

# PRM 5M Inductive Reader

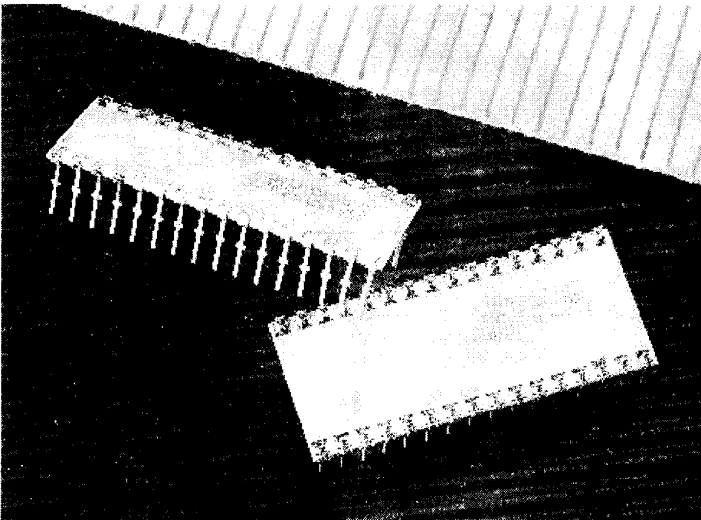
## Product Description / Theory of Operation

PRM 5M is an inductive reader based on Philips Semiconductors MIFARE Technology.

### Technical Data

Mounting:	<ol style="list-style-type: none"><li>1. Flush mounting in non-metallic surfaces</li><li>2. Surface mounting using an AP5 spacer</li><li>3. Mounting on single-gang electrical box using fixing plate FM 5</li></ol>
Material:	ASA plastic housing; polyurethane encapsulated electronics
Housing dimensions:	80 x 80 x 16 mm
Temperature range:	-25...+70 °C
Power supply:	8...30 V DC <100 mA
Electrical protection:	Reverse polarity diode protection on power lines; high-speed transient voltage suppressor diodes on data lines
Protection type:	IP 65 (IEC 529)
Frequency:	13.56 MHz
Approvals:	CE, EN 300 330 (European post)
Reading distance:	Up to 3 cm (depending on installation and transponder type)
Data output mode:	<ol style="list-style-type: none"><li>1. One transmission per activity</li><li>2. Cyclical transmission</li></ol>
Interface:	<ol style="list-style-type: none"><li>1. Wiegand 2-wire (open collector)</li><li>2. Data/Clock (open collector)</li><li>3. Magstripe emulation (open collector)</li><li>4. RS 232</li><li>5. RS 485</li><li>6. F2F Supervised</li></ol>
Electrical connection:	12 position plug-in strip connector with screw terminals

**MIFARE®  
Micro Module  
MF CM200**



# mifare®

The MIFARE® Micro Module (MF CM200) is the compact, cost efficient kernel of a MIFARE® read/write device with a typical operating distance of 25 mm. It consists of a radio frequency circuit and a VLSI chip, which are mounted on a ceramic carrier (hybrid circuit technology). The MF CM200 combines all basic functions to access the MIFARE® Smart Card and it is fully compatible with the MIFARE® Core Module (MF CM500). Its versatility allows a flexible and efficient application in different configurations and system devices.

## Features

- Compact size
- Compatible with MF CM500
- Designed for short distance readers
- Encrypted RF-data communication
- Fast and easy system integration
- Parallel standard interface
- Active antenna support possible
- No antenna tuning necessary
- 5 V power supply
- CE and postal approval capability

When it comes to high volumes, low costs, small size or low power consumption and an operating distance up to 25 mm is sufficient, the MF CM200 is the product to choose. Its features support a wide variety of applications like small, compact readers or handheld devices. The MF CM200 is also well suited for slot or surface readers (e.g. ATMs, vending machines). Typical high volume applications are parking meters, public telephones, prepaid gas, electric meters and on-board units for non-stop road toll.

The MIFARE® Micro Module acts as an intelligent parallel peripheral device, allowing fast processing and efficient system integration. Mechanically, it can be seen as a plug-in module like a 32 pin DIL IC. It interfaces with the antenna on the RF-side and with an 8-bit  $\mu$ C bus interface on the logic side. All basic functions like modulation, demodulation, RF signal generation, security management and anticollision are fully available. Software drivers in source code for easy system integration are delivered with the MIFARE® Demo System. As the MF CM200 is fully software compatible with the MF CM500, the same software can be used.

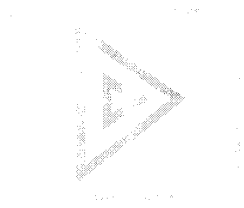
MIFARE® is a registered trademark of Philips Electronics N.V.

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# PHILIPS

*Let's make things better.*



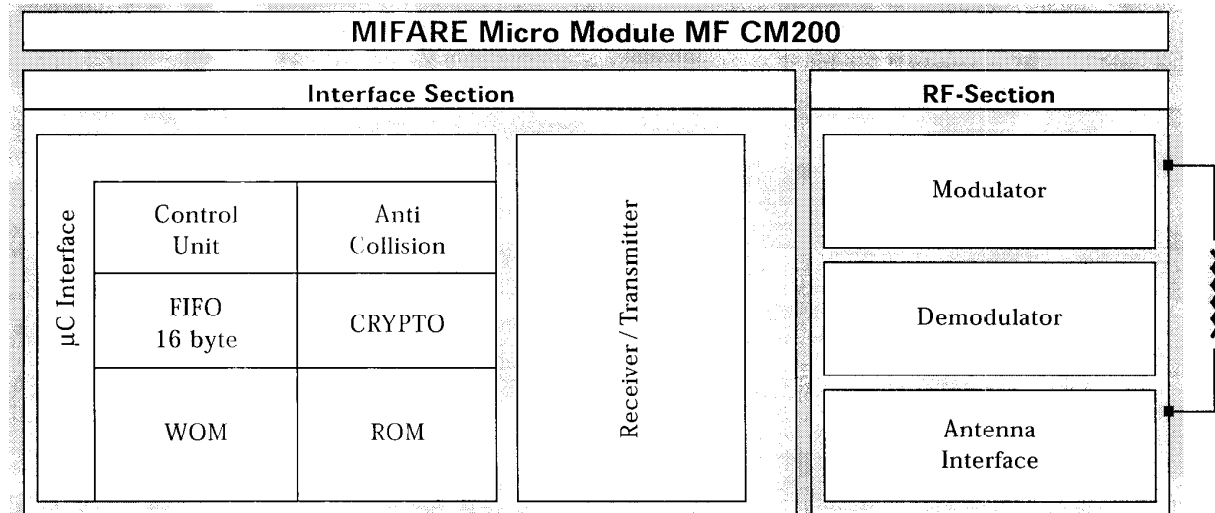
# mifare

The MIFARE<sup>®</sup> Micro Module consists of an interface section and an RF section. It provides all functions to execute any transaction to MIFARE<sup>®</sup> Smart Cards via the connected antenna loop. Since it is designed as a peripheral device for a microcontroller ( $\mu$ C), it may be controlled by any standard  $\mu$ C via a parallel address-data-control interface. The MF CM200 can be mounted directly onto a  $\mu$ C board also carrying an antenna. Otherwise, antennas on a flexible PCB or wire antennas are possible. In this way it is a basis for very small and compact readers.

**For further information please contact your local Philips Semiconductors Sales Office.**

## Specifications

Operating frequency	13.56 MHz
Supply current (typ.)	40 mA
Supply voltage (typ.)	5 VDC
Operating temperature	- 20 .. + 70°C
Storage temperature	- 25 .. + 85°C
Dimensions	40.6 x 17.5 x 8.4 mm
Number of pins	2 x 16 Pins
Pin grid	1/10 inch
Interface to host	CMOS parallel $\mu$ P bus compatible with MF CM500
Interface to antenna	passive coupling network
Antenna shape	various possibilities
Operating distance (typ.)	25 mm



Specification subject to change without notice.



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