M79 - Profibus DP Slave Interface

Embedded Solutions

- **Profibus DP slave (DIN19245)**
- **Isolated RS485**
- **Local 16-bit CPU**
- **12Mbits/s data transfer rate**
- **Complete Softing Profibus software on board**
- **Compatible with Softing tools**

The M79 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, PXI, 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.

The M79 M-Module is a Profibus DP (Distributed Peripherals) slave interface based on the Infineon C165 CPU. It is thus an ideal interface solution for intelligent remote I/O applications via a very popular fieldbus standard.

The C165 CPU handles communication with the host CPU via the onboard shared DRAM. The advantage of this Profibus implementation is that the complete Profibus protocol stack runs locally on the M-Module with very reduced interaction of the host CPU.

The RS485 Profibus interface (9-pin D-Sub) allows selectable transmission rates from 9.6 kbits/s up to 12Mbits/s. The optically isolated interface is supplied by an onboard DC/DC converter. The output is short-circuit protected.

The M79 comes with 512KB of local Flash, 1MB of local SRAM and 16KB dual-ported RAM.

Profibus slave functionality comprises initialization and termination of slaves, additional status information on output and input data as well as security services such as DP applications checked by a user watchdog or a protocol stack monitored by the application.

The Profibus firmware consists of the true Softing protocol stack. The corresponding driver software comes from MEN and complies with standard Softing tools. It supports configuration of the M79 for each application in a very convenient way. The driver is based on MDIS (MEN Driver Interface System) which makes the M79 ready for use under Windows®, Linux and RTOS environments.

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Technical Data

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C165 CPU
- 16-bit data bus, 20-bit address bus
- Complete Profibus DP software on one M-Module
- Local interrupt controller
- Hardware watchdog

Slave: SPC 3 Profibus Controller
- Up to 12Mbaud data rate
- 8-bit interface (local)
- Complete DP slave protocol

Master: ASPC 2 Profibus Controller
- Optional, for M79 as Profibus Master
- Up to 12Mbaud data rate
- 16-bit DMA interface (local)
- Complete bus access protocol
- Up to 127 active or passive stations

Miscellaneous
- 1MB shared memory for communication and program
- Isolated RS485 Profibus interface

Peripheral Connections
- Via front panel on a shielded 9-pin D-Sub receptacle connector

M-Module Characteristics
- A08, D16, INTA, IDENT

Electrical Specifications
- Electrical isolation: 500V DC
- □ 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), 287mA
- MTBF: 430,000h @ 50°C

Mechanical Specifications
- Dimensions: conforming to M-Module Standard
- Weight: 53g

Environmental Specifications
- Temperature range (operation):
- □ 0..+60°C or -40..+85°C
- □ Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/11ms
- Bump: 10g/16ms
- Vibration (sinusoidal): 2g/10..150Hz

Safety
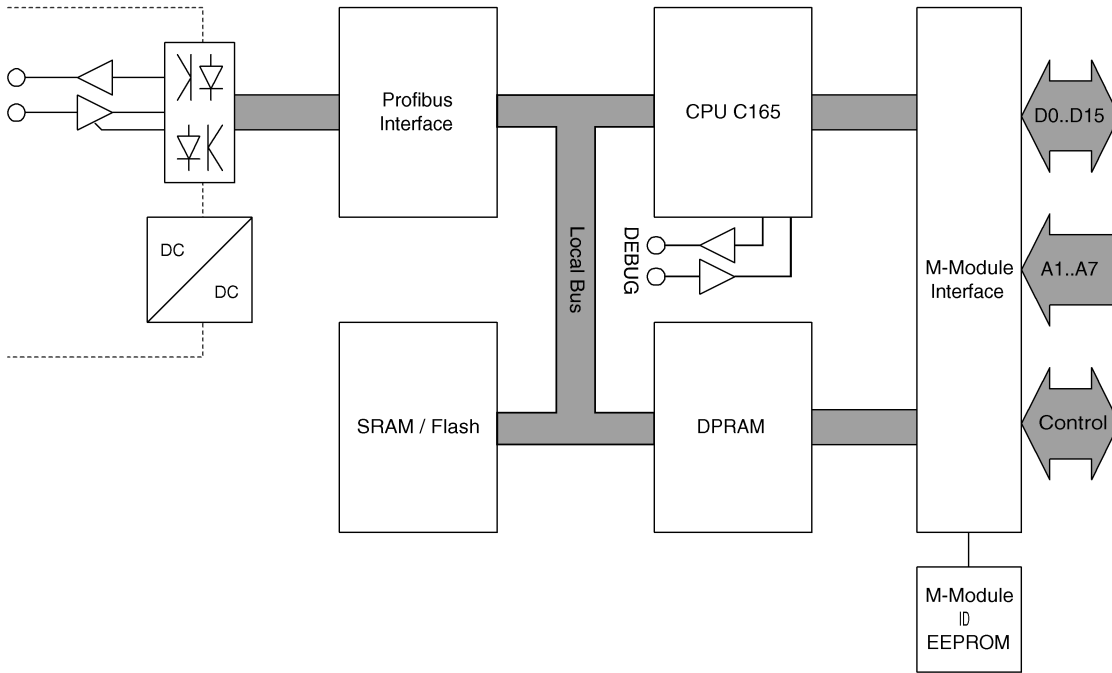- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

EMC
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst) with regard to CE conformity

Software Support
- Softing protocol portation (ISO/OSI protocol layer 2/DP)
- MEN Driver Interface System (MDIS for Windows, Linux, VxWorks, QNX, RTX, OS-9)

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Diagram

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Related Products

Standard Hardware

04M079-00	M79, M-Module, Profibus slave interface, temperature range: 0..+60°C
04M079-01	M79, M-Module, Profibus slave interface, temperature range: -40..+85°C

Please refer to our M-Module compare chart for a selection of further fieldbus interfaces.

Accessories

05M000-17	25 mounting screw sets to fix M-Modules on carrier boards

Software

13M079-06	MDIS4/2004 low-level driver sources for M79
13M079-70	MDIS4/2004 Windows® NT4/W2K driver for M79

To use MDIS4 low-level drivers, you also need one of the MDIS4 system packages available for Windows®, Linux, VxWorks®, QNX®, RTX or OS-9 (MDIS4 = MEN Driver Interface System).

Documentation

20M000-00	M-Module draft specification, Rev. 3.0
20M079-00	M79 user manual
21APPN001	Application Note: MDIS4 under LabWindows®/CVI

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the M79 online data sheet under www.men.de. --> Click here!

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