CORE-40 MANUAL

RFID Medium Range Reader

## PRODUCT DESCRIPTION

### Introduction

The CORE-40 is an inexpensive medium-range reader for the popular EM4102 format 125kHz tags. Read ranges of over 40cm(typically 45cm) are possible with ISO cards. The ID-40 also features RS232, Wiegand26, and Magnetic ABA Track2 output formats. The reader is encapsulated for environmental protection. The CORE-40 provides solutions for medium-range RF reader applications such as some through wall readers.

- Long Read Range
- Through-wall applications
- Strong Water Resistant Enclosure
- 7-13VDC working

### Features Description

DSP (Digital Signal Processing) is used to provide good range and reduce vibration and electrical noise effects. These effects are not eliminated so care should still be taken to position the equipment away from sources of electrical noise and vibration.

### Installation

Position the CORE-40 away from sources of interference such as main wiring. Do not fix the reader antenna on solid steel objects or range loss will occur. Moderate metal fixtures are acceptable. Computer monitors used in DOS mode can result in powerful interference especially when older monitors are used. Vibration can also cause loss of range.

## SPECIFICATIONS

| | | |
|---|---|---|
| | | |

Table 1. CORE-40 Operational & Physical Characteristics

| Parameter | Conditions |
|---|---|
| Power Requirements | 7-12V DC |
| Current Consumption | 80mA nominal |
| Frequency | 125 KHz |
| Read Range | Over 40 cm with ISO Cards |
| Interfaces | RS232 (9600, n, 8, 1), Wiegand26 and Magnetic ABA Track(ii) |
| Transponder | Read-only 64 bits, Manchester encoded |
| Read Indication | LED and Beeper |
| Dimensions | 115mm x 75mm x 18mm |
| Nominal Weight | 250gm |

## DATA FORMATS

### Output Data Structure – ASCII

| STX (02h) | DATA (10 ASCII) | CHECK SUM (2 ASCII) | CR | LF | ETX (03h) |
|---|---|---|---|---|---|

[The 1byte (2 ASCII characters) Check sum is the "Exclusive OR" of the 5 hex bytes (10 ASCII) Data characters.]

### Output Data Structure – Wiegand26

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | E | E | E | E | E | E | E | E | E | E | E | E | O | O | O | O | O | O | O | O | O | O | O | O | P |
| Even parity (E) | | | | | | | | | | | | | Odd parity (O) | | | | | | | | | | | | |

P = Parity start bit and stop bit

### Output Data Magnetic ABA Track2

| 10 Leading Zeros | SS | Data | ES | LCR | 10 Ending Zeros |
|---|---|---|---|---|---|

[SS is the Start Character of 11010, ES is the end character of 11111, LRC is the Longitudinal Redundancy Check.]

## REFERENCE DATA

Table 2. Cable Signal Definitions

| Wire color | | Description |
|---|---|---|
| Red | PWR | +12V DC input |
| Black | GND | Ground |
| Violet | | Reserved for future use |
| Blue | | Used to Select Magnetic |
| White | | Card Present (Magnetic) |
| Green | | Data1 (Wiegand). ASCII (9600, n, 8, 1). Clock (Magnetic) |

| | | |
|---|---|---|
| | | |

| | | |
|---|---|---|
| Brown | | Data 0 (Wiegand). Inverted ASCII (9600,n,8,1). Data (Magnetic) |
| Yellow | | Program line (format selector) |
| Screen | GND | Earth Screen |

* If the host controller does not have pull-up resistors then add 1.5k pull-up resistors to Wiegand and Magnetic outputs.

Table 3. Output Format Programming

| Output Format | Programming |
|---|---|
| ASCII | Connect PRGM (Yellow wire) to Black wire |
| Wiegand26 | Connect PRGM (Yellow wire) to Red wire |
| Magnetic ABA Track(ii) | Connect PRGM (Yellow wire) to Blue |

*Specifications subject to change. CoreRFID reserves the right to change its products and the specifications given here at any time without notice.*

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