

- ❑ 3110-2305 Model 230 Prox/Magstripe Reader, Black
- ❑ 3110-2405 Model 240 Prox/Magstripe Reader, with keypad, Black



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## Installation Guide

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## Parts List

Card Reader kit consists of:

- 1-Reader assembly
- 1-Installation Kit 2270-0580
  - Two 6-32 x 3/5" Phillips pan head screws
  - Cord, Buna 70, .103 diameter
  - Cover removal tool
  - Six Wire Cable Connector assembly
- 1-Instructions 2280-4587

## General

The Model 230/240 Wall Mount Combination Proximity & Magnetic Stripe Card Readers read the following format cards:

- Magnetic Stripe: ABA/ANSI/ISO and EMPI
- Proximity: HID 26-36 bit, EMPI and Proxi 10

The readers are normally wall mounted and designed for indoor or outdoor use.

Proximity cards are placed in front of the reader and normally read at a distance of six inches (15.2 cm) at +5 VDC and seven inches (17.7 cm) at 12.0 VDC. Mounting the readers on metal will typically reduce the distance. The data is transmitted to any host controller that can supply +5 to +24 VDC operating voltage to the reader, and that can accept the standard Wiegand 26-bit or 34-bit format.

## Pre-Installation

1. The host controller must supply +5 to +24 VDC operating voltage to the reader. The voltage drop as measured across the reader must be within 5 to 24.0 VDC.
2. The maximum recommended reader distance from the host is:
  - 200 feet with #22 AWG 5 or 6-wire cable
  - 500 feet with #18 AWG 5 or 6-wire cable
 Unshielded wire is acceptable. Some host controllers may require tighter standards.

## Mounting

1. The reader is designed to be mounted with the slot facing the floor. The user inserts the card upward into the card insertion slot.
2. The reader can be mounted on a standard single-gang handy box, (the preferred method) or on any firm flat surface. The mounting screws should be firmly tightened, but not excessively. Note that the read head assembly screws are purposely loose to allow the head to "float"; no adjustments are necessary. See Figure 1.

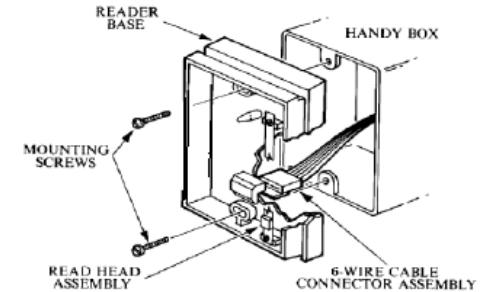


Figure 1

3. For outdoor applications, use a suitable weather-proof back box, or handy box, and install the weather seal (provided) on the back of the readers' base by pushing it securely and evenly into the "U" shaped recess. See Figure 2.

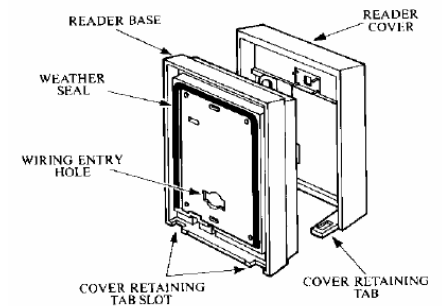


Figure 2

Grasp the lower edge of the reader cover. While applying *gentle pressure* pull the cover away from the base.

4. Recommended reader mounting height from the floor is "shoulder height" or about 60 inches. A lower height causes significant user inconvenience. Reader height may be lowered to accommodate ADA requirements.

## Installation Instructions

**WARNING: To prevent damage to equipment, make all connections with power off.**

1. If the reader is to be mounted on a mullion or firm flat surface, pull an appropriate length and gauge of cable between the host and mullion.
2. If the reader is to be mounted on a flat surface rather than a handy box, use the reader base both as a template to establish drill locations for suitable molly fasteners, etc. (not provided), and as a guide to remove sufficient material for wire clearance. Then pull the appropriate wire between the host and reader location.
3. Connect the wires of the pigtail assembly to the cable end at the reader location. Connections can be crimped or made with twist on wire nuts.

FUNCTION WIRE	COLOR
+5 to 24 VDC	RED
Green LED	BROWN
Data "1" /Data Output	WHITE
Data "0" /Clock Output	GREEN
COMMON	BLACK
Buzzer	YELLOW

### Format Selection Switch (16 position rotary)

1	ABA mag stripe to All Bits Wiegand & HID prox*
2	ABA mag stripe to Wiegand 26 bit & HID prox*
3	ABA mag stripe to Wiegand 34 bit & HID prox
4	EMPI mag stripe & EMPI prox to Wiegand 26 bit
5	EMPI mag stripe & EMPI prox to Wiegand 34 bit
6	EMPI mag stripe to Wiegand 26 bit & HID prox*
7	EMPI mag stripe to Wiegand 34 bit & HID prox*
Following ABA only ANSI 10 or 12 (5/5 or 6/6)	
8	ABA mag stripe & Proxi 10 prox to Wiegand 26 bit
9	ABA mag stripe & Proxi 10 prox to Wiegand 34 bit
A	ABA mag stripe to Wiegand 26 bit & HID prox
B	ABA mag stripe to Wiegand 34 bit & HID prox

\* HID Prox data output is determined by card encoding, up to 36 bits max. This reader will not read HID 37 bit or formats which require additional processing by the reader.

4. Connect the other end of the cable to the host controller being sure to follow the appropriate color code and wire lead functions.
5. Verify that the cards to be read are encoded with the selected data format.
6. Observe the reader LED; it should flash green four times as a self-test when first powered on. If this is not the case, or it continues with short double flashes, a problem exists, refer to the Diagnostic Tests section.

## Keypad Data

The model 240 keypad sends data keystroke-by-keystroke to the host controller in an 8-bit (per keystroke) data format.

## Diagnostic Tests

The Model 230 and 240 Proximity Card Readers are factory calibrated and are not field serviceable.

1. A card with the expected card format will cause the reader LED to "wink" dark and the buzzer to sound for 0.1 second while outputting data to the host.
2. Direct substitution with a known good reader is the best way to isolate the problem.
3. If the reader is exchanged and the problem still exists, measure the voltage drop at the reader between the RED (Positive) and the BLACK (Common) wire with the reader connected to the host. It should measure between 5 and 24.0 VDC. Low voltage is a common source of problems.
4. Verify that the card used to test is a known good card, and is authorized in host memory. Verify the reader options are set correctly for that particular host, and the proper "Comparison Number" or site code has been recorded in host memory.
5. Verify the wiring, continuity, and connections between reader and host. If possible, switch the reader input wiring at the host to another known good input terminal group.
6. If the problem still cannot be resolved, contact your HID reseller for assistance.

## Specifications

### INPUT:

Magnetic Stripe: ABA/ANSI/ISO & EMPI Proximity:  
HID 26 – 36 bit or EMPI or PROXI 10. (Will not read HID 37 bit or formats which require additional processing by the reader.)

### READING DISTANCE:

7" (17.7 cm) typical at 12 VDC (6" or 15.2 cm if mounted on metal)

6" (15.2 cm) typical at 5 VDC (5" or 12.7 cm if mounted on metal)

### DATA OUTPUT:

Proximity Data: Output based on card type. HID up to 36 bit.

Magnetic Stripe Data: Wiegand 26, Wiegand 34 or All its Wiegand (up to 64 bits)

### LED CONTROL:

Red/Green control with brown wire control line (ground wire)

### WIRE LENGTH:

200 feet (61m) with #22 AWG wire  
500 feet (153m) with #18 AWG wire

### TEMPERATURE RANGE:

-35 to +66 degrees Celsius (-31 to 150 degrees Fahrenheit).

### POWER:

5 VDC to 24.0 VDC input  
120 mA nominal at +5.0 VDC  
170 mA nominal at +12.0 VDC

### READ SPEED:

80 milliseconds

### DIMENSIONS:

4.70 in H x 3.00 in W x 1.54 in D  
11.9 cm H x 7.6 cm W x 3.9 cm D

### BUZZER:

Activates momentarily upon card acceptance and Keystroke activation or grounding of yellow wire.

## Regulatory

### FCC

This device complies with part 15 of the FCC rules. Operation 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### UL

This Proximity Reader is intended to be powered from a limited power source output of a previously certified power supply. This Reader is intended to be used with UL 294 Listed Control Equipment.

### CE Marking

HID Global hereby declares that this proximity reader is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.