



# AMERICAN MAGNETICS CORPORATION

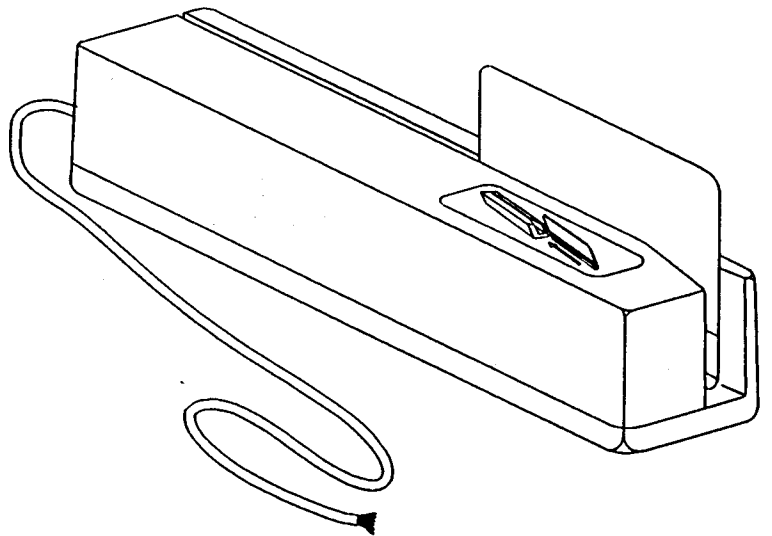
## MODEL 40TD NON-INTELLIGENT (TTL) *Magstripe<sup>®</sup> Swipe Reader*

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The Model 40TD non-intelligent swipe reader is designed for the general card reader market. This model is configured to read single, dual or three tracks of data simultaneously on any ANSI/ISO magnetic stripe card.

Temporal decoding magnetic head(s), custom LSI electronics, and a unique head suspension system deliver outstanding read performance on all tracks.

The Model 40TD has TTL outputs and includes an unterminated cable. The design and low cost of the Model 40TD allows this reader to be used in a wide variety of card reader applications.



### *Features of the Model 40TD:*

- TTL Communications
- Low Cost, Compact Size
- ANSI and ISO Conformance
- Single, Dual and Three Track Models
- Low Power Electronics

## INTRODUCTION

The Model 40TD is a low powered Magstripe<sup>®</sup> swipe reader designed for reliability and versatility on most OEM single track (1, 2 or 3), dual track (1 & 2 or 2 & 3) or three track (1, 2 & 3) applications.

The magnetic head is mounted with a unique spring design which assures maximum head contact with bowed and warped cards. The reader is protected by a die cast metal housing, making it highly durable.

## PERFORMANCE

**Bit Density:** The Model 40TD will read encoded data on plastic cards conforming to ANSI x 4.16-1983 and ISO standards. It reads data densities from 75 to 210 BPI.

**Card Jitter:** Reliable read cards with +/- 12% bit cell spacing errors.

**Speed Range:** 5 to 50 IPS

**Magnetic Stripe Specification:** 300 through 4000 Oersted (coercivity).

**Acceleration:** The assembly will function reliably with media accelerations up to 200 IPS squared for speeds less than 10 IPS, 325 IPS squared for speeds between 10 and 14 IPS, and 425 IPS squared for speeds greater than 14 IPS.

**Media Thickness:** .027" to .048" thick.

**Low Amplitude Reading:** Cards written to 30% (210 BPI) or 40% (47 BPI) of ANSI standard amplitude can be read at speeds between 10 and 50 IPS.

**Error Rate Reading:** Excluding media and operator induced errors, the error rate for reading is less than 1 bit in 100,000.

## ENVIRONMENTAL

Conditions	Temperature	Relative Humidity	Condensing
Operating	1 - 50°C	5 to 95%	No
Shipping	-40 - 60°C	5 to 100%	No
Storage	1 - 60°C	50 to 100%	No
Sealed Elec.	0 - 50°C	5 to 100%	Yes

## INPUT/OUTPUT CONNECTIONS

Single Track (1, 2 or 3)		
P2	Color	Description
P2-1	White	Data
P2-2	Blue	Strobe*
P2-3	Yellow	MedDet*
P2-4	Red	+5 Volts
P2-5	Black	Gnd
P2-6	-----	-----
P2-7	-----	-----
P2-8	-----	-----
P2-9	Drain w/Lug	Chassis Gnd

Dual Track (1 & 2 or 2 & 3)		
P2	Color	Description
P2-1	White	Data (trk 2)
P2-2	Blue	Strobe* (trk 2)
P2-3	Yellow	MedDet*
P2-4	Red	+5 Volts
P2-5	Black	Gnd
P2-6	Violet	Data (trk 1 or 3)
P2-7	Grey	Strobe* (trk 1 or 3)
P2-9	Drain w/Lug	Chassis Gnd

Three Track (1, 2 and 3)		
P2	Color	Description
P2-1	White	Data (trk 2)
P2-2	Blue	Strobe* (trk 2)
P2-3	Yellow	MedDet*
P2-4	Red	+5 Volts
P2-5	Black	Gnd
P2-6	Violet	Data (trk 1)
P2-7	Grey	Strobe* (trk 1)
P2-9	Drain w/Lug	Chassis Gnd
P3-1	White/Black	Strobe* (trk 3)
P3-2	White/Brown	Data (trk 3)

\* Indicates a low true output

## ELECTRONIC SPECIFICATIONS

**Input Power:** 5VDC +/- 10%

**Ripple Voltage:** 100mV peak to peak

**Current:** 8.0 mA typical, 12.0 mA maximum per read track (does not include output drive currents).

**Signal Outputs:** Separate data, strobe and media detect. Data is serial with a strobe pulse for each data bit.

**Data & Strobe:**

- **High Level:** 2.4 volts min. at 4.0 mA
- **Low Level:** 0.4 volts max. at 4.0 mA

**Media Detect:** Open collector output

- **Low Level:** 0.4 volts max. at 4.0 mA
- **Output Leakage Current:** 600 mA max. at 5.5 volts (10K pull up in circuit).

## SIGNAL DESCRIPTIONS

**Media Detect** is normally high, but goes low on the tenth leading zero and stays low for 8 milliseconds after the last flux reversal. The media detect signal is electronically created by the presence of flux reversals passing the read head.

**Strobe** is the data clock output. It is normally high but will run low to indicate the data sample time. The strobe pulse width is typically 20 microseconds wide. The data output is stable and may be sampled on the falling edge of the strobe, the rising edge of the strobe, or anytime within one microsecond of the next falling edge of the strobe. At high swipe speeds, the period between strobes may be less than 100 microseconds.

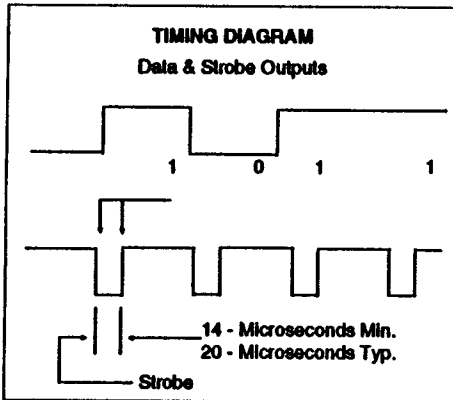
**Data** is defined as the media data output in a serial bit-by-bit format. Each bit is represented by a data output level and a strobe. The level at this output represents the decoded data, where a high output is a one bit and a low is a zero bit.

*Note: The data is output in a reverse bit pattern if media is swiped in a reversed direction.*

The first nine bits from the front of the card are not provided to the data output but are used for decoding circuit synchronization. The data rate is dependent on the media velocity and encoding density.

**Read Track Designation  
MODEL 40TDXXX**

XXX	Track Selection
A	Track 2 (ABA)
I	Track 1 (ATA)
T	Track 3 (THRIFT)
AI	Tracks 1 and 2
AT	Tracks 2 and 3
AIT	Tracks 1, 2 and 3



**MECHANICAL SPECIFICATIONS**

The body of the reader is made from a die cast metal housing with a media entry slot opening at one end. The slot is designed to accommodate media from .027 to .048 inches thick.

**Dimension:**

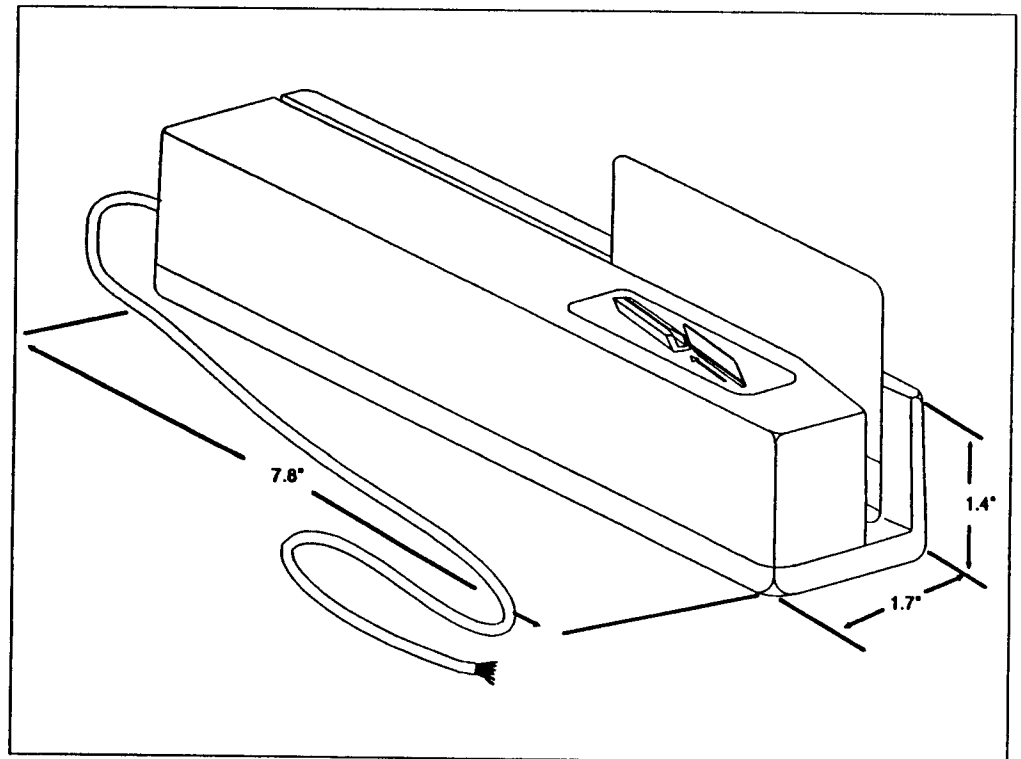
- Length: 7.8" (198.1 mm)
- Height: 1.4" (35.6 mm)
- Width: 1.7" (43.2 mm)

**Color:**

White

**Cable:**

Rear (Cable Exit) End



## AMERICAN MAGNETICS CORPORATION

*The Company History and a Background  
of its Magstripe® Product Line*

American Magnetics Corporation (AMC) is a privately owned company which has been serving the domestic and international markets with high quality Magstripe® products since 1971.

Located just 15 miles south of Los Angeles International Airport, AMC occupies two facilities totaling approximately 56,000 square feet.

These facilities are equipped with modern development, production and inspection equipment and are staffed by over 250 employees.

Equipped with a strong research and development staff, American Magnetics has developed a wide range of Magstripe® products to meet virtually any magnetic media application. Utilizing patented and proprietary technology, AMC readers and encoders have met diverse customer needs, while reliably accomplishing billions of reads of "real world" cards under varied operating conditions.

With a far-reaching reputation for manufacturing excellence and unparalleled quality control, American Magnetics is a recognized world leader in the magnetic stripe reader marketplace. Many of our products are covered by issued patents, primarily in the field of applied magnetics.

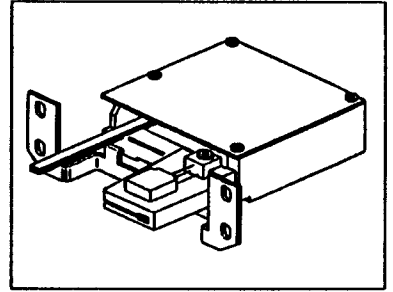
In order to meet the needs of the marketplace, American Magnetics has developed a diverse line of Magstripe® products. The product lines are best divided as follows:

### READERS

A full line of Magstripe® reader products are offered to meet the need for most any read application. These products are equipped with uniquely designed magnetic heads which will read combinations of up to four tracks of data.

AMC's many models will fulfill application requirements for swipe or card insert, spatial or temporal decoding, RS232 or RS422/RS485 and TTL outputs.

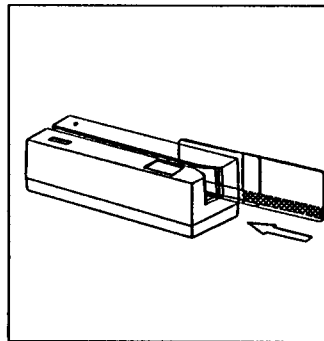
Strong design and high quality standards mean AMC units will reliably handle in excess of one million card passes.



### MICR READERS

American Magnetics offers check readers to meet domestic and foreign needs (E13B, CMC7). This technology can be combined with the Magstripe® reader giving the product great flexibility.

### READERS/WRITERS



Many of American Magnetics products offer the capabilities of reading and writing in both manual and motorized applications. Many of our models allow for high and normal coercivity encoding.

### ACCESS CONTROL

A security access control system has been designed to meet the ever-growing industrial security needs. AMC's Access Control group has designed a versatile product which will meet the need of a small company or very large complexes. American Magnetics access control systems are built under the same guidelines as our other products; they are high in quality and reliable in performance.

*American Magnetics Corporation is proud of its people,  
customer base and products.*

*We stand ready to meet any of your needs.*



## American Magnetics Corporation

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