

REV	DESCRIPTION	DATE	APPROVED
1	6074A INITIAL RELEASE		

2                    ADDED FCC STATEMENT, FIX LED INPUT

NOTE: Cover sheet is for Revision Control only, and is not to be sent with document.

REV																		
SHEET	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
REV																		
SHEET	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
REV STATUS OF SHEETS			A	A	A	A	A	A	A									
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TOLERANCES			APPROVALS				DATE			HID CORPORATION  IRVINE, CALIFORNIA  Installation Manual  MIFARE® WIEGAND Reader								
.XX = +/- .03"																		
.XXX = +/- .010"																		
ANGLES = +/- 1°																		
MATERIAL N/A																		
FINISH N/A										P/N 6074-901						REV 2		
SCALE N/A										SIZE A				SHEET 0 OF 6				



**HID CORPORATION**

*Subsidiary of Palomar Technologies Corporation*

Installation Manual – 6074-901 Rev A  
HID MIFARE<sup>®</sup> WIEGAND READER 6074A

# MIFARE<sup>®</sup> WIEGAND Reader Installation Manual

## System Overview

The MIFARE<sup>®</sup> Wiegand Reader is a self contained proximity Reader, frequently used in Access Control Systems. The antenna and all associated electronics are assembled in a polycarbonate housing. The Reader contains a micro-controller unit that controls an RF field that is generated at 13.56MHz. The Reader has a sensitive receiver circuit that detects ID card data and passes it along to the micro-controller for decoding. The Reader output is configured in the "Wiegand" style electrical interface for model 6074A. The Reader has a single Bicolor LED that will emit red, green or amber colors. Installation of the MIFARE<sup>®</sup> Wiegand Reader consists of mounting the Reader and connecting the cable to the Host via the Pigtail.

## Operation

Access Cards are to be presented to the front of the Reader. The LED is red when ready to read an ID card. The LED turns green when the card is read and a message is transmitted to the Host computer or interface panel. When the system is ready for another card, the LED returns to red. The LED is flashed green and the Beeper is activated for 500 milliseconds when they are controlled by the internal micro-controller. The operation of the LED and beeper is often controlled by the Host panel. If Host controlled, the operation will deviate from Host to Host. The MIFARE<sup>®</sup> Wiegand reader's default configuration can accept green and beeper input control lines that allows control of green LED and beeper only (Red input is not supported).

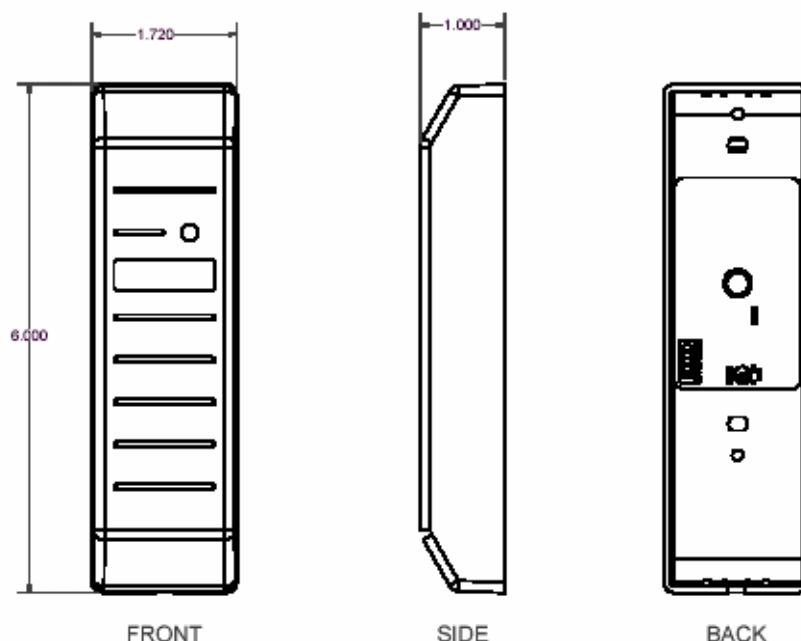
## Parts List

Parts List	Quantity
1) MIFARE <sup>®</sup> Wiegand Reader	1 (included)
2) #6-32 x 1" self tapping, Type T or 23	2 (included)
3) This Installation Sheet	1 (included)
4) Wire Splice	9 (installer supplied)
5) Grommet	1 Recommended (installer supplied)
6) DC Power Supply 10.0 to 14.0VDC, 50mA	1 (installer supplied)
7) Cable, 9 conductor , 22 AWG	Up to 500ft. (installer supplied) Alpha 1295C See Cable Notes

## Installation Procedure:

1. Determine an appropriate mounting position for the Reader. Drill two 7/64th (.109) Inch holes for mounting the Reader to the surface (see figure 1). Drill a 3/8 to 1.0 Inch hole for the cable. Place a grommet around the edge of the hole. Route the interface cable from the Reader and/or power supply to the Host. Check all electrical codes for proper cable installation.
2. The MIFARE<sup>®</sup> Wiegand Reader is a Pigtail style with a 18" - 9 conductor cable. Prepare the new cable by cutting the cable jacket back 1-1/4" and strip the wires 1/4". Splice the cable and the pigtail together and seal the splice. Trim and cover all conductors that are not used.
3. Connect the Reader and Host together according to the wiring diagram with figure 2 and the Host installation guide. The legend for wiring is color coded (according to the "Wiegand Standard") for the recommended cable.
4. After wiring the Reader and power supply, the Reader is ready to be tested. Power up the Reader and the red LED will be on when operating under the factory default reader configuration. This indicates that the micro-controller unit is working properly. Present an ID card to the Reader and the LED should momentarily turn green, indicating a read of the card. If the Reader LED is controlled by the Host refer to the Host description of the LED operation.
5. Mount the Reader with the provided screws when mounting onto metal mullions or junction boxes. On other materials use the appropriate fastener.

## Dimension Diagrams, front, side and back views



**FIGURE 1**

## Wire Connections

1	2	3	4	5	6	7	8	9	10
+DC	Ground	Data0	Data1	Shield Ground	Green LED	Red LED	Beeper	---	---
Red	Black	Green	White	Drain	Orange	Brown	Yellow	---	---

**FIGURE 2**

## Cable Notes

- 1) Wiegand - +DC, Ground, Shield Ground, Data0 and Data1 are required for Wiegand Operation. All others (Green LED, Red LED, and Beeper) are optional.
- 2) When using a separate power supply for the MIFARE<sup>®</sup> Wiegand Reader, the power supply and Host should have a common ground (voltage reference).
- 3) If the Host is controlling the beeper or the LEDs are configured for the external LED mode, additional conductors will be required. The recommended cables are Alpha 1295C, 1296C, 1297C, 1298C and 1299C, which are five, six, seven, eight and nine conductors respectively. Larger wire gauges are acceptable. The wire is to be stranded with an overall foil shield plus the drain wire.
- 4) The Cable shield (drain) should be connected to the earth ground at the panel or power supply end of the cable. Also, for emissions compliance, tie earth ground and common together at the power supply. This configuration is the best for shielding the reader cable from external interference and reducing the likelihood of the Reader causing interference. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Testing and Operation

When power is applied to the reader the LED will turn – on Red. This indicates that the microcontroller is operating properly. Present an ID card to the reader. The LED will momentarily turn green while the beeper beeps once, indicating that the card was read successfully. In normal operation, the Red LED is normally on and the Green LED flashes on a valid card read. The Green LED and Beeper respond when their respective user input line is pulled low. There is no operation for the Red LED user input.

Please note that typical read range for MIFARE® cards is 1.5 – 2.0” (37-50 mm).

## Card Compatibility

The HID MIFARE® Reader reads serial number data from these cards: HID MIFARE®, Any Philips compatible MIFARE® Standard contactless smart card. The reader will read the MIFARE® Card Serial Number only from all MIFARE® cards, including MIFARE® Lite and MIFARE® Pro cards.

\*The HID MIFARE® reader will not read 125 kHz HID Proximity cards.

## CSN Read Only Mode

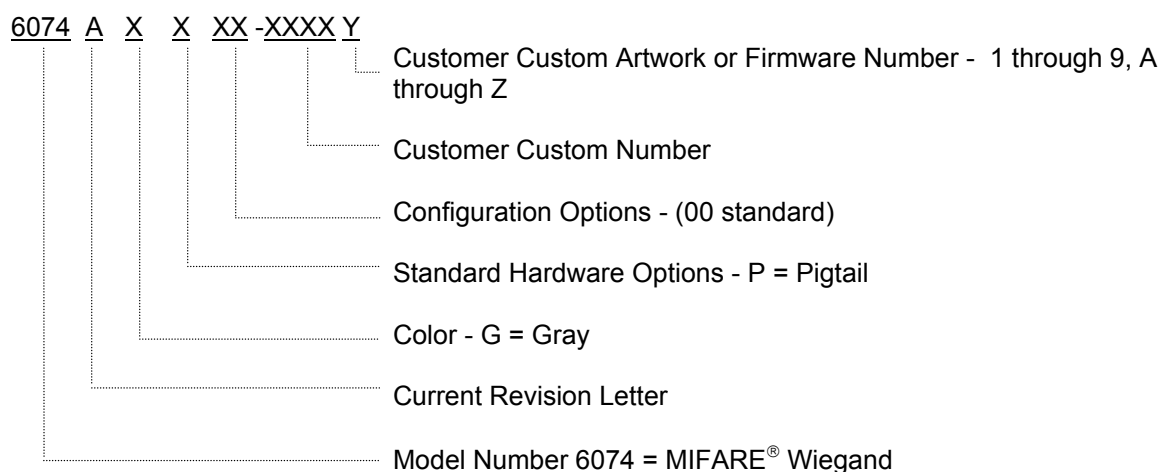
In CSN Only mode, the reader reads the 32-bit MIFARE® random card serial number (CSN or UID) from any MIFARE® card, including MIFARE® Lite, MIFARE® Standard and MIFARE® Pro, outputting that data in a 40-bit Wiegand format - 32-bit CSN + 8 bit checksum format.

## Sector Read Only Mode

In Sector Read Only Mode the reader reads and outputs a specified number of bits from a specified sector based on reader configuration. The following reader attributes can be configured at the factory to meet individual needs.

- Application sector (0 – 15)
- Application Block (0-2)
- Sector Key
- Number of Bits Output (1-128)
- Starting Bit Number (0-127)
- Audio/Visual feedback (ON/Off)

## Product Configuration/Ordering Options



- Standard Wiegand Part Number = 6074AGP00 is a MIFARE® Wiegand, Gray Standard (1") housing, Potted, with 9 conductor, 18" Pigtail.

## Product Specifications

### Read Distance

- |  |                             |
|--|-----------------------------|
| ➤ Overall Operating Limits (10VDC - minimum) | 1.0-1.5 inches (2.5-3.8 cm) |
| ➤ Non-Metallic Mounting (12VDC - typical)    | 1.0-1.5 inches (2.5-3.8 cm) |
| ➤ Mounted on Metal (12VDC - typical)         | 1.0-2.5 inches (2.5-3.8 cm) |

### Environmental Characteristics

- |                               |                                   |
|-------------------------------|-----------------------------------|
| ➤ Operating Temperature Range | -30°C to 65°C (-22°F to 150°F)    |
| ➤ Storage Temperature Range   | -40°C to 85°C (-40°F to 185°F)    |
| ➤ Operating Humidity Range    | 5% to 95% non-condensing          |
| ➤ Operating Vibration Limit   | .04 g <sup>2</sup> /Hz 20-2000Hz  |
| ➤ Operating Shock Limit       | 30g, 11mS, Half Sine              |
| ➤ Potting Material            | UL Recognized Filled Polyurethane |
| ➤ Enclosure Material          | UL Recognized Lexan Polycarbonate |
| ➤ Potted Weight               | 8.2oz (228grms)                   |

### Power Requirements

- |   |   |
|---|---|
| ➤ Power supply                            | Linear type recommended                 |
| ➤ Operating Voltage Range (+DC)           | 10.0VDC -14.0VDC                        |
| ➤ Absolute Maximum (+DC non-operating)    | 14.0VDC                                 |
| ➤ Maximum Average Current at 12V          | 60mA                                    |
| ➤ Transient Protection (all terminals)    | 8,000 volts                             |
| ➤ Reverse Voltage Protection              | -15V on all I/O and -35 for power lines |
| ➤ Input Voltage (maximum data-0/1 lines)  | 15.0VDC                                 |
| ➤ Input Voltage (maximum interface lines) | 15.0VDC                                 |

### Operating Parameters

- |   |                               |
|---|-------------------------------|
| ➤ Excitation Frequency                        | 13.56MHz                      |
| ➤ Read and Report Speed (26 bit Wiegand Card) | 200mS (1K card) + output data |
| ➤ Maximum Cable Distance to Host              | 500 feet (152 meters)         |
| ➤ LED Type                                    | Bi-colored Red/Green          |
| ➤ LED Operation (host control of red/green)   | <.5V on LED control line      |
| ➤ Beeper Operation (host control)             | <.5V on beeper line           |
| ➤ Beeper Control (default)                    | Beeper enabled                |

### FCC Compliance Statement:

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.

**NOTE: THE ABOVE ARE RECOMMENDED INSTALLATION PROCEDURES. ALL LOCAL, STATE AND NATIONAL ELECTRICAL CODES TAKE PRECEDENCE.**