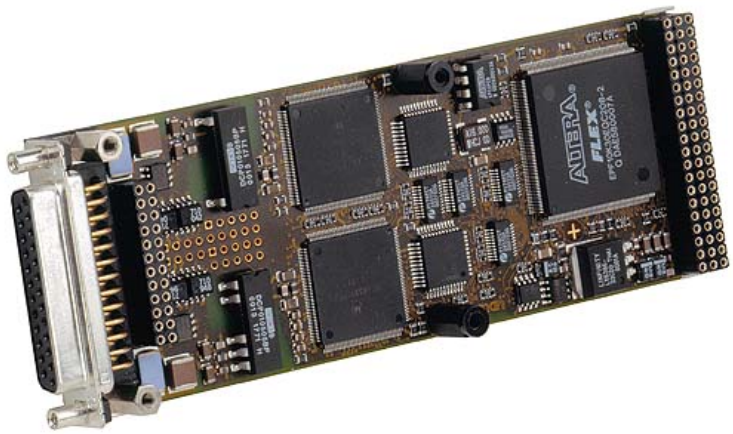
M65 – Intelligent Dual CAN Interface

- **Full CAN/Extended CAN**
- **Two independent channels**
- **Two local 32-bit CPUs**
- **ISO high-speed coupling**
- **1 Mbit/s data transfer rate**
- **Optical isolation**
- **CANopen master and slave support**
- **Vector Informatik tools**
- **Intelligent CAN Layer 2 support**
- **-40 to +85°C (screened versions)**

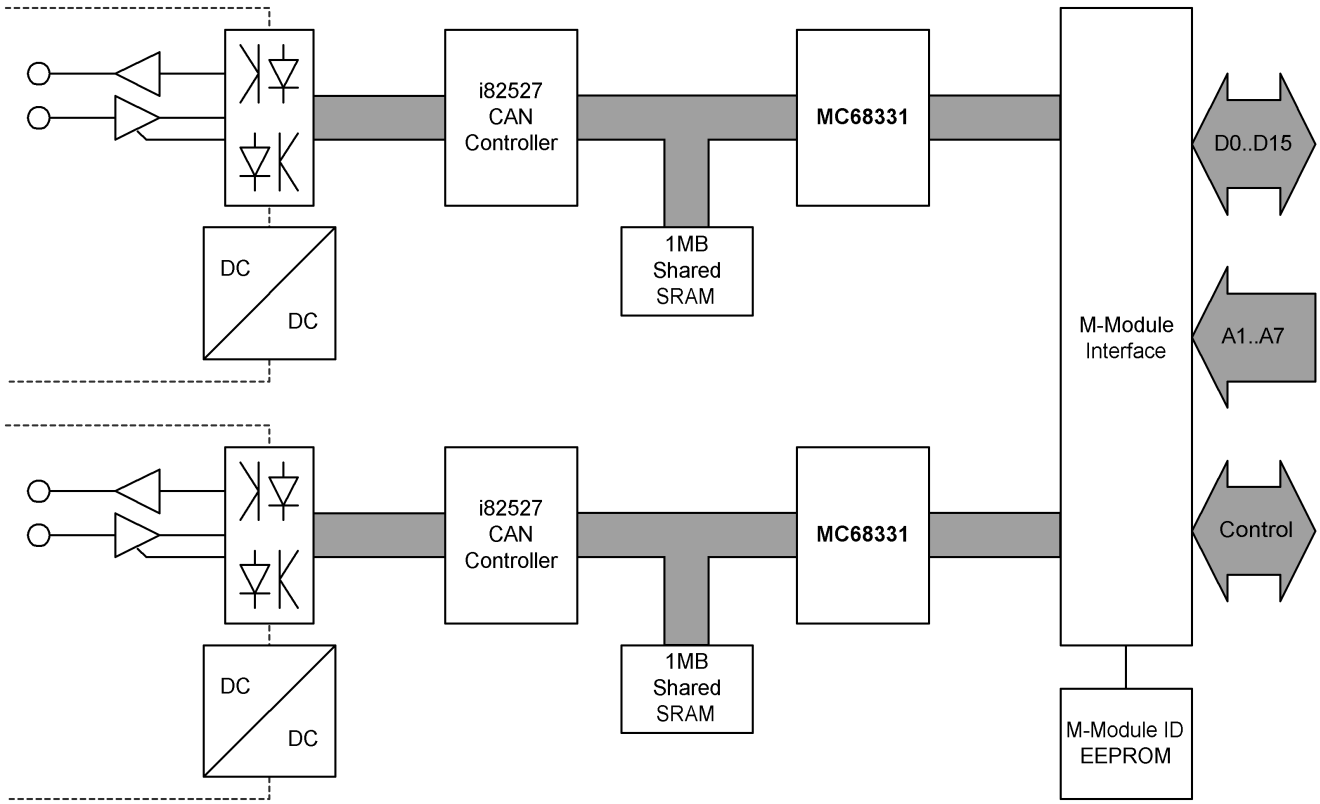


The M65 mezzanine card is a dual-intelligence full-CAN interface M-Module. The two channels are completely identical and independent. Each channel is built up with an MC68331 32-bit microcontroller, an i82527 CAN communications controller and local shared SRAM. The physical layer is ISO high-speed with up to 1 Mbit/s. The physical interfaces are isolated from the system and from each other.
The host can load and update the firmware in RAM. Communication is also done via shared SRAM and supported by window and pointer access mechanism. Interrupts are available in both directions from M-Module to host and from host to M-Module.

CANopen firmware consists of the Vector Informatik protocol stack, which runs locally and thus reduces the load on the host.
The corresponding driver software comes from MEN. It is based on MDIS (MEN Driver Interface System), which makes the M65 ready for use under WindowsNT, Linux and RTOS environments.
MEN also provides comprehensive Intelligent CAN Layer 2 software, based on MDIS.

The M65 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


i82527
CAN
Controller
MC68331
1MB
Shared
SRAM
DC
DC
M-Module
Interface
D0..D15
A1..A7
Control
M-Module ID
EEPROM
i82527
CAN
Controller
MC68331
1MB
Shared
SRAM
DC
DC

Technical Data

CAN Controllers	■ I82527 ■ Standard and extended frames ■ Up to 15 message objects ■ Up to 1Mbit/s ■ ISO 11898 high speed up to 1Mbit/s, both channels optically isolated using DC/DC converters
I/O Processors	■ MC68331 ■ 32-bit CPU32 ■ 24MHz
Memory	■ 1MB shared SRAM for communication and program per channel
Physical Interface	■ ISO high speed coupling (optically isolated)
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, INTA, IDENT
Electrical Specifications	■ Isolation voltage: 500V DC ■ Supply voltage/power consumption: +5V (4.85V..5.25V), 470mA max. (2 channels), 280mA (1 channel) ■ MTBF: 40,000h @ 50°C (derived from MIL-HDBK-217F)
Mechanical Specifications	■ Dimensions: conforming to M-Module Standard ■ Weight: 84g
Environmental Specifications	■ Temperature range (operation): □ 0..+60°C or -40..+85°C □ 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	■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC	■ Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)
Software Support	■ CANopen firmware (Vector Informatik) ■ ICANL2 firmware and toolbox (MEN) ■ 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	Operation Temperature
04M065-00	2	0..+60°C

Options

Channels	■ 1 or 2
Operating Temperature	■ 0..+60°C ■ -40..+85°C

Ordering Information

Standard M65 Models	**04M065-00**	2-channel intelligent Full/Extended CAN interface, 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 potentially available separate software packages from MEN.	
	13M065-06	MDIS5 low-level driver sources (MEN) for M65 and P5 (CANopen firmware)
	13M065-07	MDIS5 low-level driver sources (MEN) for M65 and P5 (CAN layer 2 firmware)
Software: Windows®	This product is designed to work under Windows®. See below for potentially available separate software packages from MEN.	
	13M065-70	MDIS4/2004 / MDIS5 Windows® driver (MEN) for M65 and P5 (CANopen firmware)
	13M065-71	MDIS4/2004 / MDIS5 Windows® driver (MEN) for M65 and P5 (CAN Layer 2 firmware)
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.	
	13M065-06	MDIS5 low-level driver sources (MEN) for M65 and P5 (CANopen firmware)
	13M065-07	MDIS5 low-level driver sources (MEN) for M65 and P5 (CAN layer 2 firmware)
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.	
	13M065-06	MDIS5 low-level driver sources (MEN) for M65 and P5 (CANopen firmware)
	13M065-07	MDIS5 low-level driver sources (MEN) for M65 and P5 (CAN layer 2 firmware)
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.	
	13M065-06	MDIS5 low-level driver sources (MEN) for M65 and P5 (CANopen firmware)
	13M065-07	MDIS5 low-level driver sources (MEN) for M65 and P5 (CAN layer 2 firmware)
Software: Firmware/BIOS	MEN's CANopen firmware consists of the Vector Informatik protocol stack. The corresponding driver software comes from MEN. It is based on MDIS (MEN Driver Interface System), which makes the hardware ready for use under Windows®, Linux, VxWorks®, QNX®, OS-9® and other software environments. You can find more information on the Vector CANopen tools at www.vector-informatik.de.	

For operating systems not mentioned here contact MEN sales.

Documentation	Compare Chart fieldbus M-Modules » Download	
	20M000-00	M-Module Draft Specification, Rev. 3.0
	20M065-00	M65 User Manual

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