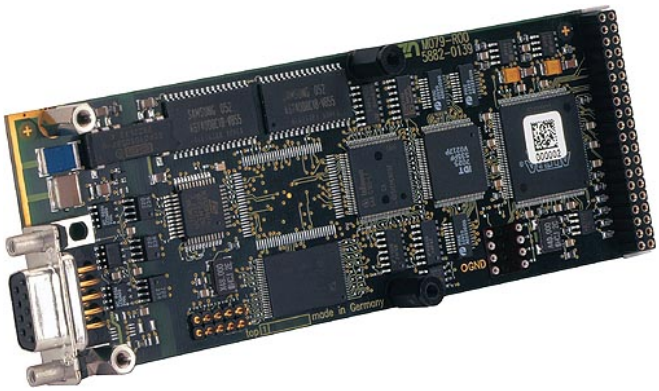
M79 – Profibus DP Slave Interface

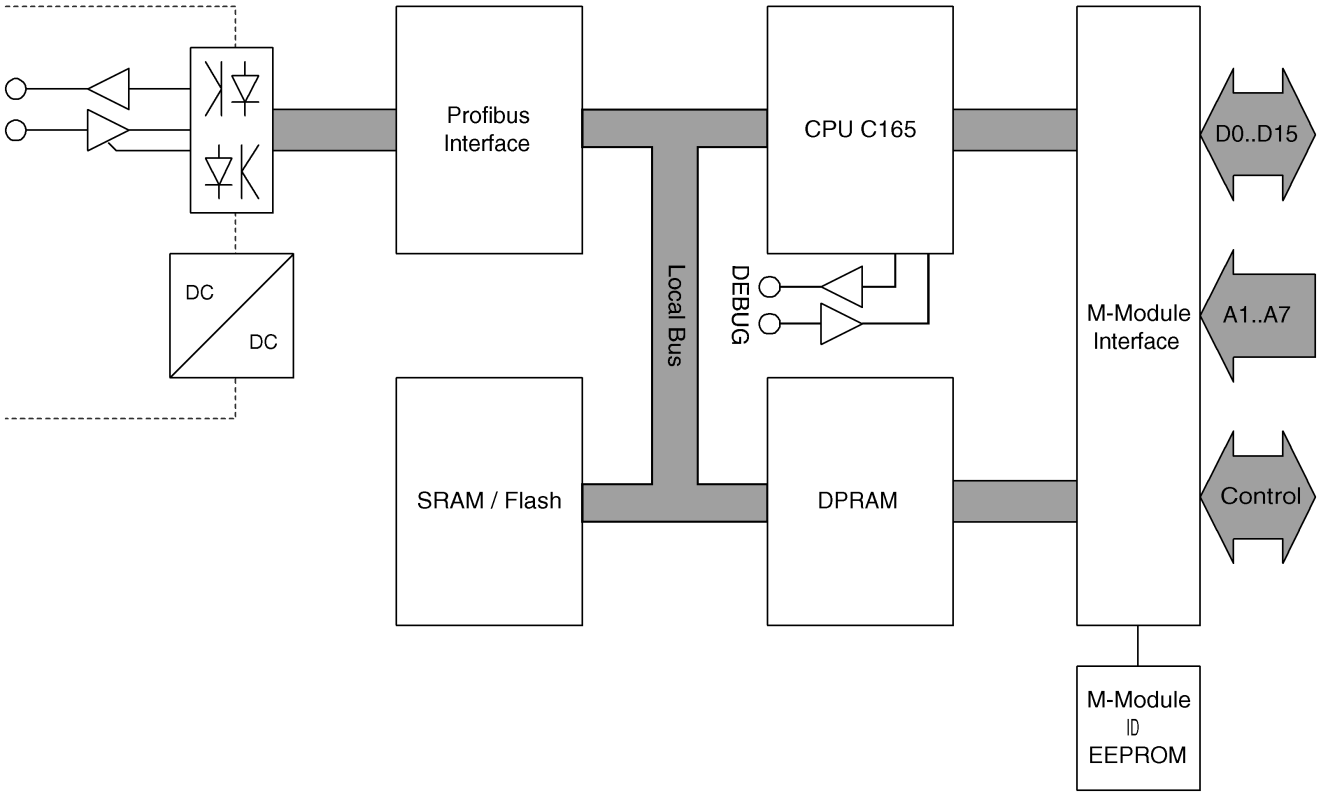
- **Profibus DP slave (DIN19245)**
- **Isolated RS485**
- **Local 16-bit CPU**
- **12 Mbit/s data transfer rate**
- **Complete Softing Profibus software on board**
- **Compatible with Softing tools**



The mezzanine card 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 on-board 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 kbit/s up to 12 Mbit/s. The optically isolated interface is supplied by an on-board DC/DC converter. The output is short-circuit protected.
The M79 comes with 512 KB local Flash, 1 MB local SRAM and 16 KB 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.
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, 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


Profibus
Interface
CPU C165
D0..D15
DC
DC
Local Bus
DEBUG
M-Module
Interface
A1..A7
SRAM / Flash
DPRAM
Control
M-Module
ID
EEPROM

Technical Data

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: 860,000h @ 40°C (derived from MIL-HDBK-217F)
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 ■ 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	■ Softing protocol portation (ISO/OSI protocol layer 2/DP) ■ 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 M79 Models	**04M079-00**	Profibus slave interface, 0..+60°C
Miscellaneous Accessories	**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.	
	13M079-06	MDIS4™/2004 low-level driver sources (MEN) for M79
Software: Windows®	This product is designed to work under Windows®. See below for potentially available separate software packages from MEN.	
	13M079-70	MDIS4™/2004 Windows® driver (MEN) for M79
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.	
	13M079-06	MDIS4™/2004 low-level driver sources (MEN) for M79
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.	
	13M079-06	MDIS4™/2004 low-level driver sources (MEN) for M79
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.	
	13M079-06	MDIS4™/2004 low-level driver sources (MEN) for M79

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
	20M079-00	M79 User Manual

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