compare Chart binary I/O M-Modules » Download	
	20M000-00	M-Module Draft Specification, Rev. 3.0
	20M028-00	M28 User Manual

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