

CASI-RUSCO...Security Solutions for the 21st Century

Model 201 Wiegand Touchpad Reader Installation Guide



**1155 Broken Sound Parkway NW
Boca Raton, Florida 33487
(561) 998-6100**

Part Number 460353001 Rev. B
June 1998

This publication may contain examples of data reports used in daily business operations. Examples include fictitious names of individuals and companies for illustration only; any similarity to names and addresses of actual business enterprises and persons is entirely coincidental.

This document is distributed on an *as is* basis, without warranty either expressed or implied. Successful implementation depends solely upon the customer's ability to integrate each product into the total inventory of "in-house" products. While each offering has been reviewed for its compatibility and maintainability, no assurance of successful installation can be given.

The customer accepts full maintenance responsibility. (A full scope of software and hardware maintenance contracts are available to the customer.)

Copyright 1998 CASI-RUSCO
All Rights Reserved
Printed in the USA

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Contents

Introduction	1
Product Features	1
Installation Overview	2
Connecting the Reader	3
Pinouts	3
Wiring Diagram	3
Installing the Amp Card	6
Mounting the Reader	8
Testing the Reader	11
Troubleshooting Guide	12
Technical Specifications	14
Functional Specifications	15

Figures

Figure 1: Wiring Diagram, Model 201 Wiegand Touchpad 4

Figure 2: Wiring Diagram, Model 201 Wiegand Touchpad
 with Amp Card..... 7

Figure 3: Mounting Template 9

Figure 4: Model 201 Reader - Gang Box Mounting..... 10

Introduction

This manual is an installation guide for the CASI-RUSCO Model 201 Wiegand Touchpad Reader. It combines a Wiegand reader and a touchpad in the same housing. The Model 201 uses Wiegand technology and features an 8-bit touchpad. It is designed to mount on a standard U.S. gang box.

Both card and touchpad data are transmitted over the Wiegand lines, eliminating the need to pull separate wiring for each device.

Product Features

The CASI-RUSCO Model 201 Wiegand Touchpad Reader offers:

- Sealed, rugged, weather resistant housing for indoor or outdoor use
- Ability to read Wiegand badges
- 5V operation
- Clear, logical user interface with two LEDs
- Touchpad for Personal Identification Number (PIN) input

Installation Overview

The following is a recommended order of steps for installing and setting up the reader.

1. Connect the reader as detailed on page 3.
2. If the cabling distance for the reader is greater than 100 feet, install the amp card. See page 6 for more details.
3. Mount the reader. Refer to page 8.
4. Test the reader. This process is detailed on page 11.
5. If necessary, refer to the “Troubleshooting Guide” on page 12.

Connecting the Reader

Pinouts

The table below shows the pinouts for connecting the reader to the microcontroller.

TABLE 1: Pinouts

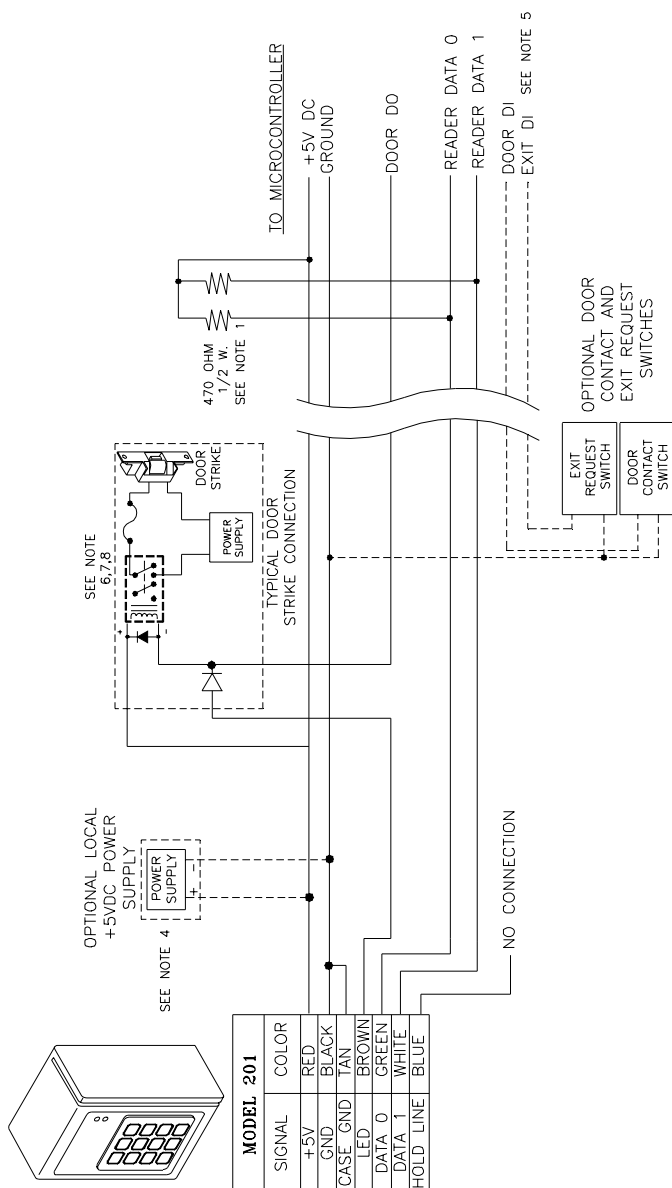
Signal	Pigtail wire color
+5 VDC	Red
Ground	Black
Data 0	Green
Data 1	White
LED Control	Brown
Hold Line - NOT USED	Blue
Case Ground	Tan

Wiring Diagram

See the wiring diagram that follows for details on connecting the reader to the microcontroller.

- For distances less than 100 feet, see page 4.
- For distances greater than 100 feet, you will need to use an amp card. See page 6 for more information on using an amp card.

FIGURE 1: Wiring Diagram, Model 201 Wiegand Touchpad



510367001A

Notes: Unless otherwise specified:

1. For Micro/2/4/5 only: a 470-ohm, 1/2W, pull-up resistor is required between +5V DC, READER DATA 0 and READER DATA 1. The pull-up resistors should be installed at the microcontroller's terminal block. Resistors are supplied with the reader.
2. Shielded cable is recommended in electrically noisy environments.
3. If using shielded cable, connect all shields together at the micro end. Connect to ground stud in the lower left corner of Micro/2/4/5 cabinets using 14-AWG wire. No shield connections at the reader.
4. If using a local power supply, do not connect +5V line from the microcontroller to the reader. However, the negative side of the power supply must be connected to the micro (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.
5. Switching the external indicator drives to GND activates the indicator. High impedance or +5V de-activates indicators. These drives may also be connected to user supplied, external indicating circuitry.
6. Refer to the appropriate system manual to determine whether this connection is required for door switch operation.
7. Blocking diodes may be 1N4148 or similar, supplied by the installer and located in a secured area.
8. Protection diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.
9. Fuse, power supply, door strike, and relay are provided by the installer.

Installing the Amp Card

1. Decide where you are going to mount the amplifier card. It should be mounted in the ceiling on the secure side of the door or in another secure location within 100 feet of the reader. Observe the maximum cabling distances listed below:

Device	Distance
Micro to Amp Card	1000 feet (305 meters)
Amp Card to Reader	100 feet (30.5 meters)

2. Each amp card is shipped with a gray plastic snap track. Carefully slide the amp card from the snap track. Drill one hole to secure the snap track then slide the amp card back onto the snap track. If the customer has supplied a 4 inch x 4 inch (10.2 cm x 10.2 cm) box to be used instead of a snap track, drill the appropriate holes in the wall or above the ceiling materials for mounting on the secure side of the door.
3. Prepare and run the reader and door lock cables. Drill a hole in the wall for threading the reader and door lock cables. Thread both cables through the wall leaving 10-inch (25cm) leads.
4. Connect the reader cable and door strike cable to the amp card. There is no need to remove the 13-pin connector from the amp card while securing the reader cabling wires in the terminal slots. The connector must remain oriented on the amp card in the same direction as when the card was shipped. The connector fits only one way on the amplifier card.
5. Jumper the amp card to 1 and 4.
6. Connect the wires from the 13-pin connector on the amp card to the connector on the 2RP or the 2SRP board in the micro, as shown in the figure on the following page.



Mounting the Reader

The reader comes with a backplate suitable for mounting directly onto standard U.S. electrical gang boxes. The reader may also be mounted directly onto a hollow wall.

The figures listed below begin on the next page. Refer to the appropriate figure for the type of mounting you are using.

- Figure 3, “Mounting Template,” on page 9.
- Figure 4, “Model 201 Reader - Gang Box Mounting,” on page 10.

FIGURE 3: Mounting Template

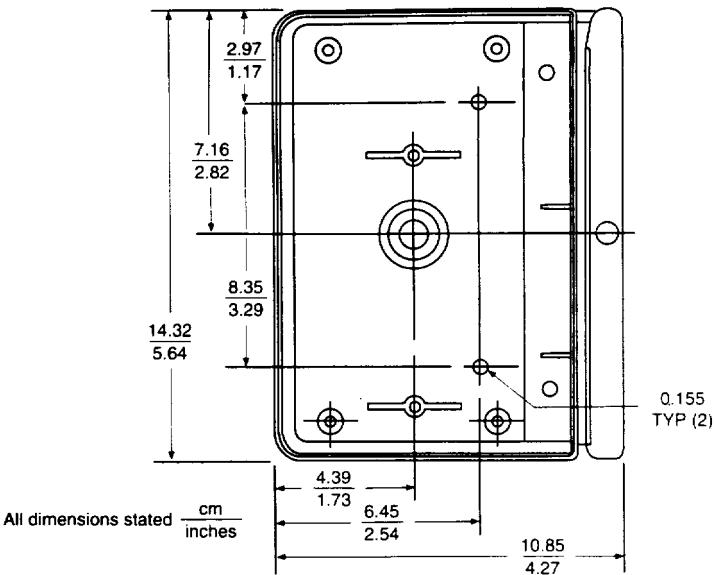
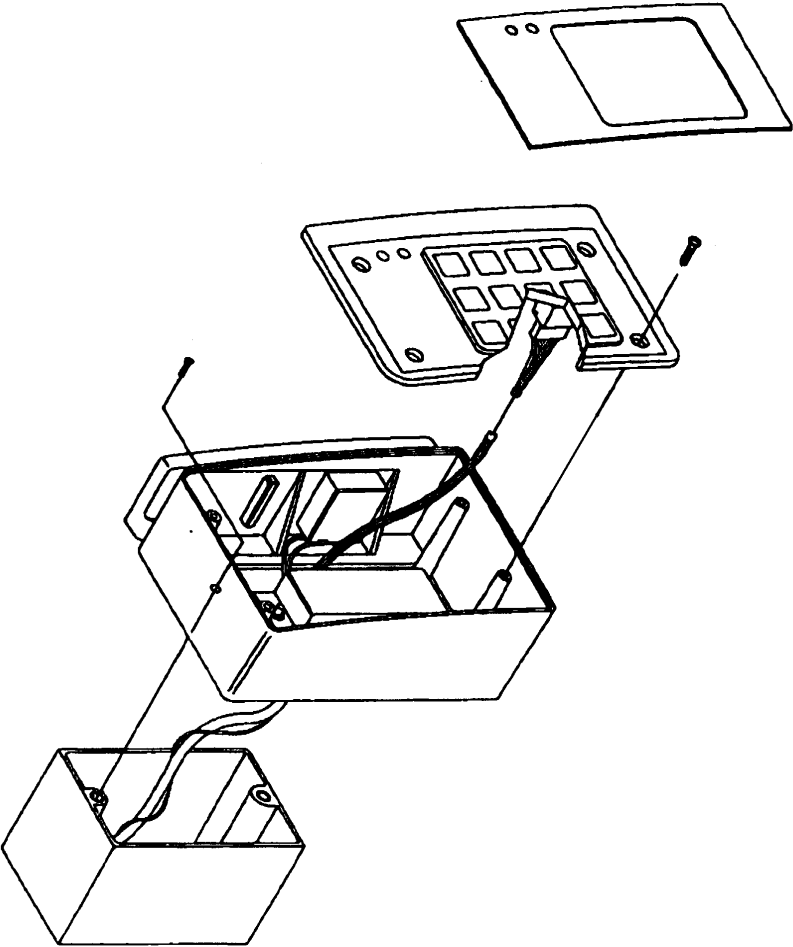


FIGURE 4: Model 201 Reader - Gang Box Mounting



Testing the Reader

Follow the steps below to verify that the reader is working correctly.

1. Check all cabling and electrical connections from the reader to the microcontroller. Refer to the wiring diagram on page 4.
2. Verify that the microcontroller is properly configured. Refer to the appropriate CASI-RUSCO microcontroller manual.
3. Apply power to the reader, and verify that the red LED is on. You may want to use a multimeter to test the voltage at the reader's pigtail, using ground (black) as a reference. The power pin (red), data lines (green and white), and door DO (brown) should all read approximately 5V.
4. Select a known good test badge. Be sure the badge is properly entered in the host system, and the micro badge data format matches the reader. If the reader is used with the touchpad, assign a proper PIN.
5. Check that the door is secure. Present the badge to the reader.
6. If the reader is used with the touchpad, enter a PIN. Refer to the host manual for instructions on entering the PIN. Observe that the green LED turns on indicating a valid access has been granted by the host.
7. Open the door. This verifies that the door strike operates correctly.

Troubleshooting Guide

If the operation of a component is in doubt, substitute a known good component and retry the system. Always verify wiring against wiring diagrams before powering up the system.

This section of the manual is split into three sections. The first is applicable to all installations, the second provides additional diagnosis for unsupervised readers, and the final section provides additional diagnosis for supervised readers.

None of the LEDs are on:

Check the power supply. It should read between 4.5 and 5.5V DC.

The green LED is always on:

The green LED indicates that the door strike is open. It is controlled by the input on the brown wire.

1. Disconnect the brown wire. If the green LED stays on, the reader is faulty and should be replaced. If the green LED goes off, then the problem is most likely not in the reader.
2. Reconnect the brown wire and measure its voltage. Low voltage turns on the green LED. If the voltage is low, check to see if the host system is turning on the door strike.

The door does not open and the green LED does not turn on when a badge is presented:

1. Verify that the badge and reader are properly entered into the system.
2. Verify that the door strike and the green LED are wired correctly. Since the green LED and the door strike are separate indicators, this problem is not an indication of a defective reader.

The green LED does not turn on, but the door strike unlocks the door when a valid badge is presented:

1. Verify that the door DO is wired correctly. Refer to the appropriate wiring diagram.
2. Disconnect the brown wire (green LED) and connect it to the black wire (ground). If the green LED is now on, the reader is good and the connection to the reader is defective. If the green LED does not turn on, replace the reader.

Green LED turns on but the door does not open:

Verify correct door strike wiring and operation. The reader is functioning properly.

Technical Specifications

Operating Temperature Range: -40° C to +70° C (-40° F to 160° F)

Operating Humidity: 10 to 95%

Index of Protection: IP52

Physical Dimensions:

5.64 in(H) x 4.27 in(W) x 2.25 in(D)

143mm(H) x 109mm(W) x 57mm(D)

Slot Width:

0.0624 in to 0.069 in

1.6 mm to 1.75 mm

Maximum Cabling Distance: A six-conductor shielded 18AWG cable is recommended. The maximum cable distance between the reader and the microcontroller should not exceed 100 feet. Distances over 100 feet require amplifier P/N 110044001.

Power Supply: 5V DC, 120mA typical, 150mA maximum

Color: Black

Pinouts: The reader is supplied with a seven wire pigtail.

Functional Specifications

Application: Intended for areas requiring a moderately high level of security for controlled access. The touchpad can be used for low security applications, the Wiegand reader for high security applications, and both for maximum security.

Compatibility: Interfaces to CASI-RUSCO Entry Perfect, Picture Perfect and Secure Perfect software systems. Only the Micro/5-E, Micro/5-PX and Micro/5-PXN running either a 2RP or a 2SRP supports this reader.

The Micro/5-E firmware version must be at the following levels for these packages:

- Entry Perfect must be at 2.14 or higher
- Secure Perfect 1.2 must be at 1.2.3 or higher
- Secure Perfect 2.0 must be at 2.0.1 or higher

Reader Technology Type: Wiegand technology

Badge Formats: Wiegand data format

For Use With Code Strip Layout Options:

A	long edge/right side
A1	long edge/left side
D	short edge

PIN Format: The maximum allowed PIN entry is 65,534.

PIN Entry: The “*” key is used to clear the touchpad for entry of a PIN. For the touchpad to accept the PIN, press the “#” key after entering the 5-digit PIN. (For example, if entering the PIN 12345, enter the following: *12345#)

Mounting: The reader can be mounted directly onto a standard U.S. electrical single gang box. The reader can also be mounted directly onto a hollow wall. See “Mounting the Reader” on page 8 for additional details.

Indicators: Red and green LEDs are incorporated into the reader.

- **Red LED:** Normally on when power is applied to the reader.
- **Green LED:** Indicates that the microcontroller has activated the door strike.

Touchpad Operation: The reader sends each new keypress to the microcontroller.

NOTES

NOTES

NOTES