

90-MILLIMETER COMPATIBLE SWIPE READER TECHNICAL REFERENCE MANUAL

Part Number 99831083-2

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REVISIONS

| Rev Number | Date | Notes |
|------------|-----------|--|
| 1 | Sep 92 | 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 |
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FCC Warning Statement

This equipment has been tested and found to comply with the limits for a Class A 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 commercial 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian DOC Statement

This digital apparatus does not exceed the Class A 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 A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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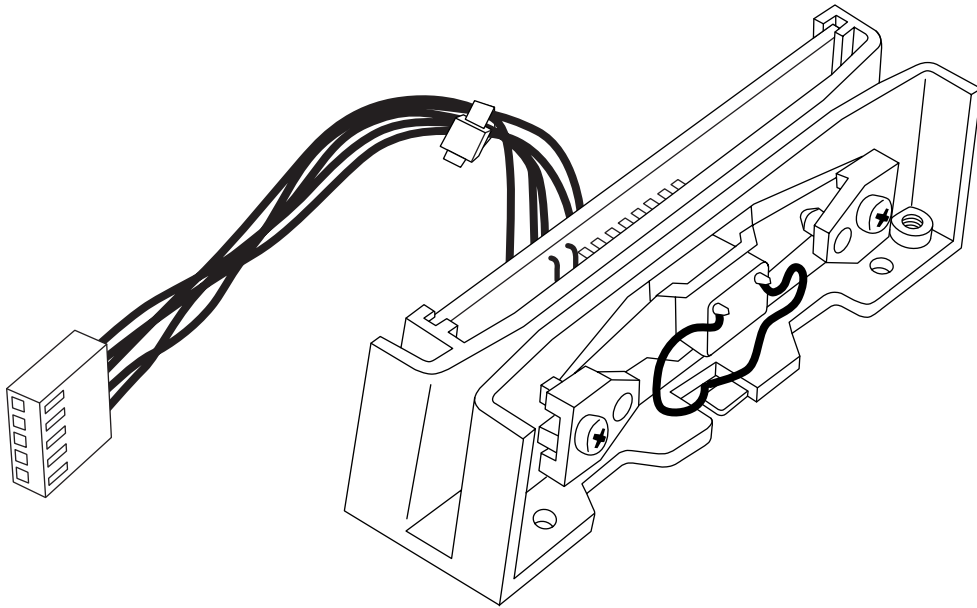


Figure 1-1. 90-millimeter Compatible Swipe Reader

SECTION 1. FEATURES AND SPECIFICATIONS

The 90-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 |
|---|-------------|-----------------|-------|
| Integral Electronics, Single Track without Cover | 21045001 | Track 1 | Black |
| | 21045002 | Track 2 | Black |
| Integral Electronics, Dual Tracks without Cover | 21045011 | Tracks 1 & 2 | Black |
| Integral Electronics, 3 Tracks without Cover | 21045019 | Tracks 1,2, & 3 | Black |

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: 2-125 ips at 75 bpi 2-60 ips at 210 bpi |
| Power Requirements | Single Track: 2.4 to 5.5VDC at 1mA, typical Dual Track: 2.4 to 5.5VDC at 2mA, typical 3 Tracks: 2.4 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 |
| Dimensions | Length: 3.54" (90.0mm) Height: 0.95" (24.13mm) Width: 0.88" (22.4mm) |
| Cable Length: | Single Track: 6" (150mm) Dual Track: 4" (101.6mm) 3 Track 5" (127mm) |
| Connector | See Section 2, Connectors |
| Colors available | Black, Standard |

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.

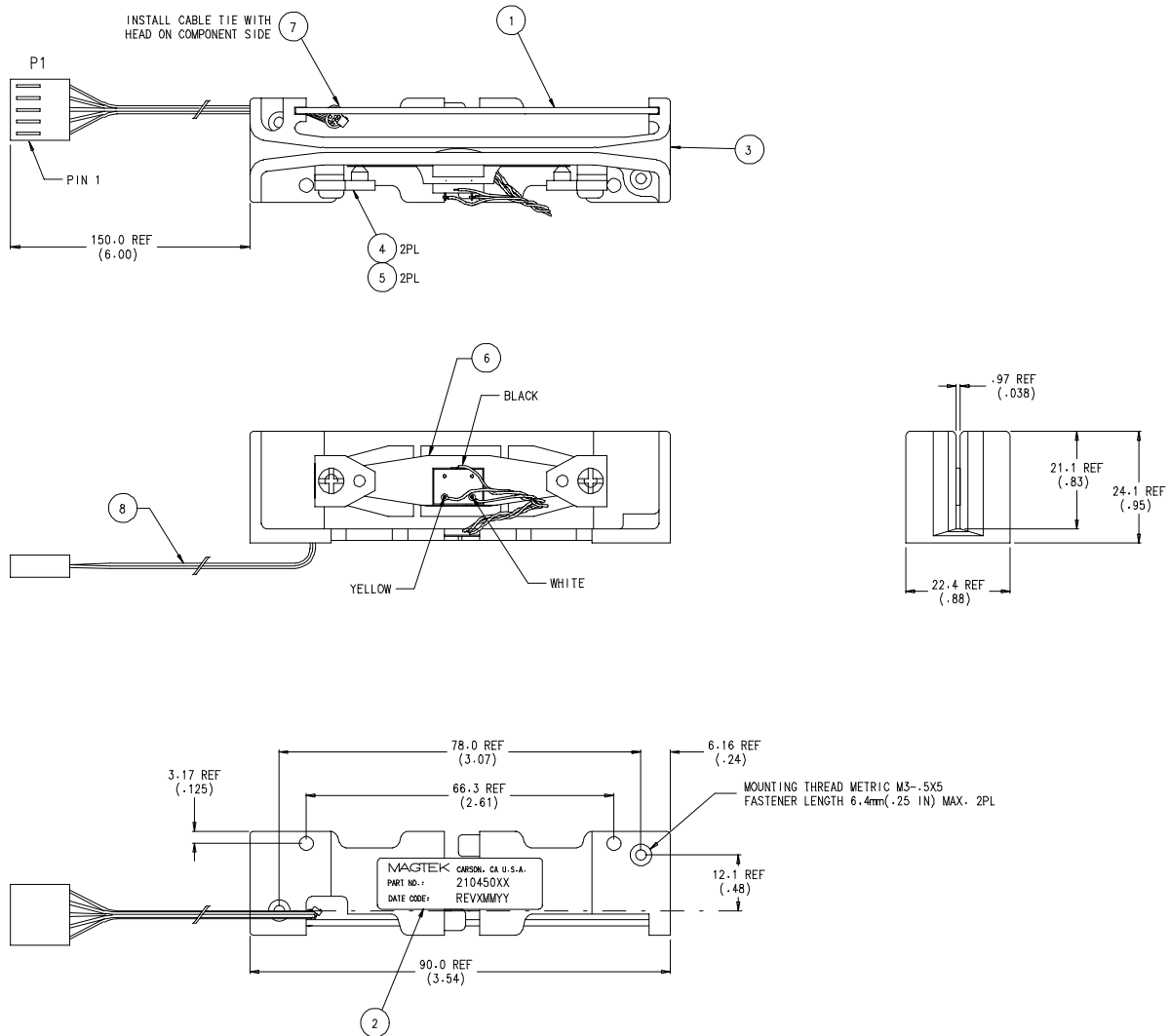


Figure 2-1. Reader Mounting Dimensions

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 Molex 5 Pin 22-01-2951 0.100 inch Contact Spacing | 1 | Red | V _{cc} |
| | 2 | Black | GND |
| | 3 | Orange | $\overline{\text{DATA}}$ |
| | 4 | Brown | $\overline{\text{STROBE}}$ |
| | 5 | Green | $\overline{\text{CARD PRESENT}}$ |

Note: V_{cc} = 2.4 to 5.5 VDC

Table 2-2. I/O Connector for Dual Track, 7 Pin

| | Pin Number | Color | Signal |
|--|------------|--------|-----------------------------------|
| Connector for Dual Track, 7 Pin Molex 7 Pin 22-01-2071 0.100 inch Contact Spacing | 1 | Red | V _{cc} |
| | 2 | Black | GND |
| | 3 | Orange | $\overline{\text{DATA (Tk 2)}}$ |
| | 4 | Brown | $\overline{\text{STROBE (Tk 2)}}$ |
| | 5 | Green | $\overline{\text{CARD PRESENT}}$ |
| | 6 | Yellow | $\overline{\text{STROBE (Tk 1)}}$ |
| | 7 | White | $\overline{\text{DATA (Tk 1)}}$ |

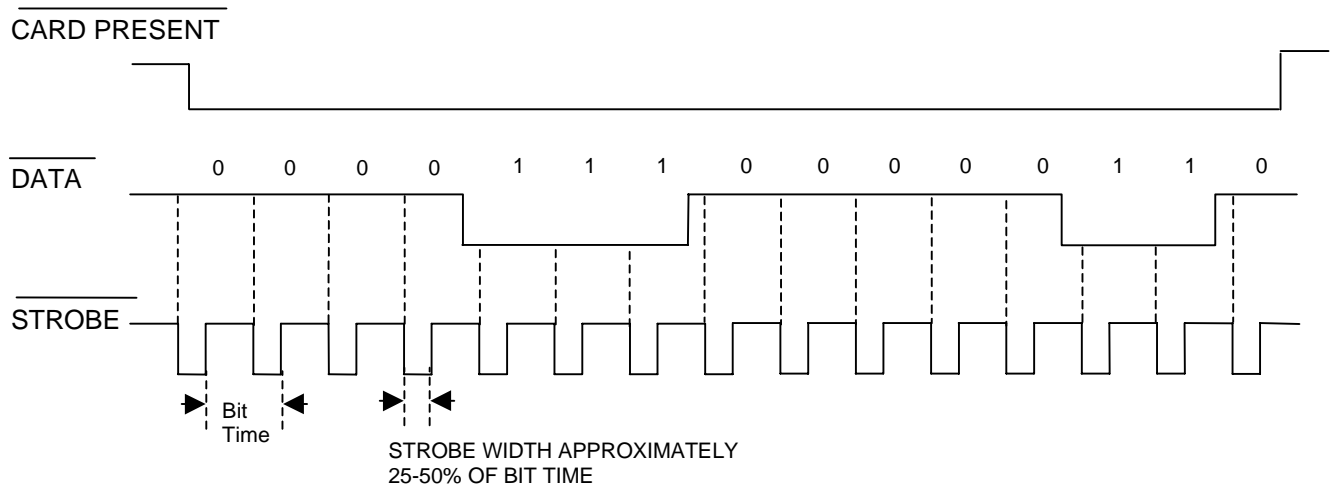
Note: V_{cc} = 2.4 to 5.5 VDC

Table 2-3. I/O Connector for 3 Track, 9 Pin

| | Pin Number | Color | Signal |
|---|------------|--------|-----------------------------------|
| Connector for 3 Track, 9 Pin Molex 9 Pin 22-01-2091 0.100 inch Contact Spacing | 1 | Red | V_{cc} |
| | 2 | Black | GND |
| | 3 | Yellow | $\overline{\text{DATA (Tk 2)}}$ |
| | 4 | Green | $\overline{\text{STROBE (Tk 2)}}$ |
| | 5 | White | $\overline{\text{CARD PRESENT}}$ |
| | 6 | Blue | $\overline{\text{STROBE (Tk 1)}}$ |
| | 7 | Brown | $\overline{\text{DATA (Tk 1)}}$ |
| | 8 | Gray | $\overline{\text{STROBE (Tk 3)}}$ |
| | 9 | Orange | $\overline{\text{DATA (Tk 3)}}$ |

Note: $V_{cc} = 2.4$ to 5.5 VDC

TIMING



Notes:

1. Time out of the CARD PRESENT signal occurs approximately 150 ms after the last strobe transition.
2. DATA is valid 1.0μ sec before the negative edge of STROBE.
3. 16 or 17 head flux reversals for high density configuration.

Figure 2-2. 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.