

Unique Micro Design

**M380
Magnetic Card Reader
User Manual**

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UMD Part Number : 6-0380-993-8

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Revision History		
Date	Issue	Comments
10/10/95	1	First issue in new format

1. Introduction

This manual provides basic installation and operation details for the Unique Micro Design Model 380 series magnetic card readers.

The Model 380 magnetic card reader is designed to read all ISO standard magnetic stripe cards. There are models available to read track 1, track 2 or track 3, tracks 1 & 2 or tracks 2 & 3.

The Model 380 features two modes of operation; keyboard wedge or serial output.

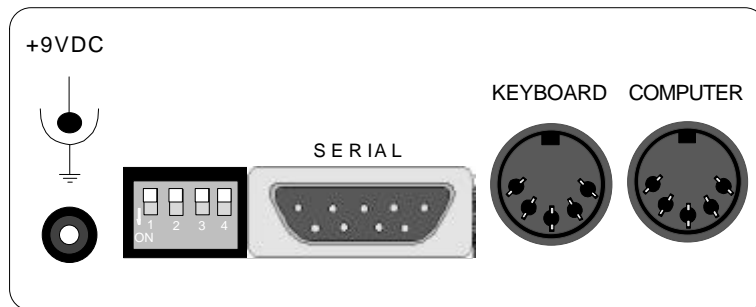
When in keyboard wedge mode, the M380 is connected between a PC, XT, AT or PS/2 compatible computer and its keyboard. Data from the magnetic card is converted to keyboard scan codes and input to the computer as if typed on the keyboard. Operation is transparent to the normal operation of the PC. When used in keyboard wedge mode, serial devices such as bar code scanners may be connected to the M380's serial port.

In serial mode, all data is output to the serial port. In this mode, the M380 may only be used as a stand alone magnetic card reader, no other devices can be attached. An external power source is required.

2. Interfaces and DIP switches.

All connectors and DIP switches are located on the rear of the M380. These include power connector (used when in serial mode), D9 male serial connection, and 2 x 180° 5 pin DIN connections (for keyboard wedge mode).

Rear view of M380



2.1 Power connection

An external power source of 9V DC @ 300mA is required to power the unit when used in serial mode. This plug pack may be ordered as a separate item from *UMD*.

When used in keyboard wedge mode, no external power supply is required. The 5V DC power is supplied by the computer's keyboard port.

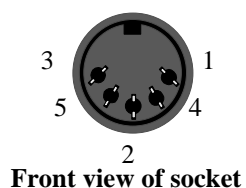
2.2 Keyboard Interface

There are two 5 pin DIN sockets to provide keyboard wedge operation of the M380. These allow the unit to be connected between any PC, XT, AT or PS/2 compatible computer and its keyboard.

Warning: *Ensure the computer is turned off before unplugging or plugging anything into the computer's keyboard port. Failure to do so may result in damage to the computer's mother board.*

M380 Keyboard socket connections

Pin	I/O	Description
1	I/O	Clock
2	I/O	Data
3	-	Reset
4	-	Ground
5	I/P	5V DC power

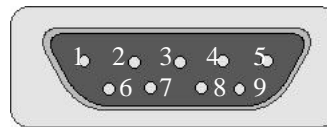


Front view of socket

2.3 Serial interface.

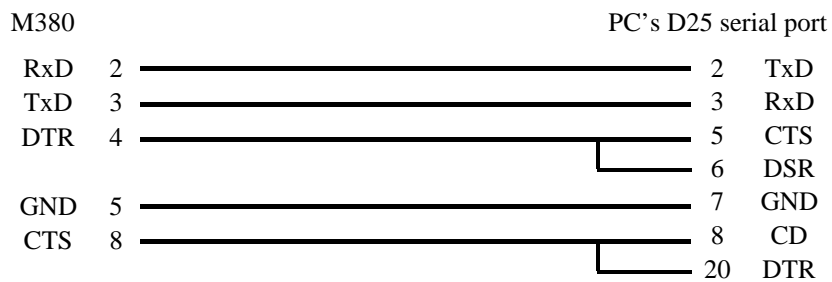
The serial interface is an RS232C (DTE) interface. Communication parameters are fixed at **9600** baud, **8** data bits, **no** parity and **1** stop bit. It may be used to connect serial devices such as Bar Code Scanners when the M380 is being used in keyboard wedge mode. It is also used to connect the M380 to a computer system when used in serial mode.

Pin	I/O	Description
1	-	not connected
2	I/P	RxD
3	O/P	TxD
4	O/P	DTR
5	-	Ground
6	-	not connected
7	O/P	RTS tied to 5V DC
8	I/P	CTS
9	-	not connected



Front view of DB9

Pin assignments for serial port



Serial Cable CA201 (M380 to D25 serial)

2.4 DIP switch settings.

There are 4 DIP switches situated beside the serial connector. These are used to configure the operating modes of the M380. Functions are as listed below.



Defaults

DIP switch settings

Switch	Position	Description
1		Two track magnetic card reader:-
	Off	Output track 2 only
	On	Output both tracks (tracks 1 & 2 or tracks 2& 3) (Default)
	—	Single track reader - Reserved
2	Off	Beeper disabled
	On	Beeper enabled (Default)
3	Off	Keyboard wedge mode (Default)
	On	Serial output mode
4		Keyboard wedge mode:-
	On	AT or PS/2 compatible (Default)
	Off	PC or XT compatible
		Serial Mode
	—	reserved

3. Installation.

The M380 can be connected in either keyboard wedge mode or serial mode. The following will step you through the installation of the unit.

3.1 Keyboard wedge mode.

- (1) Ensure the computers **power is turned off.** (*Failure to turn off the power may result in damage to your computers mother board.*)
- (2) Disconnect the keyboard from the computers system unit.
- (3) Set **DIP switch 3 to the OFF position**
- (4) Set **DIP switch 4** to suit your computer ie. PC, XT, AT or PS/2.
- (5) Set DIP switches 1 and 2 to suit your requirements.
- (6) Connect the suitable cable (CA202) to the “Computer” interface on the M380 and the other end to the computer system units keyboard port.
- (7) Connect the keyboard to the “Keyboard” port on the M380.

3.2 Connecting an additional serial device.

When the M380 is used in keyboard wedge mode, an additional serial device, such as a bar code scanner, may be connected. The M380 will provide a 5V DC output on pin 7 of the D9 serial interface to power the device. The parameters of the serial interface are fixed at 9600 baud, no parity, 8 data and 1 stop bits.

- (1) **Turn off the computer.**
- (2) Ensure the communications parameters of the device to be attached are set at 9600 baud, no parity, 8 data and 1 stop bits. (The parameters of most bar code scanners can be changed after connection to the M380).

- (3) Connect the device.
- (4) Turn the computer back on.

Any scanned bar codes will now be converted to keyboard scan codes and data sent to the computer as if typed on the keyboard.

3.3 To test the keyboard wedge installation.

After completing the installation, power up the computer. If the system boots into windows, exit to the DOS prompt before testing. Data is sent to the computer as if typed on the keyboard, so swiping a magnetic card or scanning a bar code at the DOS prompt, will display the data on the computer screen.

3.3 Serial connection.

The M380 can be operated as a stand alone serial device. In this configuration, a serial cable is connected from the M380 to the computer.

- (1) **Turn the computer off**
- (2) Connect a serial cable to the appropriate serial (com.) port on the PC. (CA201 for connection to a D25 com port, CA211 for a D9 connection.)
- (3) Connect the other end of the serial cable to the M380's D9 serial connection.
- (4) Connect a 9V DC 600mA power pack to the M380.

Ensure the computer's serial port is set at 9600 baud, no parity, 8 data and 1 stop bits. This may be done within the software being used. If not, add a *mode* statement to your *Autoexec.bat* file.

3.4 Testing serial connection

To test the installation for correct operation, you must run a software package which will recognise data sent to a serial port such as a simple communications program.

Note: *Serial port communications parameters need to be set before testing.*

4. Operating the Magnetic Card Reader.

To read a magnetic card, simply place the card at the left side of the read slot. The card should be held so that the magnetically encoded stripe is facing towards the back (connection end) of the M380 and at the bottom of the card. Slide the card through the reader from left to right, at a constant swift speed. A good read is indicated by a single flash of the green status indicator on the front of the reader and a single beep (if the buzzer is enabled, DIP switch 2 “ON”). A bad read is indicated by no feedback.

4.1. Output formats.

In keyboard wedge mode, all output, whether from the magnetic card reader or serial interface, is converted from ASCII characters to keyboard scan codes. These scan codes can be either PC / XT or AT / PS/2 depending on the position of DIP switch 4.

When in serial mode, all output are standard ASCII characters. As the M380 can read single or dual tracks, it is necessary to send a track identifier with the data. This is a two character sequence of an exclamation mark followed by the track number eg. !2 for track two. This sequence is output as a prefix to the data. This track identifier can be used by the application software to determine the source of the data, either magnetic card or keyboard. The data of each track is ended with a carriage return control code (ie 0D hex, 13 dec).

Models with two track readers output track 2 first, then the other track (either 1 or 3). A typical output from a reader for track 1 and 2 would be:

```
!22393039209=8909^  
!12393039209^J CITIZEN      =8909
```

Specifications

Physical	Dimensions	102(w) x 159(d) x 47(h) mm
	Enclosure	Folded metal
	Weight	0.6 kg
Power	Source	PC keyboard port (keyboard wedge) Ext plug pack (serial mode) 9V 300mA
	Rating	5V DC @ 100mA
Indicators	Power	Red LED
	Status	Green LED
Keyboard Interface	Type	PC, XT, AT, PS/2
	Connector	2 x 180° 5 pin DIN sockets
Serial Interface	Type	RS232C DTE
	Connector	DB9 plug (male)
	Format	9600 baud, 8 data, 1 stop bits, no parity
	Handshake	Hardware
Magnetic card data format	Track 1	210 bpi 79 alphanumeric IATA ANSI x 4.16 (ISO 3544)
	Track 2	75 bpi 40 numeric ABA ANSI x 4.16 (ISO 3544)
	Track 3	210 bpi 107 numeric THRIFT ANSI x 4.16 (ISO 3544)

Ordering details

Part Number	Model Number	Description
9-380-100-6	M380-1	Single track (track 1)
9-380-200-2	M380-2	Single track (track 2)
9-380-400-4	M380-12	Dual track (tracks 1 & 2)
		Cables & accessories
1-6000-263-1	PP9D600A	M380 plug pack (for serial mode use)
2-5202-020-2	CA202	Keyboard cable 5 pin DIN to 5 pin DIN
2-5226-020-0	CA226-2	5 pin DIN plug to 6 pin mini DIN plug
2-5227-000-1	CA227	Adaptor - 5 pin DIN plug to 6 pin mini DIN socket
2-5201-020-7	CA201-2	<i>UMD</i> serial D9 socket to D25 socket - 2m
2-5211-020-1	CA211-2	<i>UMD</i> serial D9 socket to D9 socket - 2m
		Documentation
6-0380-992-0	DOC-M380-PD	Product description
6-0380-993-8	DOC-M380-UM	User manual



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