

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

Model 610 Barium Ferrite Touchcard Reader Installation Guide



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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.

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Introduction

This manual is an installation guide for the Model 610 Barium Ferrite (BaFe) Touchcard Reader.

The Model 610 is a single-stage reader. It operates with a standard RUSCARD™ and produces a Wiegand output that is forwarded to its microcontroller for processing. This reader operates with Picture Perfect™, Entry Perfect™ and Secure Perfect® products. For keypad operation, the Model 610 Reader works in conjunction with the Model 651 keypad. The reader can be located up to 1,000 feet from the microcontroller using Belden 8725 cable.

The Model 610 Reader is supplied with a mounting bracket and gasket which attaches to the surface of the wall with four screws. The reader is then secured to the bracket with a flange and one screw. No gang box is required. An optional mounting kit is available for solid wall mounting.

Product Features

The CASI-RUSCO Model 610 BaFe Touchcard Reader offers:

- Sturdy beige molded plastic cover mounted flush to wall surface.
- Slotless design protects the unit against tampering and harsh environments.
- Bicolor LED: red and green. LED changes from red to green indicating valid read.
- 12V operation.

Installation Overview

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

1. Install the reader mounting. See “Mounting the Reader” on page 3.
2. Connect the reader. See “Connecting the Reader” on page 9.
3. Mount the reader. See “Mounting the Reader” on page 3.
4. Test the reader. See “Testing the Reader” on page 20.

Mounting the Reader

The mounting requirements for the Model 610 BaFe Touchcard Reader are as follows:

- No assembly is required. Remove mounting plate from back of reader. Attach grounding screw to proper earth ground.
- The Model 610 can be mounted on any hollow wall with the mounting plate that has been included in the assembly kit. It can also be mounted with a user-supplied gang box, or on a solid wall with a back box. In either case, a gasket is supplied with the reader to form a seal between the mounting plate of the reader and the mounting surface. See applicable wiring diagram for wiring instructions. Ensure reader is mounted within 1000 feet of the microcontroller (with or without the amplifier card or door junction box), then refer to the section on installation procedures for detailed instructions.

There are three different methods of mounting the reader:

- **Surface mount to interior/exterior single-gang electrical box:**

Refer to Figure 1, “Mounting Diagram for the Model 610 BaFe Touchcard Reader,” on page 5 and Figure 2, “Model 610 BaFe Touchcard Reader Surface Mounted with Interior or Exterior Single-Gang Electrical Box,” on page 6.

1. Press plate with gasket against wall and secure with two (2) each #6-32 screws.
2. Refer to Figure 5 on page 10 through Figure 10 on page 19 for wiring instructions.
3. Place Model 610 housing against mounting plate, top edge first, centering housing on retaining tabs. Secure housing to plate at bottom with one (1) each #6-32 x 3/8-inch security screw provided or equivalent. Use security wrench P/N 540-92727-000.

- **Surface mount to interior/exterior surface without single-gang electrical box:**

Refer to Figure 1, “Mounting Diagram for the Model 610 BaFe Touchcard Reader,” on page 5 and Figure 3, “Model 610 BaFe Touchcard Reader Surface Mounted without Single-Gang Electrical Box,” on page 7.

1. Secure the mounting plate with gasket to wall using appropriate fasteners. Use at least four of the six holes provided.
2. Refer to Figure 5 on page 10 through Figure 10 on page 19 for wiring instructions.
3. Place the Model 610 housing against mounting plate, top edge first, centering housing on retaining tabs. Secure housing to plate at bottom with one (1) #6-32 x 1/4-inch security screw provided or equivalent. Use security wrench P/N 540-92727-000.

- **Solid wall mount with back box:**

Refer to Figure 1, “Mounting Diagram for the Model 610 BaFe Touchcard Reader,” on page 5 and Figure 4, “Model 610 BaFe Touchcard Reader Surface Mounted with Solid Wall Mounting Kit,” on page 8.

1. Select and cut appropriate opening for conduit access using Spelsberg hole saw (vendor P/N D-121, PC13.5).
2. Install conduit gland assembly.
3. Install conduit and route wires to inside of box.
4. Mount reader mounting plate installed with gasket to back box cover with four (4) #6-32 screws. Secure mounting plate with four (4) #6 lock washers and four (4) #6-32 nuts on the far side of the mounting plate to retain cover and plate assembly.
5. Feed wires from back side of reader through the hole provided on the center of the cover.
6. Secure reader to back box cover using two (2) tabs on the mounting bracket and one (1) #6-32 screw.
7. Refer to Figure 5 on page 10 through Figure 10 on page 19 for wiring instructions.

FIGURE 1: Mounting Diagram for the Model 610 BaFe Touchcard Reader

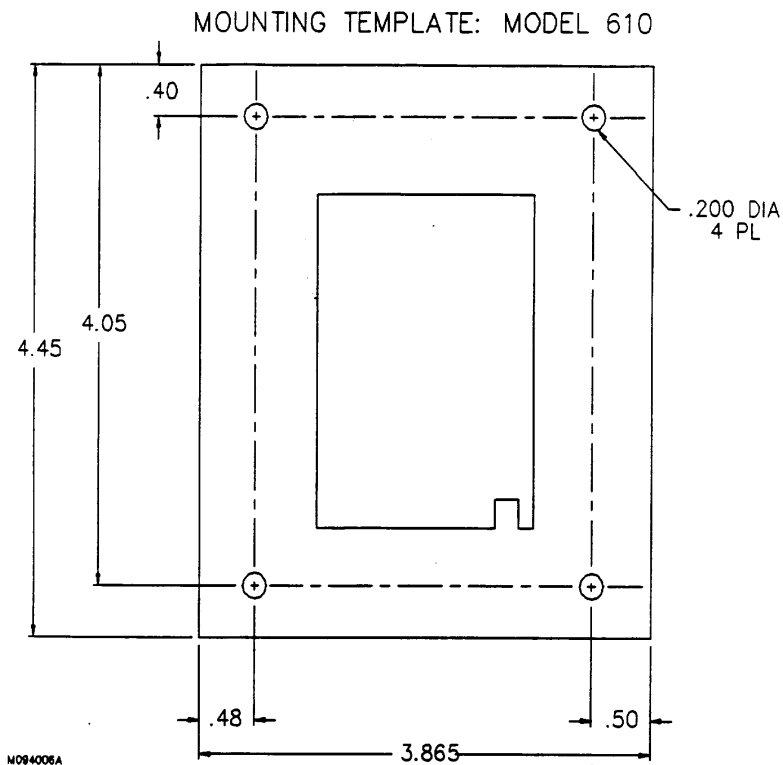


FIGURE 2: Model 610 BaFe Touchcard Reader Surface Mounted with Interior or Exterior Single-Gang Electrical Box

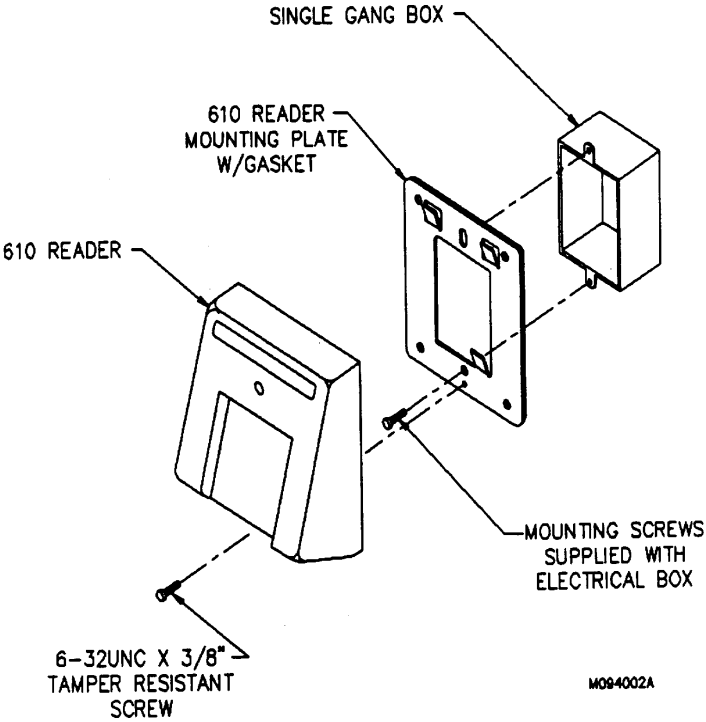


FIGURE 3: Model 610 BaFe Touchcard Reader Surface Mounted without Single-Gang Electrical Box

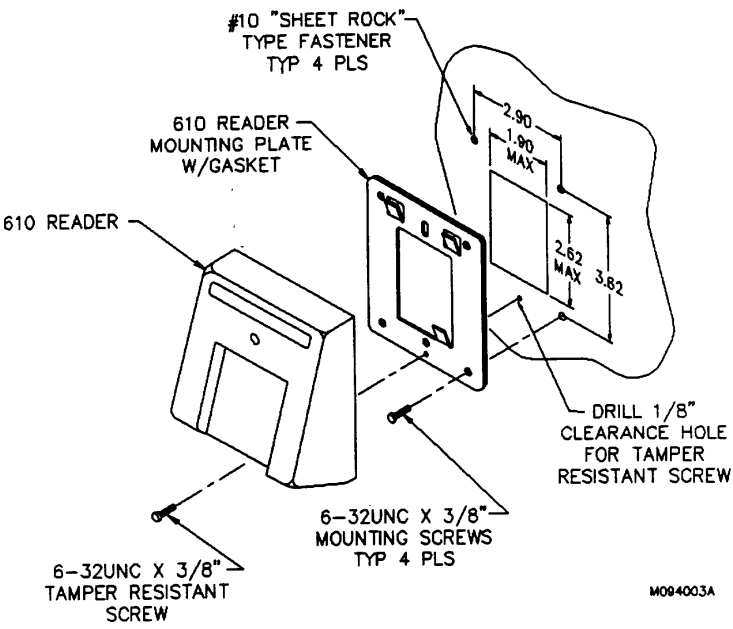
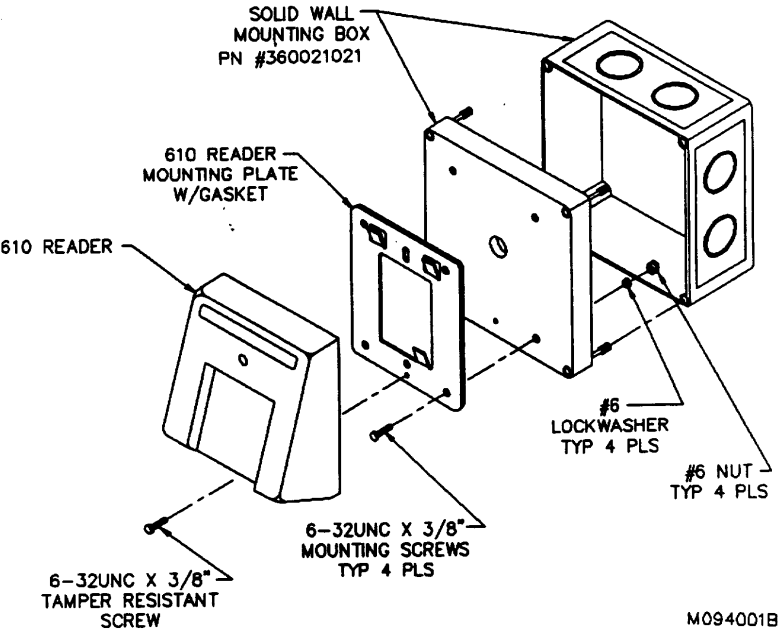


FIGURE 4: Model 610 BaFe Touchcard Reader Surface Mounted with Solid Wall Mounting Kit



Connecting the Reader

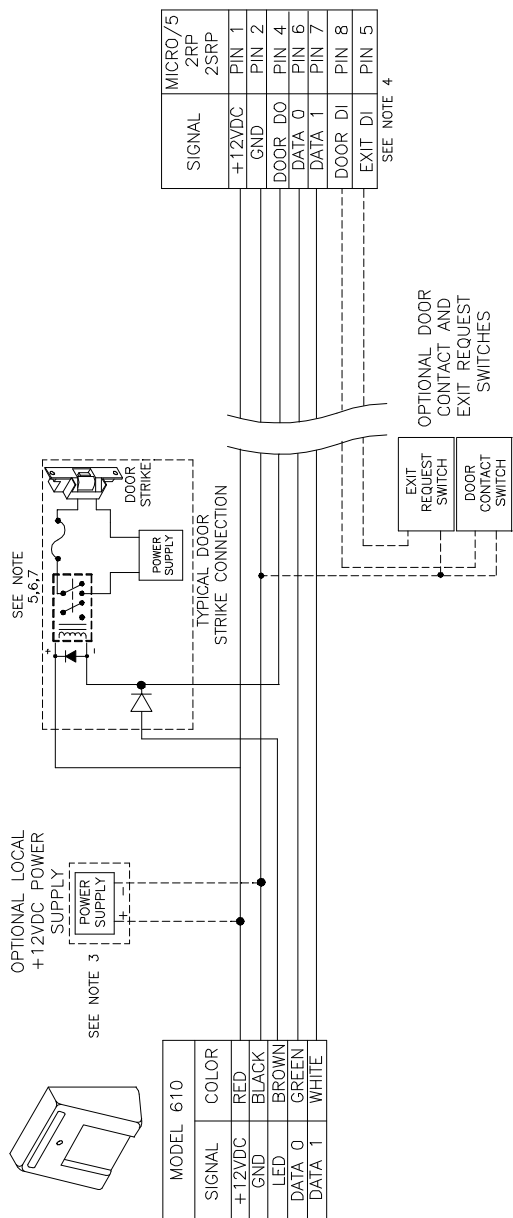
The following diodes (IN4004) are required:

1. Each door strike requires one diode if DC powered.
2. Each customer-supplied relay that activates the door strike requires one diode.
 - One general-purpose 12V relay with 180-Ohm (or greater) coil is required for each door strike installed with customer-supplied power supply for the door strike.
 - When using a back box kit for solid-wall mounting, a Spelsberg hole saw (vendor P/N D-121-PC 13.5) is required for cutting conduit access.

To wire this reader to a:

- Micro/5 2RP or 2SRP board, refer to Figure 5, “Model 610 BaFe Touchcard Reader Installed Directly to the Micro/5,” on page 10.
NOTE: It is not necessary to use an amp card or door junction box with the Micro/5.
- Micro/2 8RP or Micro/4 8RP board, refer to Figure 6, “Model 610 BaFe Touchcard Reader Installed Directly to Micro/2 or Micro/4,” on page 12.
- Micro/4 or Micro/2 with an amp card, refer to Figure 7, “Model 610 BaFe Touchcard Reader Installed with Amplifier Card,” on page 14.
- Micro/4 or Micro/2 with a door junction box, refer to Figure 8, “Model 610 BaFe Touchcard Reader Installed with Door Junction Box,” on page 16 and Figure 9, “Wiring for Type I and Type II Junction Boxes,” on page 18.
- Model 651 Keypad, refer to Figure 10, “Model 610 BaFe Touchcard Reader Installed with Model 651 Keypad,” on page 19, then refer to the appropriate figure listed above.

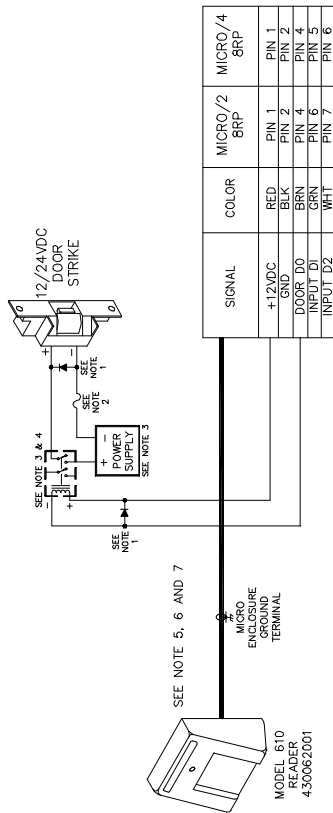
FIGURE 5: Model 610 BaFe Touchcard Reader Installed Directly to the Micro/5



NOTES (Unless otherwise specified):

1. Shielded cable is recommended in electrically noisy environments.
2. If using shielded cable, connect all shields together at the microcontroller end. Connect to ground stud in the lower left connect of Micro/2/4/5 cabinets using 14-AWG wire. No shield connections at the reader.
3. If using a local power supply, do not connect +12V line from the microcontroller to the reader. However, the negative side of the power supply must be connected to the microcontroller (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.
4. Switching the external indicator drives to GND activates the indicator. High impedance or +12V de-activates indicators. These drives may also be connected to user supplied, external indicating circuitry.
5. Refer to the appropriate system manual to determine whether this connection is required for door switch operation.
6. Blocking diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.
7. Protection diodes may be 1N4148 or similar, installer supplied, and located in a secure area.
8. Fuse, power supply, door strike, and relay are provided by the installer.

FIGURE 6: Model 610 BaFe Touchcard Reader Installed Directly to Micro/2 or Micro/4



NOTES: UNLESS OTHERWISE SPECIFIED

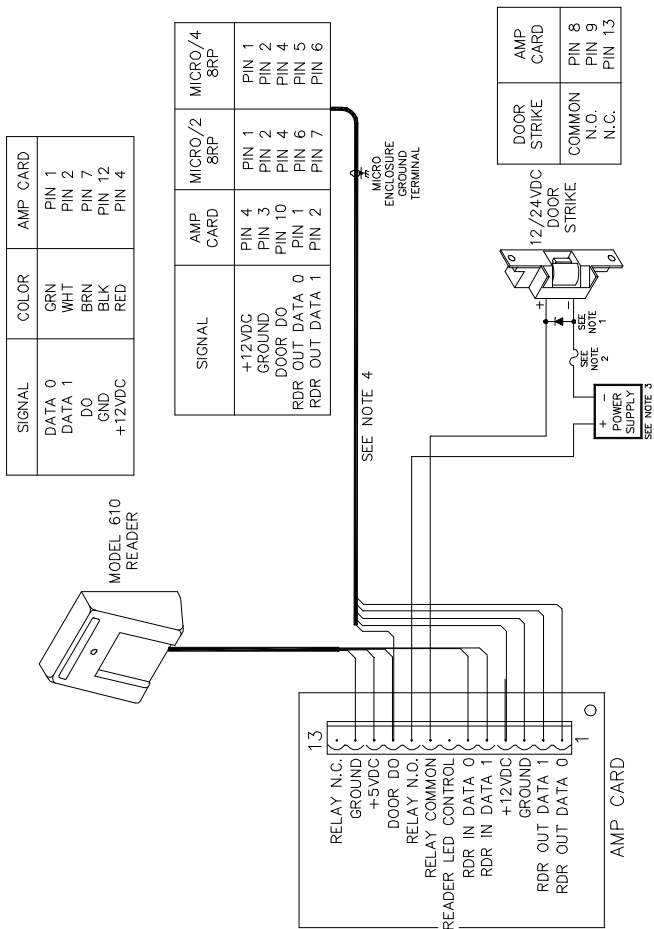
1. PROTECTION DIODES MAY BE 1N4002, 1N4003 OR 1N4004 FOR THE DOOR STRIKE ASSEMBLY (SUPPLIED BY THE INSTALLER), FOR DC STRIKES ONLY.
2. ONE AMP FUSE (SUPPLIED BY THE INSTALLER).
3. POWER SUPPLY (FUSED PRIMARY) AND RELAY PROVIDED BY THE INSTALLER/CUSTOMER.
4. RELAY COIL RESISTANCE MUST BE 180 OHMS OR GREATER AT 12VDC.
- * 5. SEE DRAWING 5102881A FOR REQUIRED PAIRING OF CABLE WIRES.
6. USE BELDEN CABLE 8725 OR EQUIVALENT.
7. MAXIMUM DISTANCE 1000 FT FROM MICRO TO READER.

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NOTES (Unless otherwise specified):

1. Protection diodes may be 1N4002, 1N4003, or 1N4004 for the door strike assembly (supplied by the installer). For DC strikes only.
2. One amp fuse (supplied by the installer).
3. Power supply (fused primary) and relay provided by the installer/customer.
4. Relay coil resistance must be 180 ohms or greater at 12VDC.
5. Use Belden cable 8725 or equivalent.
6. Maximum distance 1000 feet from micro to reader.

FIGURE 7: Model 610 BaFe Touchcard Reader Installed with Amplifier Card

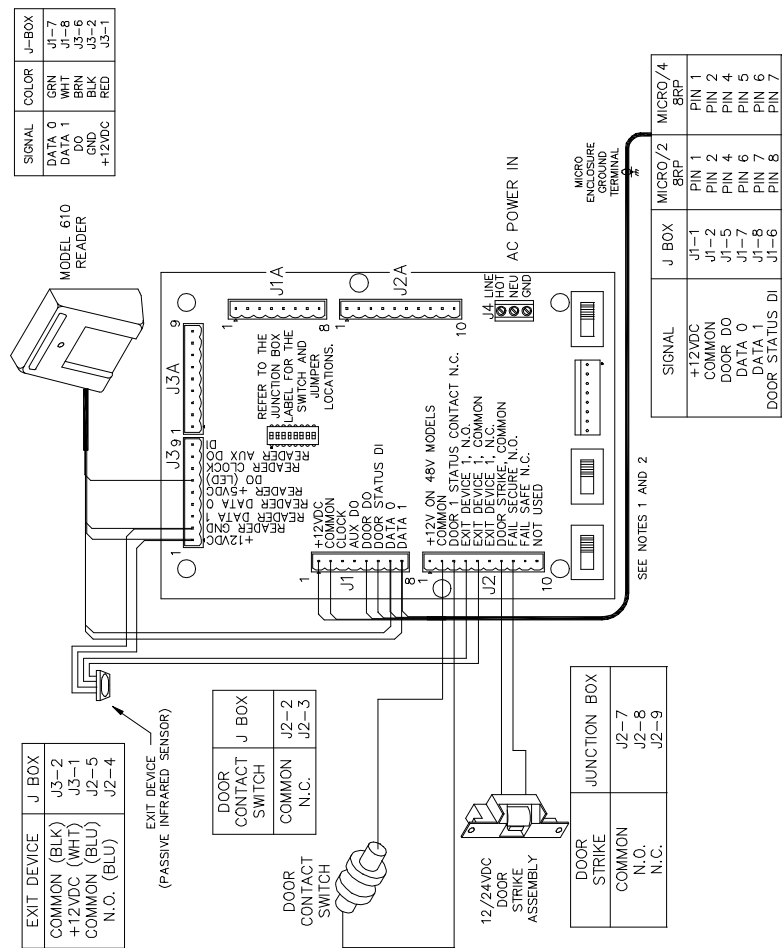


5103211B

NOTES (Unless otherwise specified):

1. Protection diodes may be 1N4002, 1N4003, or 1N4004 for the door strike assembly (supplied by the installer). For DC strikes only.
2. One amp fuse (supplied by the installer).
3. Power supply (fused primary) and relay provided by the installer/customer.
4. Use Belden cable 8725 or equivalent.

FIGURE 8: Model 610 BaFe Touchcard Reader Installed with Door Junction Box



5103201A

NOTES (Unless otherwise specified):

- 1. Use Belden cable 8725 or equivalent.**
- 2. Maximum distance 1000 feet from micro to reader.**
- 3. See next figure for wiring details on Type I and Type II Junction Boxes.**

FIGURE 9: Wiring for Type I and Type II Junction Boxes

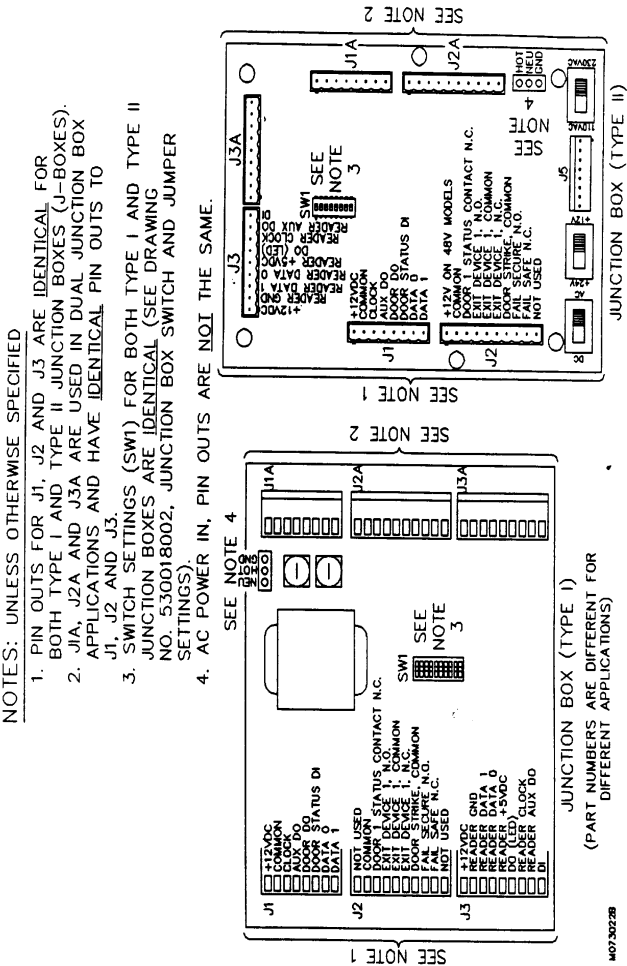
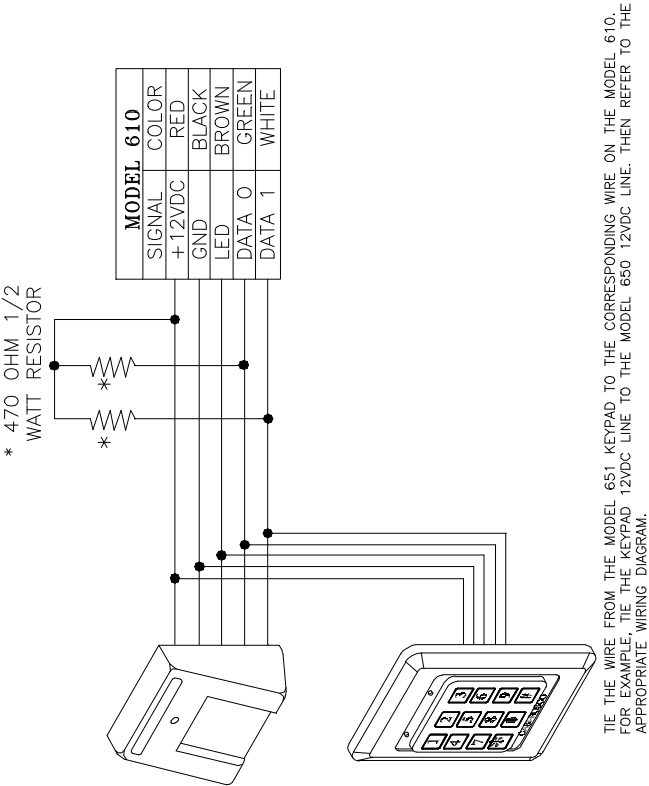


FIGURE 10: Model 610 BaFe Touchcard Reader Installed with Model 651 Keypad



Adapting the Micro/4 or Micro/2 for the Model 610 Reader

These microcontrollers require the CASI-RUSCO Universal EPROM in place of the standard EPROMs. Check to insure that the microcontroller contains the appropriate EPROM.

Testing the Reader

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

1. Verify all communication lines with a multimeter by testing voltage levels at the reader. Using ground as a reference, the power and data lines should measure 7 to 12 volts, and the door DO should measure approximately 4.5 volts.
2. Check all cabling and electrical connections from the reader to the microcontroller. If applicable, also check the cabling and electrical connections between the optional amplifier card/door junction box and the Model 651 Keypad to the microcontroller.
3. Verify that the microcontroller is properly configured. For the Micro/5, ensure that the proper version of the firmware is installed. For the Micro/2 and Micro/4, ensure that the correct EPROM is installed. Refer to your microcontroller manual.
4. Verify proper reader operation.
 - Select a test card with a known format and data. If the reader is used with a Model 651 Keypad, assign a four-digit PIN.
 - Place the card face down on the faceplate of the reader.
 - If used with a Model 651 Keypad, when yellow PIN LED lights, enter PIN badge code (+key, four-digit PIN, x key) after each beep tone.
 - Observe the LED; green indicates a valid access.
 - Open door.
5. Verify proper host system operation. Refer to your host system manual for operation details.
6. Check the other installed readers.
7. Repeat this test procedure with each installed Model 610 Reader.

Technical Specifications

Operating Temperature Range: -30 to 70°C (-22 to 158° F)

Humidity Range: 0% to 90%, noncondensing

Physical Dimensions: 4.60 in (H) x 4.00 in (W) x 2/25 in(D)

Parts List:

- Model 610 BaFe Touchcard Reader
- Universal EPROM for Microcontroller
- Label, Model 610 Reader
- Door Junction Box, Single, 12VDC
- Amplifier Card, Wiegand
- Model 651 Environmental Keypad
- Gasket
- Cable Gland
- Back Box Mounting Kit
- Reader Wrench

Maximum Cabling Distance: 1000 feet from reader to microcontroller

Power Requirements: 12VDC \pm 10%, 130 mA (typical) @ reader

Color: Beige

Data Signal: Pulse width - 100 microseconds, pulse to pulse = 1 ms

Functional Specifications

Product Operation: Hall-effect devices within the reader detect patterns of magnetic dots on a BaFe card placed face down, flush to metal read plate. The CASI-RUSCO system database then converts these patterns to binary numbers and verifies access authority.

Application: Intended for areas requiring a moderately high level of security for controlled access. Can be combined with a Model 651 Keypad for PIN (Personal Identification Number) operation.

Compatibility: Interfaces to existing CASI-RUSCO systems using the universal EPROM required for each Micro/2 or Micro/4 microcontroller and the Micro/5 flash memory system. The Micro/2 and Micro/4 microcontrollers use the Universal EPROM.

Reader Technology Type: BaFe input with Wiegand data format output.

Badge Format: Badge format 3201.

Mounting: Mounted flush to the wall using a metal backplate (supplied with reader). See the section on hardware installation for detailed instructions. The ground screw on the backing plate must be connected to a good earth ground (not power supply ground). Maximum distance to microcontroller is 1000 feet. When installed with a Model 651 Keypad, reader must be installed immediately adjacent to keypad.

Appearance: Sturdy beige molded plastic cover.

Indicators: Red and green LED indicators are provided.

- **Red LED:** Normally on when power is applied to the reader.
- **Green LED:** Indicates a valid badge read.