

MINIMAG™ Magnetic Stripe Reader Port Powered

User's Manual



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Agency Approved

Specifications for subpart B of part 15 of FCC rule for a Class A computing device.

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SPECIFICATIONS

Power Requirements:	5 to 12 VDC/9mA.
Operating Current:	5mA typical (including LED)<9mA peak.
Operating Temperature:	32° F to 121° F (0° C to 50° C).
Storage Temperature:	-22° F to 158° F (-30° C to 70° C).
Relative Humidity:	10% to 90% non-condensing.
Magnetic Head Life:	1,000,000 passes minimum.
Rail and Cover Life:	2,000,000 passes minimum.
Magnetic Stripe Recording Method:	Two-frequency coherent phase (F2F) compatible with ISO 7811 ANSI, AAMVA, and California DMV.
Maximum Number of Tracks:	3 tracks.
Read Rate:	Less than one error in 100,000 bits on cards conforming to ISO 7811 1-5 (not induced by operator error).
Swipe Speed:	5 to 55 inches per second, bidirectional.
Card Width:	.01 to .045 inches.
Slot Width:	.050 inches (1.37mm)
Dimensions:	Length: 3.54 inches (90mm). Width: 1.34 inches (34mm). Height: 1.10 inches (28mm).
Weight:	5.5 oz. (with cable).
Cable Length:	6-foot straight cable.

DESCRIPTION

The MiniMag™ compact magnetic stripe reader can read 1, 2, or 3 tracks of magnetic stripe information. Power consumption is so low that any standard RS-232 port can power it. Operating current is less than 9mA maximum for a 3-track configuration.

The decoding electronics are based on ASIC technology designed for use with magnetic stripe cards encoded with F2F ANSI and ISO-conforming data. The MiniMag reliably decodes data encoded within ANSI and ISO standards, on both high and low coercivity magnetic media. The circuit is designed to read cards demagnetized down to 30% or 40% of ISO and ANSI signal levels, on tracks 1/3 or 2 respectively. These reading characteristics are designed to insure that the MiniMag will reliably read 'real world' cards.

In order to insure reliable reading under varying conditions, the MiniMag will read magnetic media at speeds from 5 inches per second (IPS) to 50 IPS with typical accelerations. The output is standard RS-232.

HOST CONNECTIONS

The Port-Powered MiniMag reader is connected to a 9-pin male serial port on a host (such as a PC) using a DB9 female connector. Pinout designations are as follows:

PIN	SIGNAL
2	TXD
3	RXD
4	DSR
5	GND

OPERATION

1. Connect the reader cable to the 9-pin male serial port on your PC. Make sure the reader is properly cabled and is receiving sufficient power. (Power is from the DSR line.)
2. Run an RS-232 communication program (such as HyperTerminal). Select the serial port to which the reader cable has been connected. The application needs to open the RS-232 port with DSR set to HIGH. (A typical communication program sets DSR to HIGH by default.)
3. The green LED will light.
4. Set the baud rate at 9600, 8 data bits, 1 stop bit, and no parity.
5. Slide a card, in either direction, through the reader slot, with the magnetic stripe facing the magnetic head (that is, the LED side of the reader).
6. The green LED will go off while the swipe is in process, then light green again to signal a good read.
7. The data on the card will be shown on the screen. Check the communication parameters if the data on the screen is not correct.
8. The LED will turn red for 500ms, then green to signal a partial or bad read.

NOTE: Sending data to the reader while swiping a card will cause a bad read.

POWER-ON INITIALIZATION

The MiniMag will always return an identification string about 2 seconds after it powers up. The identification string has the following format:

<compressed part number><revision information>

The <compressed part number> is eight characters (IDTPPMSR) and the <revision information> is three characters.

RS-232 PARAMETERS

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Hand-Shaking	X-ON/X-OFF
X-ON	11 (hex)
X-OFF	13 (hex)

LED STATUS

To conserve power, the brightness of the LED has been reduced significantly.

Initial power on	GREEN
Swiping a card	OFF
Good read	GREEN
Bad read	RED for 500 ms, then GREEN

MESSAGE DATA FORMAT

<SS1><DATA1><ES><SS2><DATA2><ES><SS3><DATA3><ES><CR>

Where <SS1>, <SS2>, and <SS3> are start sentinels for Track 1, Track 2, and Track 3, and <ES> is the end sentinel for all tracks.

ISO format: <SS1> is % <SS2> is ;
 <SS3> is + <ES> is ?

CADMV format: <SS1> is % <SS2> is ;
 <SS3> is ! <ES> is ?

<DATA X > is the decoded data for Track X . It is the character "E" if the magnetic data on Track X is not valid.

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