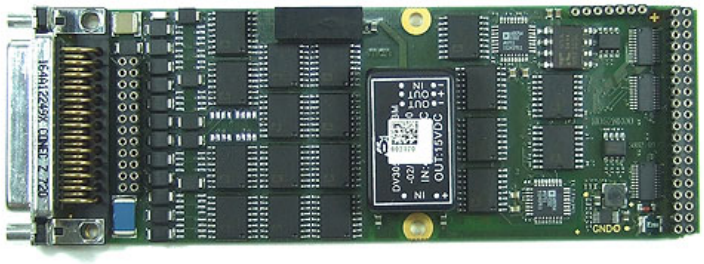
M62N – 16 Analog Outputs

- **16 current or voltage outputs**
- **16 bits resolution with voltage outputs**
- **15 bits resolution with current outputs**
- **Typ. 11.5 µs conversion time**
- **Electrical isolation (500 V DC)**
- **-40 to +85°C with qualified components**

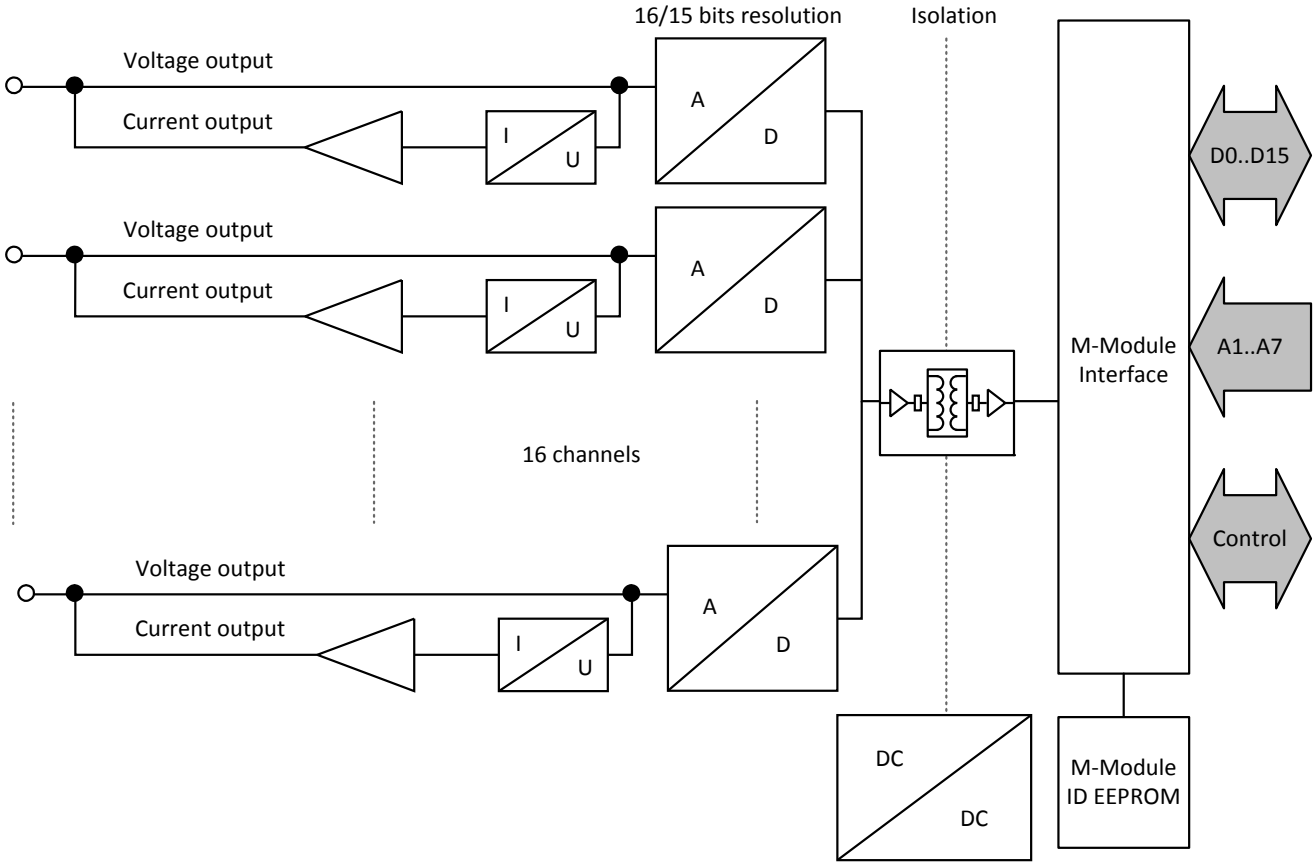


The mezzanine card M62N is an analog output device with as many as 16 channels on one single M-Module. The isolated supply voltages are generated by an on-board DC/DC converter. The output voltage range is programmable to 0 to 10 V or -10 to +10 V. Alternatively, current outputs are available within a range of 4 to 20 mA. The output load is driven to ground.

For driving more than 6 current outputs at the same time an external supply is needed!

The M62N 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


16/15 bits resolution
Isolation
Voltage output
Current output
I
U
A
D
Voltage output
Current output
I
U
A
D
16 channels
Voltage output
Current output
I
U
A
D
DC
DC
M-Module
Interface
M-Module
ID EEPROM
D0..D15
A1..A7
Control

Technical Data

D/A Conversion	■ 16 channels ■ Resolution: □ 16 bits with voltage outputs (bipolar operation) □ 15 bits with voltage outputs (unipolar operation) □ 15 bits with current outputs ■ Register write to output settle time with ±1LSB full-scale step max. 13,5µs, typ. <11,5µs ■ D/A-converter relative accuracy (INL) ±1LSB ■ Reference □ Temperature drift max. 2 ppm/°C □ Initial error max. 1mV
Voltage Output	■ Output current: 5mA max. ■ Accuracy: ±0.1%, ±1 LSB differential ■ Voltage ranges (programmable): 0..10V; -10V..+10V
Current Output	■ Accuracy: ± 0.5% ■ Current range : 4..20mA (other ranges possible on request) ■ Max. output voltage 12.5V (or higher with external power supply) ■ Max. load resistance 500 Ohm (or higher with external power supply)
Possible Configurations	■ 16 voltage outputs ■ 16 current outputs ■ 8 voltage outputs (on request) ■ 8 current outputs (on request)
Peripheral Connections	■ Via front panel on a shielded 25-pin D-Sub receptacle connector ■ Via carrier board (rear I/O)
M-Module Characteristics	■ A08, D16, IDENT ■ M-Module access time (timing parameter No. 3: /SELECT to /DTACK): 3,3 µs max.
Electrical Specifications	■ Isolation voltage: □ 500V DC between isolated side and digital side □ 500V DC isolation voltage between isolated ground and shield. Voltage between the connector shield and isolated ground is limited by a protective device (varistor); AC coupling between connector shield and isolated ground through 47nF capacitor ■ Supply voltage/power consumption: □ +5V (-3%/+5%), typ. 476 mA (voltage version, idle), typ. 488 mA (voltage version, output +10V), typ. 577 mA (current version, idle), typ. 661 mA (current version, 1 x 20mA) □ Optional external supply : 16V..30V (24V typ.), current drawn depending on operating conditions ■ MTBF: tbd. @ 40°C according to IEC/TR 62380 (RDF 2000)
Mechanical Specifications	■ Dimensions: conforming to M-Module Standard ■ Weight: 72g (voltage version)
Environmental Specifications	■ Temperature range (operation): □ -40..+85°C (qualified components) □ 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): 1g/10..150Hz ■ Conformal coating on request
Safety	■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC	■ Conforming to IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)

Technical Data

Software Support	■ MEN Driver Interface System (MDIS for Windows®, Linux, VxWorks®, QNX®, OS-9®) ■ For more information on supported operating system versions and drivers see Downloads.

Configuration & Options

Standard Configurations

Article No.	Channels	Type	Range	Operation Temperature
04M062N00	16	voltage	0..10V, -10..+10V	-40..+85°C
04M062N01	16	current	4..20mA	-40..+85°C

Options

Output Channels	■ 16 or 8 outputs
Type	■ Voltage or current ■ Current ranges □ 4..20mA □ 0..20mA (on request)

Please note that some of these options may only be available for large volumes. Please ask our sales staff for more information.

Ordering Information

Standard M62N Models	**04M062N00**	16 analog outputs 0..10V, 16 bits resolution, with DC/DC converter, -40..+85°C with qualified components
	04M062N01	16 analog outputs 4..20mA, 15 bits resolution, with DC/DC converter, -40..+85°C with qualified components
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 potentially available separate software packages from MEN.	
	13M062-06	MDIS4/2004 / MDIS5 low-level driver sources (MEN) for M62 and M62N
Software: Windows®	This product is designed to work under Windows®. See below for potentially available separate software packages from MEN.	
	13M062-70	MDIS4/2004 / MDIS5 Windows® driver (MEN) for M62 and M62N
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.	
	13M062-06	MDIS4/2004 / MDIS5 low-level driver sources (MEN) for M62 and M62N
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.	
	13M062-06	MDIS4/2004 / MDIS5 low-level driver sources (MEN) for M62 and M62N
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.	
	13M062-06	MDIS4/2004 / MDIS5 low-level driver sources (MEN) for M62 and M62N

For operating systems not mentioned here contact MEN sales.

Documentation	Compare Chart analog I/O M-Modules » Download	
	20M062N00	M62N User Manual

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