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# Model 840/845 Contactless Smart Card Reader Installation Guide

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**CASI RUSCO**

**791 Park of Commerce Boulevard**
**Boca Raton, Florida 33487**
**(561) 998-6100**

**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.**

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

**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

# *Figures*

# Introduction

This manual is an installation guide for the CASI-RUSCO Model 840/845 Contactless Smart Card Reader. Throughout this guide, the abbreviation 84x will stand for reader Models 840 and 845.

The 84x Reader is designed to mount on a standard U.S. single electrical gang box.

The Model 845 is identical to the Model 840 except for a built-in twelve position keypad. This feature makes this reader ideal for installations requiring keypad PIN entry in addition to a valid smart card read.

# Product Features

The CASI-RUSCO Model 840/845 Contactless Smart Card Reader offers the following features:

- State-of-the-art architecture.
- The ability to read all MIFARE®1 type Contactless Smart Cards.
- The ability to read the unique serial number of a MIFARE®1 card and convert the hex format to twelve digits Binary Coded Decimal (BCD).
- Supervised communications with the microcontroller over a bidirectional F/2F data link that carries the following:
    - Contactless smart card ID data
    - Supervision messages
    - Exit request and door switch status
    - Microcontroller acknowledgments and commands
- Intelligent bidirectional communication between the reader and microcontroller, which can be accomplished over 4-conductor telephone cable.
- Weather-resistant housing for outdoor use.
- Standard 12V operation.
- A clear, logical user interface with three LEDs and a beeper.
- Rugged, molded polycarbonate construction with integral backplate.
- Built-in tamper alarm.
- Two supervised digital switch inputs for interfacing exit request and door contact switches.
- External tamper.
- Installer programmable communications selector:
    - Supervised F/2F communications.
    - Unsupervised F/2F communications.
    - Omron/Magstripe Strobe communications.
    - Wiegand 4001 communications.
    - RS-232, 9600 8/N/1 communications.
    - UL verified for indoor use only.

# Installation Steps

The following is the general sequence of steps to follow in installing the 84x Reader. Each step is explained in further detail in the sections that follow.

1. Mount the reader backplate only (the reader will be mounted later). Refer to "Mounting the Reader" below.

2. Connect the reader. Refer to "Connecting the Reader" on page 6.

3. Mount the reader to the backplate. Refer to "Mounting the Reader" below.

4. Test the reader. Refer to "Testing the Reader" on page 22.

5. If necessary, refer to "Troubleshooting Guide" on page 23 for troubleshooting information.

# Mounting the Reader

The reader comes with a backplate suitable for mounting directly onto a standard U.S. electrical single-gang box. The reader may also be mounted directly onto a hollow wall. The reader is supplied with a weather-resistant gasket.

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

Figure 1, "Model 84x Reader - Gang Box Mounting," on page 4.
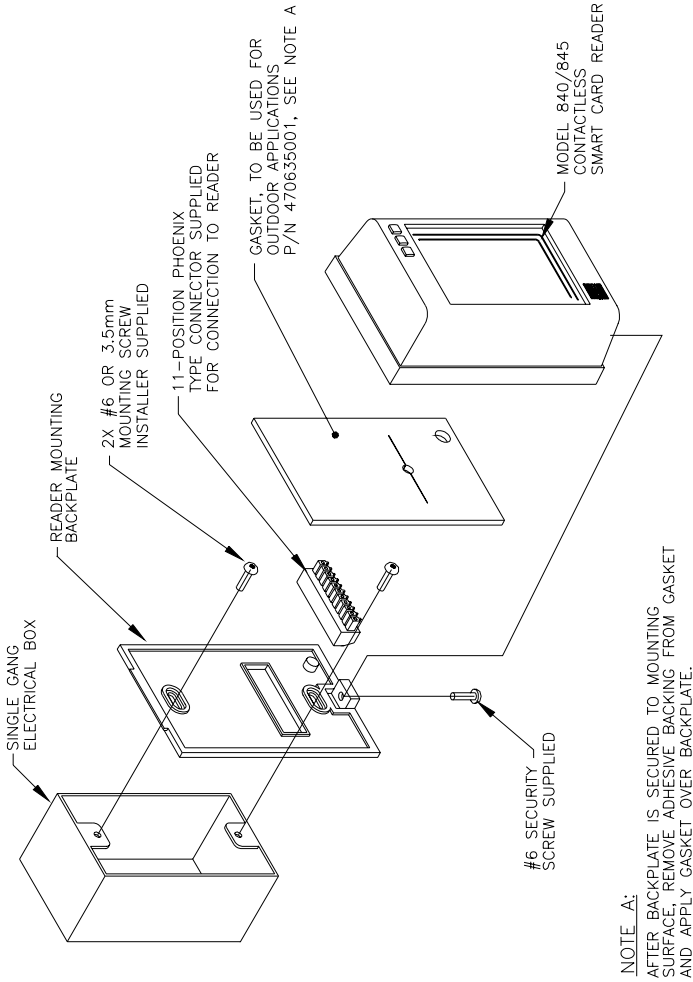
Figure 2, "Model 84x Reader - Wall Mounting," on page 5.

MODEL 840/845
CONTACTLESS
SMART CARD READER

GASKET, TO BE USED FOR
OUTDOOR APPLICATIONS
P/N 470635001, SEE NOTE A

11-POSITION PHOENIX
TYPE CONNECTOR SUPPLIED
FOR CONNECTION TO READER

2X #6 OR 3.5mm
MOUNTING SCREW
INSTALLER SUPPLIED

READER MOUNTING
BACKPLATE

SINGLE GANG
ELECTRICAL BOX

#6 SECURITY
SCREW SUPPLIED

NOTE A:
AFTER BACKPLATE IS SECURED TO MOUNTING
SURFACE, REMOVE ADHESIVE BACKING FROM GASKET
AND APPLY GASKET OVER BACKPLATE.

MODEL 840/845 CONTACTLESS SMART CARD READER

GASKET, TO BE USED FOR OUTDOOR APPLICATIONS P/N 470635001, SEE NOTE A

11-POSITION PHOENIX TYPE CONNECTOR SUPPLIED FOR CONNECTION TO READER

2X #6 OR 3.5mm MOUNTING SCREW INSTALLER SUPPLIED

READER MOUNTING BACKPLATE

WALL TYP.

.787[20mm]

1.968[50mm]

2X WALL ANCHORS IF REQUIRED, SUPPLIED BY INSTALLER

.984[25mm]

3.25[82.6mm]

.55[14mm]

#6 SECURITY SCREW SUPPLIED

NOTE A:
AFTER BACKPLATE IS SECURED TO MOUNTING SURFACE, REMOVE ADHESIVE BACKING FROM GASKET AND APPLY GASKET OVER BACKPLATE.

# Connecting the Reader

## Cabling Distances

The table below gives the maximum cabling distances between the reader and the microcontroller.

**TABLE 1: Cable Distances**

| 13.6 Volts (see Note 1) | | 12 Volts (see Note 1) | |
| 18 AWG | 24 AWG | 18 AWG | 24 AWG |
|---|---|---|---|
| 2750 ft | 750 ft | 2000 ft | 500 ft |
| 838m | 229m | 610m | 152m |

**NOTES:**

1. Reader supply voltage measured at microcontroller: 13.6V is nominal when line-powered; 12V is nominal when battery-powered.

2. All cable distances are typical maximums.

3. Readers powered by a local 12VDC power supply will have a maximum cable distance of 500 feet (152m) of 24 AWG telephone wire.

4. The reader will work well with unshielded cable in most environments. No company can guarantee that data will be reliably transmitted for long distances on unshielded cable in every installation. Typical Wiegand reader installation requires eight-conductor shielded cable to provide reader power, controller communication, door contact, exit push button, and tamper switch status. The same functionality is provided by Proximity Perfect readers, "supervised" with four-conductor unshielded cable.
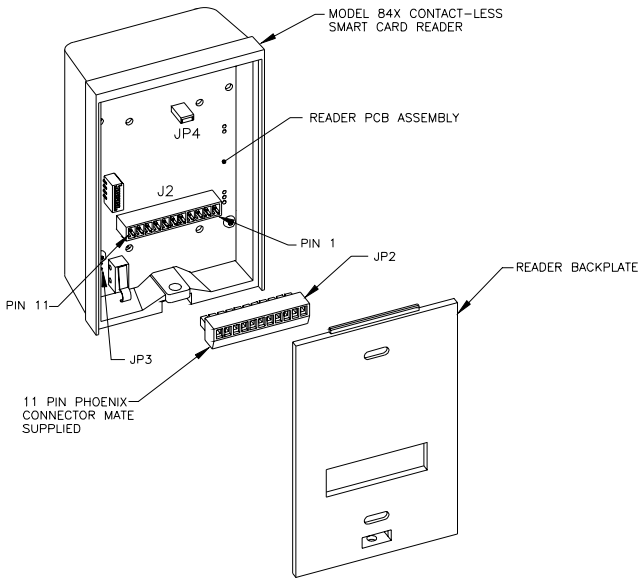
# Pinouts

The table below shows the pinouts for connecting the reader to the microcontroller. Connector JP2, pin 1 is to the right as you view the connector from behind the reader. See Figure 3, "Model 84x Reader, J2 Connector Location," on page 8.

**TABLE 2: Pinouts for Connector J2**

| J2 Pin | Signal |
|--------|--------|
| 1 | +12VDC |
| 2 | Ground |
| 3 | Green LED |
| 4 | RS-232 Output |
| 5 | No Connection |
| 6 | Reader Data |
| 7 | Reader Data 1 |
| 8 | Door DI (Point) |
| 9 | Door DI (Return) |
| 10 | Exit DI (Point) |
| 11 | Exit DI (Return) |

MODEL 84X CONTACT-LESS
SMART CARD READER

READER PCB ASSEMBLY

JP4

J2

PIN 1

JP2

PIN 11

READER BACKPLATE

JP3

11 PIN PHOENIX
CONNECTOR MATE
SUPPLIED

# Communications Settings

## Testing for Current Settings

Perform the following steps to test for current settings:

**NOTE: RS-232 mode for Revision B printed circuit boards and higher.**

1. Remove power from the reader.

2. Place a mini-jump over both pins of JP4.

3. Add power to the reader and listen for the number of beeps.

   **NOTE: The number of beeps indicate the current communications mode set.**
   - 1 beep = Supervised F/2F
   - 2 beeps = Unsupervised F/2F
   - 3 beeps = Strobe
   - 4 beeps = Wiegand 4001
   - 5 beeps = RS-232

4. Remove power from the reader.

5. Place a mini-jump over one (1) pin of JP4.

6. Add power to the reader and resume normal operations.

# Setting the Communications Mode (CASI-RUSCO Mode)

In CASI-RUSCO mode, the reader splits the serial number into two parts for Wiegand formatting. The other communication modes return the number resulting from this split format. In this manner, all five output formats yield the same number to the system. This number will not match the serial number provided by the card manufacturer.

The following steps are for setting the communications mode in CASI-RUSCO mode.

**NOTE: RS-232 mode for Revision B printed circuit boards and higher.**

1. Remove power from the reader.

2. Place a mini-jump over both pins of JP4; JP3 is open.

3. Add power to the reader and listen for the number of beeps.

   **NOTE: The number of beeps indicate current communications mode set.**

   - 1 beep = Supervised F/2F
   - 2 beeps = Unsupervised F/2F
   - 3 beeps = Strobe
   - 4 beeps = Wiegand 4001
   - 5 beeps = RS-232

4. Push and release the tamper switch the number of times that correspond to the communications mode desired.

   **NOTE: If you exceed the number of pushed listed below, an error response will sound and flash. Simply repeat this step.**

   **Modes:**
   - 1 push = Supervised F/2F
   - 2 pushes = Unsupervised F/2F
   - 3 pushes = Strobe
   - 4 pushes = Wiegand 4001
   - 5 pushes = RS-232

5. Wait 5 seconds and then remove power from the reader.

6. Place a mini-jump over one (1) pin of JP4; JP3 remains open.

7. Add power to the reader and resume normal operations.

# Setting the Communications Mode (Native Mode)

In Native Mode, the reader uses a straight binary to BCD conversion of the serial number to match the serial number given by the card manufacturer.

The following steps are for setting the communications mode in Native Mode.

**NOTE: RS-232 mode for Revision B printed circuit boards and higher.**

1. Remove power from the reader.

2. Place a mini-jump over both pins of JP4 and JP3.

3. Add power to the reader and listen for the number of beeps.

   **NOTE: The number of beeps indicate current communications mode set.**

   - 1 beep = Supervised F/2F
   - 2 beeps = Unsupervised F/2F
   - 3 beeps = Strobe
   - 4 beeps = Unused
   - 5 beeps = RS-232

4. Push and release the tamper switch the number of times the correspond to the communications mode desired.

   **NOTE: If you exceed the number of pushes listed below, an error response will sound and flash. Simply repeat this step.**

   **Modes:**
   - 1 push = Supervised F/2F
   - 2 pushes = Unsupervised F/2F
   - 3 pushes = Strobe
   - 4 pushes = Unused
   - 5 pushes = RS-232

5. Wait 5 seconds and then remove power from the reader.

6. Place a mini-jump over one (1) pin of JP4 and remove JP3.

7. Add power to the reader and resume normal operations.

**NOTE: Mode 4 is not available in Native Mode. Beeping and flashing LEDs indicate that Mode 4 has erroneously been set in Native Mode.**

# Digital Input (Door Contact and Exit Request) Supervised F/2F Mode Only

The door contact (alarm) and exit request are both configured for 4-state reporting. If used, then end-of-line resistors (two at 1,000 ohms each) are required.

1. Install the door contact and the two end-of-line resistors (installer-supplied) at the contact.

2. Wire the door contact/end-of-line resistors to pin JP2-8 and pin JP2-9.

3. Install the exit request contact and the two end-of-line resistors (installer-supplied) at the contact.

4. Wire the exit request/end-of-line resistors to pin JP2-10 and pin JP2-11.
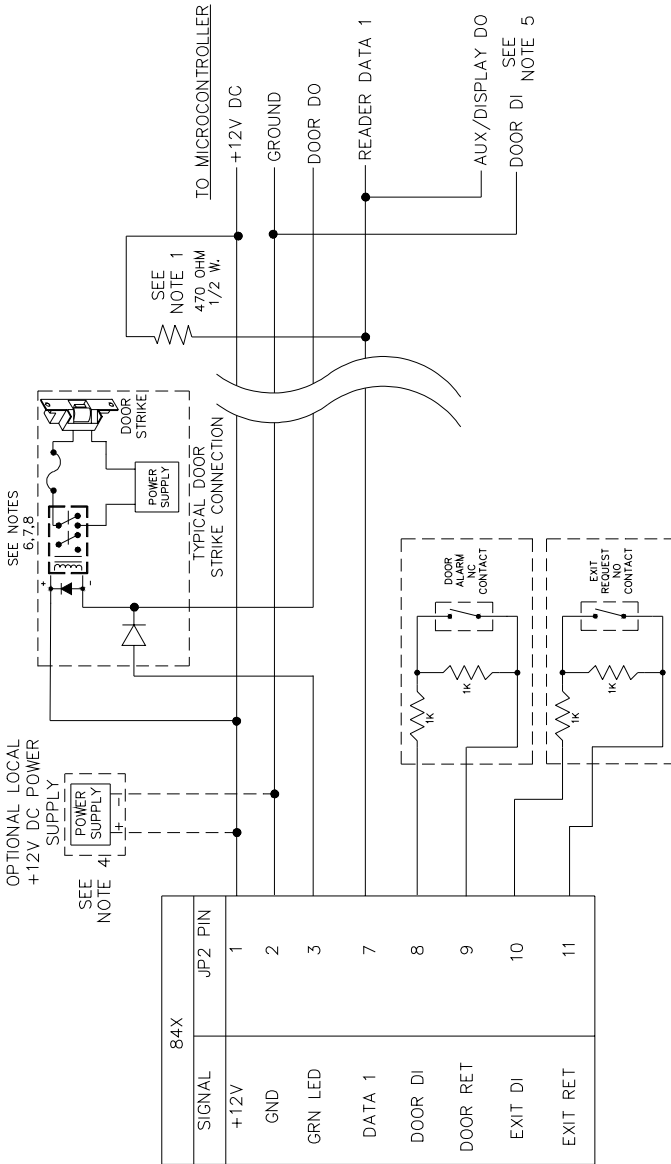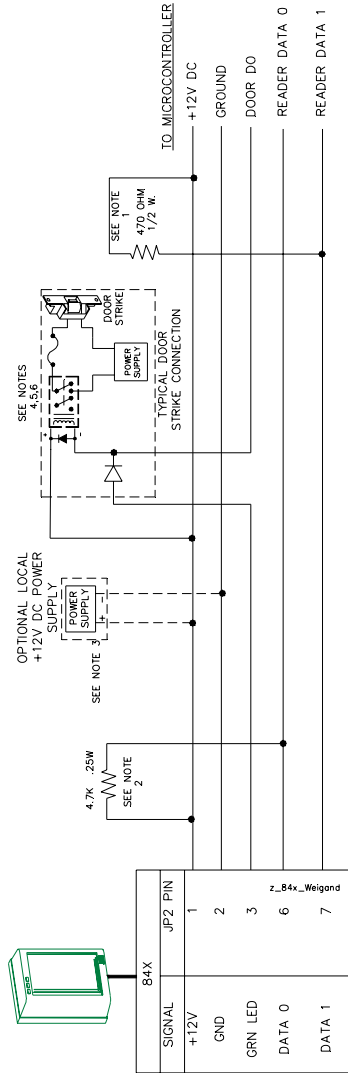
**NOTES (Unless otherwise specified):**

1. A 470-ohm, 1/2W, pull-up resistor is required between +12VDC and READER DATA 1. The pull-up resistor should be installed at the microcontroller's terminal block. A resistor is supplied with the reader. MicroProx does not require this resistor.

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/5 cabinets using 14 AWG wire. No shield connections at the reader.

4. 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 micro (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.

5. Refer to the appropriate system manual to determine whether this connection is required for door switch operation.

6. Blocking diodes may be 1N4148 or similar (installer supplied) and located in a secured area.

7. Protection diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.

8. Fuse, power supply, door strike, and relay are provided by the installer.
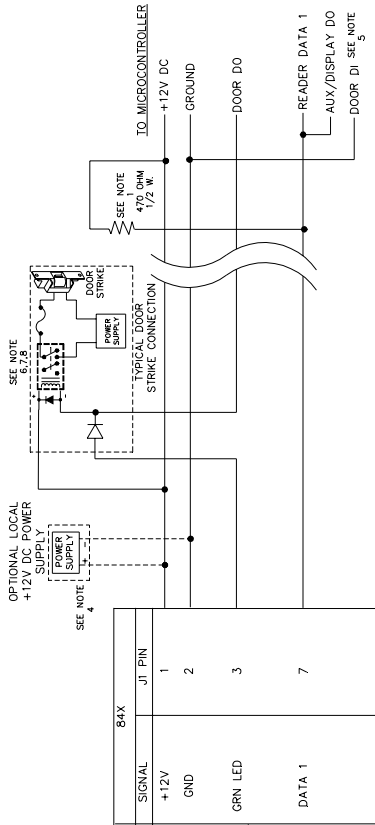
**NOTES (Unless otherwise specified):**

1. A 470 ohm, 1/2W, pull-up resistor is required between +12VDC and READER DATA 1. The pull-up resistor should be installed at the microcontroller's terminal block. A resistor is supplied with the reader. MicroProx may not require this resistor.

2. A 4.7K ohm, 1/4W, pull-up resistor is required between +12VDC and READER DATA 0. The pull-up resistor should be installed at the microcontroller's terminal block. A resistor is supplied with the reader. MicroProx may not require this resistor.

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 micro (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.

4. Blocking diodes may be 1N4148 or similar (installer supplied) and located in a secured area.

5. Protection diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.

6. Fuse, power supply, door strike, and relay are provided by the installer.
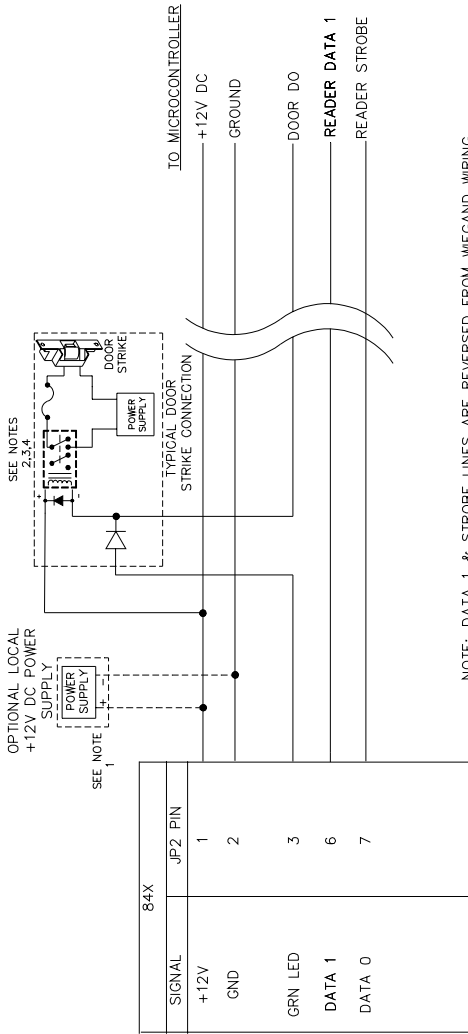
**NOTES (Unless otherwise specified):**

1. A 470-ohm, 1/2W, pull-up resistor is required between +12VDC and READER DATA 1. The pull-up resistor should be installed at the microcontroller's terminal block. A resistor is supplied with the reader. MicroProx may not require this resistor.

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/5 cabinets using 14 AWG wire. No shield connections at the reader.

4. 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 micro (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.

5. Refer to the appropriate system manual to determine whether this connection is required for door switch operation.

6. Blocking diodes may be 1N4148 or similar (installer supplied) and located in a secured area.

7. Protection diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.

8. Fuse, power supply, door strike, and relay are provided by the installer.

**FIGURE 7: Wiring Diagram, Model 84x - Omron/Magstripe Strobe Mode**

**NOTES (Unless otherwise specified):**

1. 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 micro (pin 2 on the reader port). Keep the wiring from power supply to reader less than 50 feet.

2. Blocking diodes may be 1N4148 or similar (installer supplied) and located in a secured area.

3. Protection diodes may be 1N4002, 1N4003, or 1N4004 (installer supplied) for the door strike assembly.

4. Fuse, power supply, door strike, and relay are provided by the installer.

# 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 14.

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 yellow LED is on. You may want to use a multimeter to test the voltage at the reader's connector JP2, using ground (pin 2) as a reference. The power pin (pin 1) and data lines (pin 7) should read approximately 12V.

4.  Check that the proper version of firmware is installed in the microcontroller. Refer to the appropriate microcontroller manual.

5.  Close the tamper switch by joining the reader and backplate. When all wires are connected to the reader, ensure that the supervision function is operating properly by verifying that the reader is not sounding a short triple beep every 30 seconds and that the red LED is not flashing slowly (every 2 seconds). If such an alarm is present, refer to the Troubleshooting Guide on the next page.

6.  Select a known-good MIFARE®1 type contactless smart card. Be sure the card is properly entered in the host system.

7.  Check that the door is secure. Place the card one inch away from the front of the reader. Observe that the reader beeps briefly and the yellow LED blinks off.

8.  Observe that the green LED turns on indicating a valid access has been granted by the host.

9.  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.

**All LEDs are on and the beeper is on**: Usually an indication that the reader's voltage is too low. This may be caused by having the wrong reader voltage selected at the microcontroller or too long a cable between the reader and the microcontroller.

1.  Measure the reader supply voltage at the microcontroller. It should read between 12V and 15VDC. If the voltage is correct, continue to step 2 below. If the voltage is incorrect, refer to the appropriate microcontroller manual and correct the voltage.

2.  If the problem is still present, while in low power mode, measure the voltage between JP2 pin 1 (power) and JP2 pin 2 (ground). This voltage should be greater than 9VDC and less than or equal to the reader supply voltage. If the voltage is too low, correct the wiring. If the voltage is correct, replace the reader.

**None of the LEDs are on:** Present a known-good MIFARE®1 type card to the reader while listening for the beeper.

If the beeper sounds, the reader is faulty and should be replaced. If the beeper does not sound, check the following:

*   Power connections to the reader
*   Reader supply voltage at connector JP2 pin 1

**The green LED is always on:** The green LED indicates that the door strike is open. It is controlled by the input on connector JP2 pin 3.

1.  Disconnect the wire on JP2 pin 3. 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 wire on JP2 pin 3 and measure the voltage at JP2 pin 3. Low voltage turns on the green LED. If the voltage is low, check to see if the host system is energizing the door strike.

**The door does not open and the green LED does not turn on when a contactless smart card is presented:**

1. Verify that the door strike and the green LED are wired correctly.

2. Verify that the card and reader are properly entered into the system.

**The green LED does not turn on, but the door strike unlocks the door when a valid contactless smart card is presented:**

1. Verify that the door DO is wired correctly. Refer to the appropriate wiring diagram.

2. Disconnect the wire from JP2 pin 3 (green LED) and connect JP2 pin 3 to JP2 pin 2 (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.

**Reader sounds a short triple beep every 30 seconds and the red LED flashes slowly (every 2 seconds):** The reader has lost communication with the microcontroller.

1. Check the reader-to-microcontroller wiring. Refer to the appropriate installation drawing. Verify that the AUX DO is jumpered to the reader data 1 on the microcontroller.

2. Verify that the correct pull-up resistor is installed on the microcontroller.

3. Verify that the microcontroller has the correct firmware for a supervised reader. Refer to the manual that came with your microcontroller for instructions.

4. Try the reader on a different reader input at the microcontroller. If this corrects the problem, then the microcontroller is probably causing the problem.

5. Replace the reader with one you know is working correctly. If this corrects the problem, then the reader is probably faulty and should be replaced.

6. If none of the above steps have identified the problem, there may be a significant noise source present in the installation which is interfering with the reader-to-microcontroller communications. If this is the case, use shielded wire for reader-to-microcontroller connections.

**The reader sounds a short triple beep every 30 seconds and the red LED flashes quickly (every 400 ms):** Indicates a tamper violation.

**The reader sounds a short triple beep every 30 seconds and the red LED is on continuously:** Check that the 4-state supervised switches are connected with two 1K-ohm resistors to the door contact and the exit request inputs or, if the inputs are not used, that a 1K-ohm resistor is installed at the reader connector. See Figure 4, "Wiring Diagram, Model 84x - Supervised F/2F Mode," on page 14.

# Technical Specifications

**Operating Temperature Range:** -25° C to +85° C (-13° F to 185° F).

**Humidity Range:** 0% to 95% Non-condensing

**Index of Protection:** IP22 (IEC 529)

**Physical Dimensions:**

Model 84x:    4.75 in (H)   x 3.000 in (W)   x 1.7 in (D)
121 mm       x 76.2 mm      x 43.2 mm

**Parts Lists:**

• Model 840 Reader

• Model 845 Reader

• Optional Tamper Key Tool

Refer to the CASI-RUSCO Product Catalog for part numbers and ordering information.

**Maximum Cabling Distance:** The maximum cable distance between the reader and the microcontroller is influenced by a number of factors including wire gauge. See Table 1 "Cable Distances," on page 6.

**NOTE: The reader will work well with unshielded cable in most environments. No company, including CASI-RUSCO, can guarantee that data will be reliably transmitted over long distances on unshielded cable in every installation.**

**Power Supply:** Nominal 12VDC, 140 mA

**Color:** Light Grey

**Smart Card ID:** 12 digits

**Card Support:** MIFARE®1 type cards

# Functional Specifications

**Product Operation:** The reader reads the unique manufacturer's serial number, converts it to BCD and sends it to the micro.

**Switch Inputs:** The reader monitors and reports the status of a normally closed supervised door contact switch and a normally open supervised exit request pushbutton.

**Application:** Intended for areas requiring a moderately low level of security for controlled access.

**Compatibility:** Interfaces to CASI-RUSCO Micro/5-based systems.

**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 figures on page 4 and page 5.

**Indicators:** Red, yellow and green LEDs and a beeper are incorporated into the reader.

- **Red LED:** If communications with the microcontroller are lost, the red LED flashes slowly (every 2 seconds). It flashes quickly (every 400 ms) to indicate a reader tamper condition.

- **Yellow LED:** Normally on when power is applied to the reader. Flashes off briefly (100 ms) to indicate that a smart card has been read and sent to the microcontroller. Blinks off while a key is pressed (Model 845 only).

- **Green LED:** Indicates that the microcontroller has activated the door strike. Flashes quickly (every 400 ms) to indicate a request for PIN entry. Upon completion of the PIN entry, the LED stops flashing.

- **Beeper:** A short triple beep sounds every 30 seconds to indicate lost microcontroller communications, a reader tamper, or supervised switch input tamper. The beeper sounds briefly (100 ms) to indicate that a valid smart card has been read. The beeper sounds while a key is pressed (Model 845 only).

**Supervised F/2F Mode Operation:** The reader sends smart card data or reader status data to the microcontroller approximately once every second and waits for an acknowledgment from the microcontroller. The reader continues sending the data until an acknowledgment is received. If an acknowledgment is not received after the third attempt, the reader stops reading smart cards, the red LED starts flashing slowly (every 2 seconds), and a short triple beep sounds every 30 seconds. Once the reader receives an acknowledgment, it begins reading smart cards again, the beeper stops sounding and the red LED stops flashing.

If a PIN code is required, the green LED will flash while waiting to receive the PIN code.

**Card Read Operation:** Each time the reader reads a smart card, the yellow LED blinks off briefly and the beeper sounds. On systems configured for PIN entry, the green LED flashes to indicate that keypad data is expected.

**PIN Code Entry:** All PIN codes must be entered in this format: * **x x x x #** This applies to Model 845 applicable modes only.

**Reader Tamper Operation:** The 84x Readers incorporate a tamper switch. While the reader is separated from its backplate, all normal smart card reading functions are disabled and a tamper condition is indicated by a triple beep every 30 seconds. The red LED flashes quickly (every 400 ms) and all communications with the microcontroller are suspended, taking the reader off-line.

The reader is also equipped with an external tamper feature. To activate this feature, connect a single-pole, single-throw (SPST), normally-closed pushbutton switch (installer-supplied) to connector JP3 on the printed circuit board assembly and install the switch between the wall and reader backplate. When the reader and the backplate are removed from the wall, the switch will close; therefore, closing the connection, causing a tamper condition.

**Door Contact and Exit Request Inputs:** The 84x Readers have a 4-state supervised door contact switch input and an exit request switch input. The state of both switch inputs is periodically reported to the microcontroller, but changes to switch inputs are reported immediately.

**Wiegand 4001 Mode Operation:** The reader sends badge data to the microcontroller after a valid MIFARE®1 type contactless smart card is presented to the reader. If Model 845 is used, the green LED will flash waiting for a PIN code entry.

**Unsupervised F/2F Mode Operation:** The reader sends badge data to the microcontroller after a valid MIFARE®1 type contactless smart card is presented to the reader. This communications mode does not support the use of PIN codes.

**Omron/Magstripe Strobe Mode Operation:** The reader sends badge data to the microcontroller after a valid MIFARE®1 type contactless smart card is presented to the reader. This communications mode does not support the use of PIN codes.

**RS**-**232 Mode of Operation:** The contactless smart card reader sends unidirectional badge numbers only after MIFARE®1 type contactless smart cards are presented to the reader. The Model 845 will send the badge number but will wait up to fifteen (15) seconds for a PIN code to be entered before another badge can be presented.

**NOTES: Communications Modes**

1.  **Wiegand 4001, Unsupervised F/2F and Omron/Magstripe Strobe, and RS-232 do not support the Door Contact and Exit Request Inputs.**

2.  **The use of PIN codes requires a Model 845 Contactless Smart Card Reader.**

3.  **PIN codes are supported for the following Modes only:**
    **Supervised F/2F**
    **Wiegand 4001**

4.  **Omron/Magstripe Strobe Mode, RS-232 Mode and Wiegand 4001 are provided for use with other systems.**

5.  **To take full advantage of 4-state supervision and all available modes, the Secure Perfect firmware revision must be 2.14 or later and the Picture Perfect revision must be 1.57 or later.**

# Manufacturers Declaration of Conformity

$C\epsilon$

| | |
|---|---|
| **Manufacturer's Name:** | **CASI-RUSCO** |
| **Manufacturer's Address:** | **791 Park of Commerce Boulevard**<br>**Boca Raton, FL USA 33487** |
| **EU Representative:** | **Interlogix Europe & Africa**<br>**Excelsiorlaan 28**<br>**B- 1930 Zaventum**<br>**Belgium** |
| **Product Identification:** | **Product: Smart Card Reader**<br>**Model Number: 840/845**<br>**Brand: CASI-RUSCO** |
| **Means of Conformity:** | • **Hereby, CASI-RUSCO, declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.**<br><br>• **Hierbij verklaart CASI-RUSCO dat het apparaot in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG**<br><br>• **Par la présente CASI-RUSCO déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE**<br><br>• **Hiermit erklärt CASI-RUSCO, dass sich diese auspüstung in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)** |
| **Notices:** | **Approved for use in the following countries:** |

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