

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

Model 660 Keypad Installation Guide



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Introduction

This manual is an installation guide for the CASI-RUSCO Model 660 Keypad. The Model 660 uses 26-bit Wiegand technology. The Model 660 features an audible keypad; an annunciator beeps with each key press.

Note: PIN (Personal Identification Number), as referenced in this Installation Guide, is the Badge Number in the host system.

Product Features

The CASI-RUSCO Model 660 Keypad offers:

- State-of-the-art architecture.
- Weatherproof housing for outdoor use.
- Rugged molded construction.
- 5V operation.
- A clear, logical user interface with two LEDs and a beeper.

Connecting the Keypad

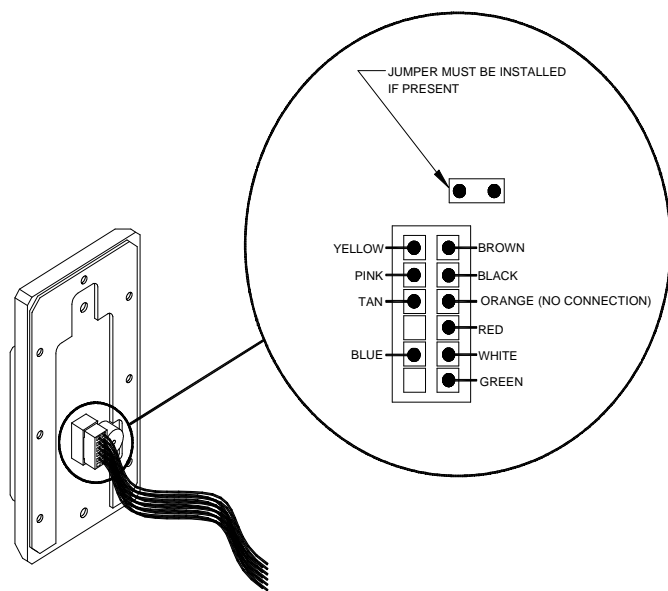
The table below shows the pinouts for connecting the keypad to the microcontroller.

TABLE 1: Pinouts

Signal	Pigtail wire color
+5 VDC	Red
Ground	Black
Green LED	Brown
Reader Data 0	Green
Reader Data 1	White
Site Code ^a	Yellow or Pink
Hold Line Control	Orange
Ground (case) ^b	Tan
30 Second Output ^c	Blue

- a. See ["Programming the Keypad" on page 6.](#)
- b. Connect to black wire. Ground at keypad installation point; do not ground through cable.
- c. Pressing any keypad button will generate a 30-second, 0.25-amp output to ground. (This can be used to activate a CCTV or similar device.)

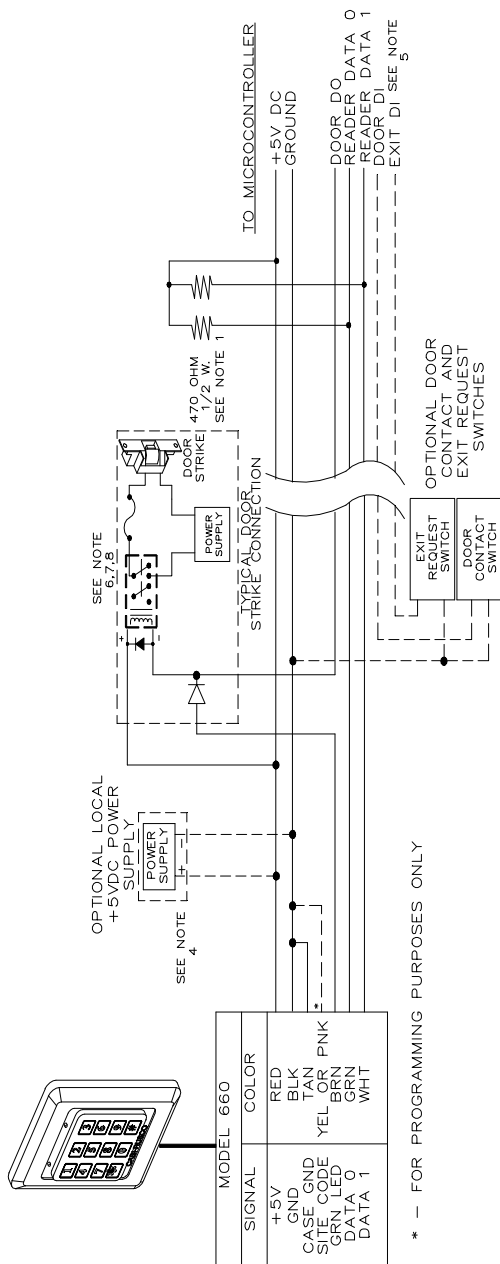
FIGURE 1: Pinout Diagram



510356002D

Note: If you cannot find a color, go by the position in the connector.

FIGURE 2: Wiring Diagram, Model 660 26-bit Wiegand Output



Notes: Unless otherwise specified:

1. For Micro/5 only: two 470 ohm, 1/2W, pull-up resistors may be required if the cable run is greater than 200ft; one between +5VDC and READER DATA 1, the other between +5VDC and READER DATA 0. The pull-up resistors should be installed at the microcontroller's terminal block. The maximum cable distance is 300ft.
2. For Micro/2/4: Keypad must be connected to the micro using an amp card or junction box. These should be placed as close to the reader as possible. See appropriate system manual for details.
3. Shielded cable is required. Belden 8725 wire is recommended. Do not pair DATA 1 and DATA 0.
4. 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 keypad.
5. If using a local power supply, do not connect +5V line from the microcontroller to the keypad. 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 keypad less than 50 feet.
6. See the appropriate system manual for specific wiring details.
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.

Programming the Keypad

Current Model Keypad: This keypad is capable of having the site code programmed in the field. The PINK wire is used in this procedure. With no voltage applied to the keypad, connect the PINK wire to the BLACK wire on the wiring harness. Apply the appropriate voltage to the RED and BLACK wires. You will hear 4 rapid audible beeps and both the RED and the GREEN LEDs will flash at the same rate. Enter the desired site code (between 001 and 255) on the keypad and press # for enter. (The site code MUST be 3 digits only and 000 is not an acceptable site code. Site code 00001 would be entered as "001"; 00123 would be entered as "123".) You will again hear 4 rapid audible beeps and see both LEDs flash 4 times. At this point, the keypad will appear dead and will not accept any entries.

If a wrong key is pressed during the programming experience, pressing the * key will clear the entry. You will hear 2 rapid beeps and both LEDs will flash at the same rate. (The keypad will generate a long error tone if you enter a site code over 255.)

Disconnect power to the RED wire and disconnect the PINK wire from the BLACK wire. Now, you can connect the standard Wiegand 5 wires to the Keypad and the programmed site code will be generated as part of the 26-bit data when the enter key (#) is pressed.

This procedure may be repeated to change the site code. Factory default is 000.

NOTE: If you have an older Model 660 Keypad (YELLOW wire), it has been preprogrammed with the site codes "0000" and "0001." Leaving the yellow wire disconnected results in a site code of "0000." Connecting the yellow wire to the black wire (ground) results in a site code of "0001."

Testing the Keypad

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

1. Check all cabling and electrical connections from the keypad to the microcontroller. See [Figure 2, “Wiring Diagram, Model 660 26-bit Wiegand Output,”](#) on page 4.
2. Verify that the microcontroller is properly configured. See the appropriate CASI-RUSCO microcontroller manual.
3. Apply power to the keypad and verify that the red LED is on. You may want to use a multimeter to test the voltage at the keypad’s pigtail connector, using ground as a reference. The power pin, data lines, and door DO should all read approximately 5V.
4. Be sure the keypad PIN is properly entered in the host system. The PIN should be entered as the Badge Number on the Badge Form. The PIN field can be left blank.
5. Check that the door is secure. Press the “*” key on the keypad. This clears out any previous entries. Next, enter the PIN into the keypad. Finally, press the “#” key for the keypad to accept the PIN. Observe that the keypad beeps briefly. (For example, if entering the PIN 12345, enter the following: *12345#)
6. Open the door. This verifies that the door strike operates correctly.

Technical Specifications

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

Humidity Range: 100% Relative Humidity

Physical Dimensions: 5.125 in(H) x 3.375 in(W) x 0.437 in(D)

Maximum Cabling Distance: CASI-RUSCO recommends Belden 8725 (or equivalent). Maximum recommended distance from the micro to the reader is 300 feet. With a junction box or amp card, the maximum distance is 1000 feet. Using smaller gauge wire will result in shorter maximum distance. One end of the cable shield must be grounded at the microcontroller, using grounding posts provided inside the cabinet. The other end must be floated at the reader. This method of grounding ensures a low impedance shunt path for any high frequency noise induced on the data or power lines to the reader.

Note: Use shielded twisted pair cable. No company, including CASI-RUSCO, can guarantee that data will be reliably transmitted over long distances on unshielded cable.

Power Supply: Nominal 5VDC, 80mA.

Color: Silver and black

Pinouts: The keypad is supplied with an eight-wire pigtail. On one end is a keyed connector that mates with the connector on the back of the keypad. The other ends are stripped, ready for connection to the field wiring using a terminal block or in-line splice connectors.

Functional Specifications

Application: Intended for areas requiring a moderate level of security for controlled access.

Compatibility: Interfaces to all CASI-RUSCO systems.

Keypad Technology Type: Wiegand.

Wiegand Format: Wiegand data format 26-bit (2600).

Site (Facility) Code: The first five digits in the 10-digit Wiegand number reflects the site code and the last five digits reflect the PIN entry. Site code is fully programmable in the current model keypad. See [“Programming the Keypad” on page 6.](#)

PIN Format: The maximum allowed PIN entry is 65,534. If an illegal number is entered, the error code 65,535 will appear.

PIN Entry: The “*” key is used to clear the keypad for entry of a PIN. For the keypad 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 keypad can be mounted directly onto a standard U.S. electrical gang box. The keypad can also be mounted directly onto a hollow wall. A sealing gasket is provided for weather proofing outdoor installations.

Indicators: Red and green LEDs and a beeper are incorporated into the keypad.

- **Red LED:** Power LED.
- **Green LED:** Indicates that the microcontroller has activated the door strike.

NOTES