

100-MILLIMETER COMPATIBLE SWIPE READER TECHNICAL REFERENCE MANUAL

Part Number 99831012-5

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MAGTEK[®]

REGISTERED TO ISO 9001:2000

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REVISIONS

| Rev Number | Date | Notes |
|------------|-----------|--|
| 1 | Mar 91 | Initial Release |
| 2 | 22 Oct 99 | Formatted manual; Added IEC requirements to Specifications; Changed values in Specifications; Clarified Connector information; Added correct drawings; Clarified Card Present Signal |
| 3 | 25 Jul 01 | Front Matter: Added to Agency page: FCC Class B, UL and CUL, CE Class B. Added Copyright 2001. |
| 4 | 08 Apr 03 | Front Matter: added ISO line to logo, changed Tech Support phone number, added new warranty, changed warranty from 90 days to 1 year |
| 5 | 16 Jul 03 | Sec 1: added cable length to Configuration Table, added MTBF Electronics to Specification Table, changed power requirements to 2.7 VDC, and corrected units. Tables 2-1, 2-2, and 2-3 added mating connectors and changed V _{cc} from 2.4 to 2.7. |
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FCC WARNING STATEMENT

This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

FCC COMPLIANCE STATEMENT

This device complies with Part 15 Of The FCC Rules. Operation of this device is subject to the following two conditions: (1) This device may not cause harmful interference. And (2) This device must accept any interference received, including interference that may cause undesired operation.

CANADIAN DOC STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

CE STANDARDS

Testing for compliance to CE requirements was performed by an independent laboratory. The unit under test was found compliant to Class B.

UL/CSA

This product is recognized per Underwriter Laboratories and Canadian Underwriter Laboratories 1950.

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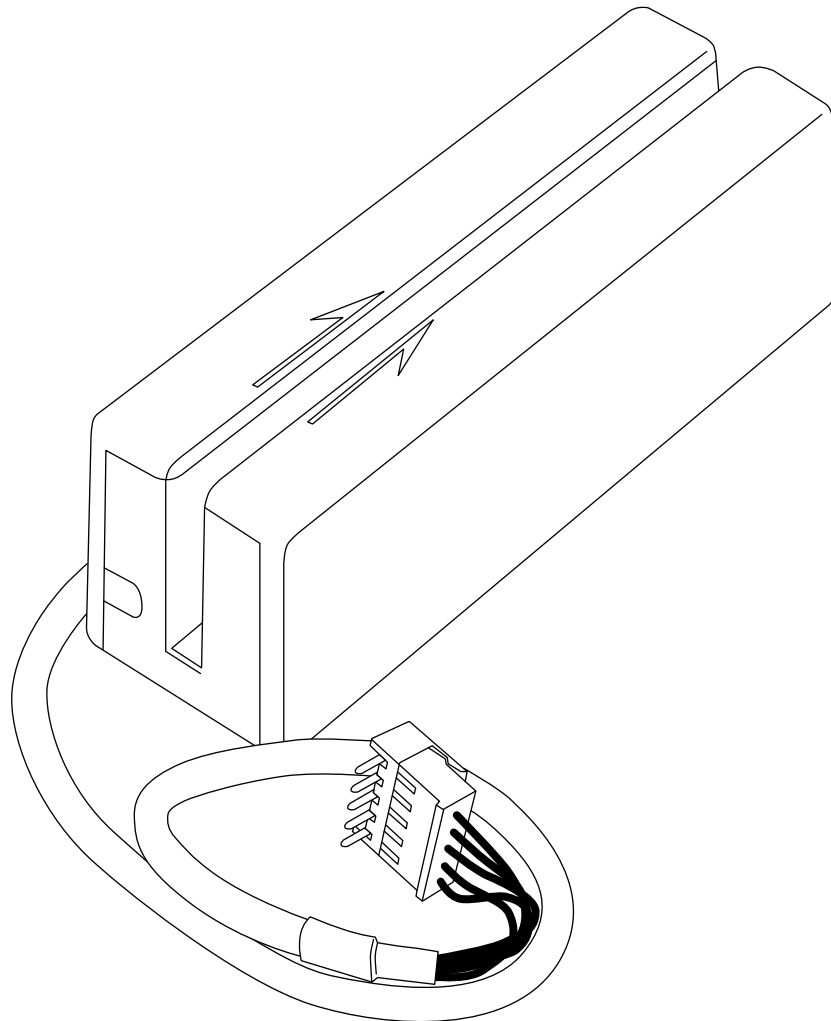


Figure 1-1. 100-millimeter Compatible Swipe Reader

SECTION 1. FEATURES AND SPECIFICATIONS

The 100-millimeter OEM Swipe Reader has a TTL level interface and is designed for use in retail, access control, and time and attendance environments. This Reader is in compliance with industry specifications, including ANSI/ISO Standards 7810, 7811-1 through -6, 7812, 7813, and AAMVA. The Reader can be customized. Bidirectional read capability is available.

CONFIGURATIONS

| | Part Number | Read | Color | Cable Length |
|---|-------------|-----------------|-------|--------------|
| Integral Electronics, Single Track with Cover | 21040004 | Track 1 | Black | 12" |
| | 21040005 | Track 2 | Black | 12" |
| Integral Electronics, Single Track without Cover | 21040001 | Track 1 | Black | 12" |
| | 21040003 | Track 2 | Black | 12" |
| Integral Electronics, Dual Tracks without Cover | 21040026 | Tracks 1 & 2 | Black | 21" |
| | 21040047 | Tracks 1 & 2 | Black | 21" |
| Integral Electronics, 3 Tracks with Cover | 21040057 | Tracks 1,2, & 3 | Black | 20" |

SPECIFICATIONS

| | |
|---|--|
| IEC: Meets or Exceeds Requirements for: | IEC 1000-4-2 ESD (Electro Static Discharge) IEC 1000-4-3 Radiated EMC Field (2X requirement) IEC 1000-4-4 Electrical Fast Transient Burst requirement (transmission on I/O cable) |
| Flammability | Meets UL94V-0 |
| Recording Method | Two-Frequency Coherent Phase (F2F) |
| Speed | Card speed through the unit may vary from: 2 to 125 in/s at 75 bpi (5.1 to 318 cm/s at 29.5 b/cm) 2 to 60 in/s at 210 bpi (5.1 to 152.4 cm/s at 82.7b/cm) |
| Power Requirements | Single Track: 2.7 to 5.5VDC at 1mA, typical Dual Track: 2.7 to 5.5VDC at 2mA, typical 3 Tracks: 2.7 to 5.5VDC at 3mA, typical |
| Output Signal Levels | $V_{ol} = 0.4V$ at 2mA $V_{oh} = V_{cc} - 0.5V$ at -2mA |
| Operating Temperature | -30°C to 70°C |
| Operating Humidity | 10% to 90% relative humidity |
| Life | 300,000 passes Single Track 1,000,000 passes Multi-Track |
| MTBF Electronics | 125,000 h |
| Dimensions | Length: 3.94" (100 mm) Height: 1.23" (31.3mm) Width: 1.28" (32.5mm) |
| Cable Length: | Single Track: 12" (305mm) Dual Track: 21" (533mm) 3 Track 20" (508.0mm) |
| Connector | See Section 2, Connectors |
| Colors available | Black, Standard Pearl White Available |

REFERENCE DOCUMENT

I/O Interface for TTL Swipe Readers, Technical Reference Manual, P/N 99875148

SECTION 2. INSTALLATION

This section consists of installation and checkout of the Reader.

MOUNTING

The dimensions for mounting without the cover are shown in Figure 2-1.

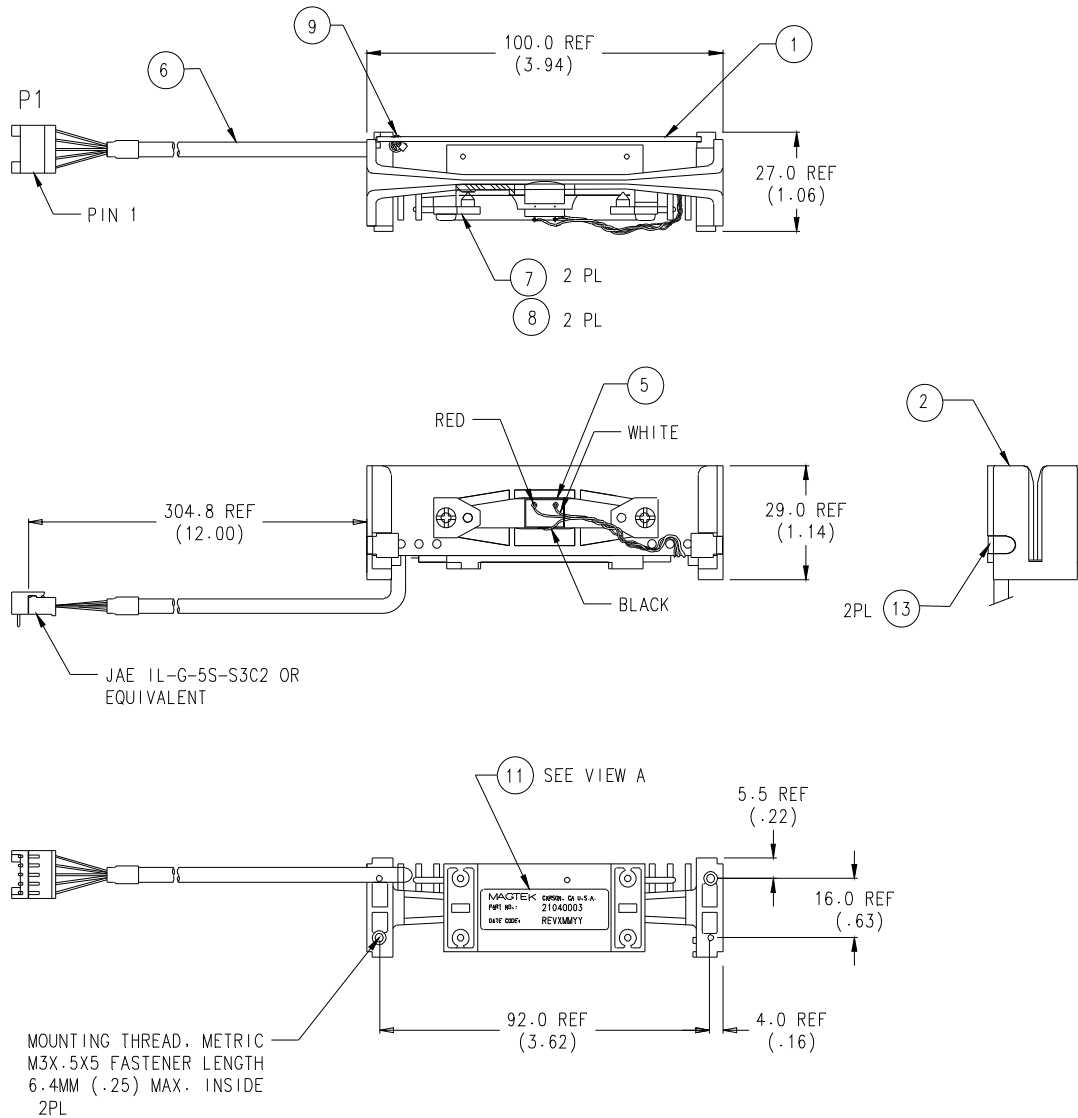


Figure 2-1. Reader Mounting Dimensions Without Cover

100-millimeter Compatible Swipe Reader

The dimensions for mounting with the cover are shown in Figure 2-2.

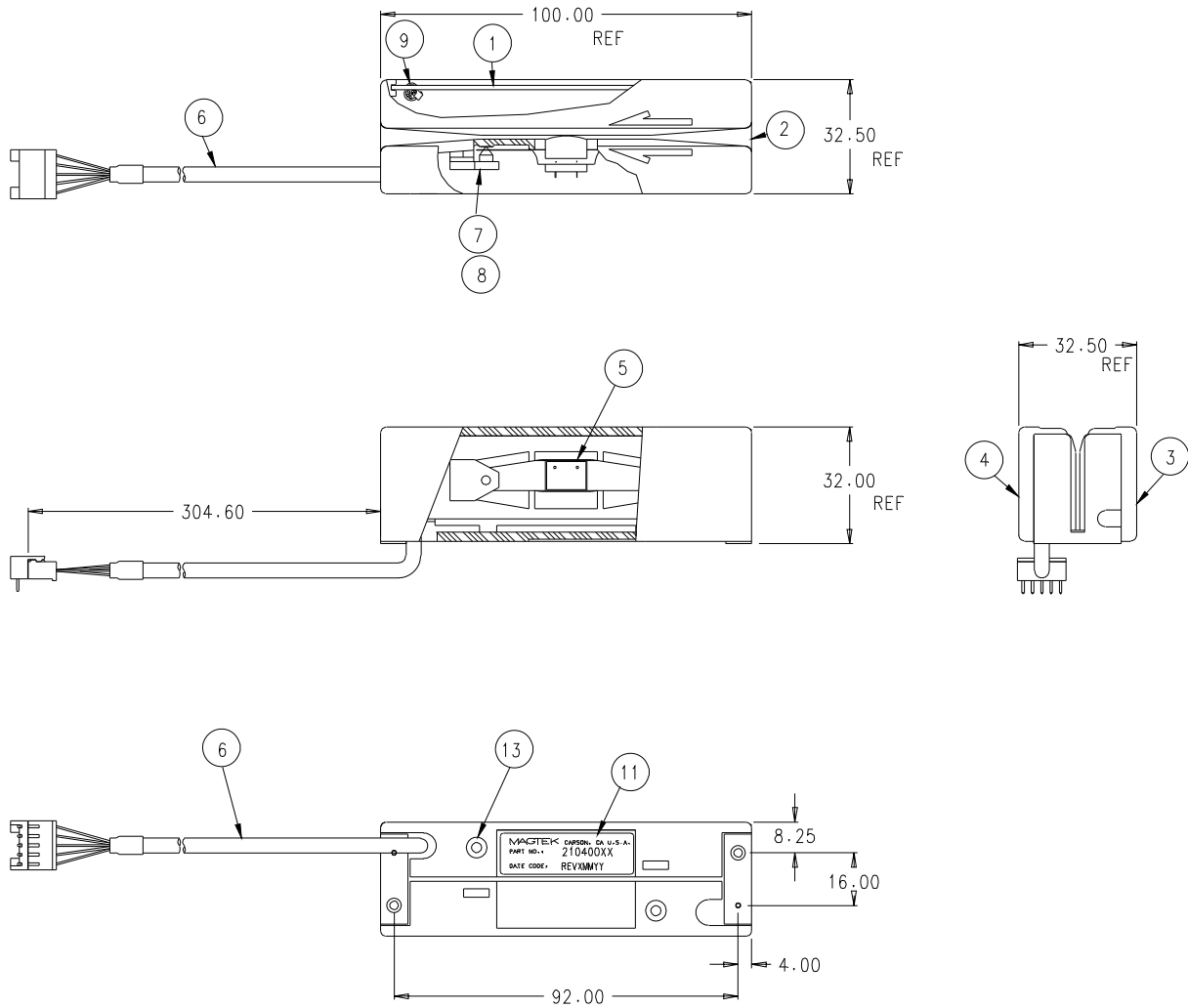


Figure 2-2. Reader Mounting Dimensions With Cover

CONNECTORS

Single Track I/O Connector is shown in Table 2-1, and the Dual Track I/O Connector is shown in Table 2-2.

Table 2-1. I/O Connector for Single Track, 5 Pin

| | Pin Number | Color | Signal |
|---|------------|--------|----------------------------------|
| Connector for Single Track, 5 Pin Mating Header Included: JAE IL-G-SP-S3L2-E 2.5mm Contact Spacing | 1 | Brown | $\overline{\text{DATA}}$ |
| | 2 | Red | $\overline{\text{STROBE}}$ |
| | 3 | Orange | $\overline{\text{CARD PRESENT}}$ |
| | 4 | Yellow | V_{cc} |
| | 5 | Green | GND |

Note: V_{cc} = 2.7 to 5.5 VDC

Table 2-2. I/O Connector for Dual Track, 8 Pin

| | Pin Number | Color | Signal |
|--|------------|--------|-----------------------------------|
| Connector for Dual Track, 8 Pin Molex 8 Pin 22-01-2081 0.100 inch Contact Spacing Mates with Header: 22-05-2081 | 1 | Yellow | $\overline{\text{DATA (Tk 2)}}$ |
| | 2 | White | $\overline{\text{CARD PRESENT}}$ |
| | 3 | Green | $\overline{\text{STROBE (Tk 2)}}$ |
| | 4 | – | KEY |
| | 5 | Red | V_{cc} |
| | 6 | Black | GND |
| | 7 | Blue | $\overline{\text{STROBE (Tk 1)}}$ |
| | 8 | Brown | $\overline{\text{DATA (Tk 1)}}$ |

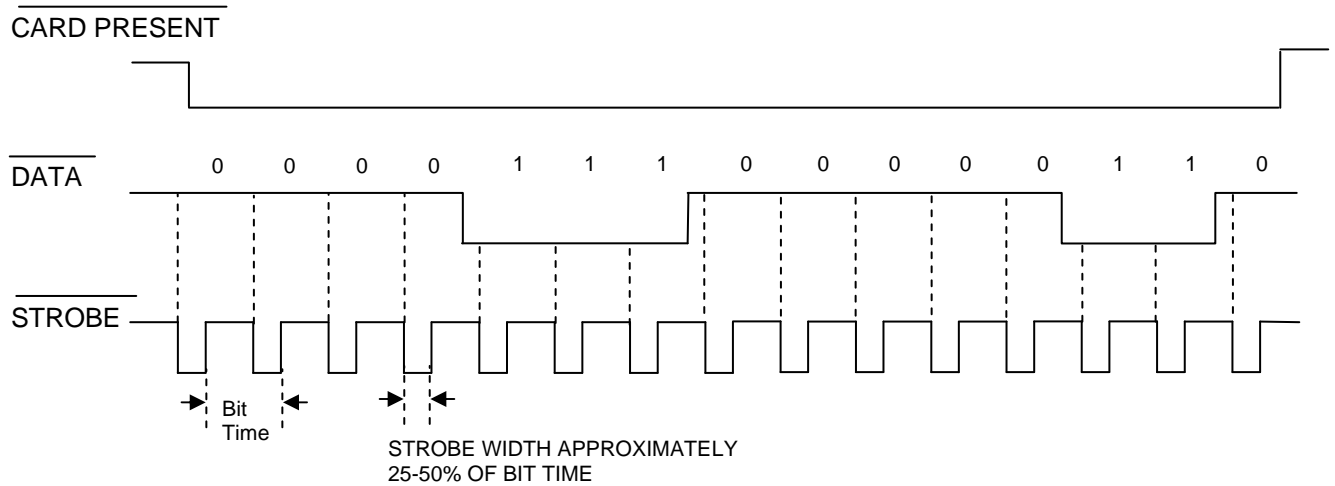
Note: V_{cc} = 2.7 to 5.5 VDC

Table 2-3. I/O Connector for 3 Track, 10 Pin

| | Pin Number | Color | Signal |
|---|------------|--------|-----------------------------------|
| Connector for 3 Track, 10 Pin Molex 10 Pin 22-01-2101 0.100 inch Contact Spacing Mates with Molex 22-05-2101 | 1 | Yellow | $\overline{\text{DATA (Tk 2)}}$ |
| | 2 | White | $\overline{\text{CARD PRESENT}}$ |
| | 3 | Green | $\overline{\text{STROBE (Tk 2)}}$ |
| | 4 | | KEY |
| | 5 | Red | V_{cc} |
| | 6 | Black | GND |
| | 7 | Blue | $\overline{\text{STROBE (Tk 1)}}$ |
| | 8 | Brown | $\overline{\text{DATA (Tk 1)}}$ |
| | 9 | Gray | $\overline{\text{STROBE (Tk 3)}}$ |
| | 10 | Orange | $\overline{\text{DATA (Tk 3)}}$ |

Note: $V_{cc} = 2.7$ to 5.5 VDC

TIMING



Notes:

1. Time out of the $\overline{\text{CARD PRESENT}}$ signal occurs approximately 150 ms after the last strobe transition.
2. $\overline{\text{DATA}}$ is valid 1.0 μ sec before the negative edge of $\overline{\text{STROBE}}$.

Figure 2-3. Timing

DATA

The Data signal is valid while the strobe is low. If the Data signal is high, the bit is a zero. If the Data signal is low, the bit is a one.

STROBE

The Strobe signal indicates when Data is valid. It is recommended that Data be loaded by the user with the leading edge (negative) of the Strobe.

CARD PRESENT

Card Present will go low after 14/15 flux reversals from the head. Card Present will return high 150 milliseconds after the last flux reversal.

When no card is being moved through the unit, the Data, Strobe, and Card Present signals are high. The signal timing diagram shown above represents the data along with other signals that are generated during the reading process.

100-millimeter Compatible Swipe Reader
