

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

Model 910/911 Coax Reader Installation Guide



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Introduction

This manual is an installation guide for the CASI-RUSCO Models 910 and 911 Coax Readers. Throughout this guide, the abbreviation 91x will stand for Reader Models 910 and 911 and MSM will stand for the Multiple Switch Monitor unit.

The 91x Readers are designed as a plug-in replacement for the Schlage/Westinghouse Proximity Readers. This allows for an easy upgrade of a Schlage/Westinghouse system to a CASI-RUSCO **Entry Perfect™**, **Picture Perfect™**, or **Secure Perfect®** system. In fact, the Model 910 Reader has the same footprint and uses the same mounting holes as the standard Schlage/Westinghouse Reader.

The only difference between the Model 910 and 911 is the location of the F-connector. The Model 910 has the F-connector out the back of the unit and is intended to be mounted on the wall. The Model 911 has the F-connector out the side and is intended to be mounted directly on glass.

NOTE: You must have a 4CRP board in the Micro/5 that will be controlling your 91x Coax Reader.

Product Features

The CASI-RUSCO Model 91x Coax Readers offer the following features:

- Are designed as a plug-in replacement for Schlage/Westinghouse Proximity Readers. Allows for the upgrade of a Schlage/Westinghouse system to a CASI-RUSCO **Entry Perfect**, **Picture Perfect**, or **Secure Perfect** system.
- Offer state-of-the-art architecture.
- Have rugged molded ABS construction.
- Have weatherproof housing for outdoor use.
- The Model 911 Reader is intended for glass mount. The recommended double-sided tape to attach the reader to the glass is 3M P/N 4910 or 4949.
- Powered from Micro/5 via coaxial cable.
- A clear, logical user interface with a tri-color LED and a beeper.
- Have the ability to read all Proximity Perfect and ProxLite badges.
- Proximity Perfect badge read ranges up to 6 inches (150mm); ProxLite 5 inches (125mm).
- Require a special board (4CRP) in the Micro/5. The 4CRP board will support 4 coax readers.
- Intelligent bidirectional communication between the reader and microcontroller, which can be accomplished up to 1000 feet (305m) over RG/6 coaxial cable that carries the following:
 - Proximity Perfect/ProxLite badge data
 - Supervision messages
 - Microcontroller acknowledgments and commands
- Coax cable plugs directly into the reader.
- Model 910 Reader uses the same mounting holes as the standard Schlage/Westinghouse Reader and has the same footprint.

Installation Steps

The following is the general sequence of steps to follow in installing the 91x Reader. Each step is explained in further detail in the sections that follow.

For Functional and Technical specifications, refer to page 11 and page 12.

1. Verify that there is a 4CRP board in the Micro/5 which will control the 91x Reader. Refer to the insert included with the board for more information.
2. If using the optional MSM unit, mount that unit now. Refer to the MSM Installation Guide.
3. Mount and connect the 91x Reader. Refer to “Mounting and Connecting the Reader” on page 4.
4. Test the reader. Refer to “Testing the Reader” on page 8.
5. If necessary, refer to page 9 for troubleshooting information.

Mounting and Connecting the Reader

The Model 910 Reader is designed to mount directly on the wall. The Model 911 Reader is designed to mount on glass. When mounting, keep in mind the maximum cabling distances allowed.

Cabling Distances

The total length between the reader and the 4CRP board can be up to 1000 ft. (305m)

Model 910 - Wall Mount

Refer to Figure 1 and Figure 2 while completing the steps below.

NOTE 1: While bolting the reader is the recommended method (explained below), adhesive bonding or double sided tape may be used to mount the reader to the wall.

NOTE 2: If this is a back-to-back installation, attach the self-adhesive aluminum foil cover to the back of the reader. This will prevent simultaneous badge reading from the opposite reader. Keep in mind, however, that attaching this foil cover will reduce read range by approximately 30%.

1. Determine the location of the reader. It can be mounted in any position and the coax connection at the rear of the reader can be orientated to suit each installation. Refer to Figure 1 while mounting.
2. Apply the label to the rear side of the reader in a recessed area. The label **MUST** be installed to ensure environmental seal.
3. Drill a 0.199 inch or 5.2mm diameter hole at each center mark provided on the face of the reader housing.
4. Connect the coax cable to the reader.
5. Use four #10 or 5mm screws and flat washers. Maximum torque 20 in/lbs \pm 2 in/lbs (3 n/m \pm 0.3 n/m). Tamper-proof head style is recommended. Use a length and thread style to suit the installation.
6. Once the reader is secured to the wall, apply the label to the recessed area of reader housing making sure the CASI-RUSCO logo is located at the bottom right hand corner of the reader. Refer to Figure 2, "Mounting the Label on the 910 Coax Reader," on page 5. The label **MUST** be installed to ensure environmental seal.

FIGURE 1: Mounting the 910 Coax Reader - Wall Mount

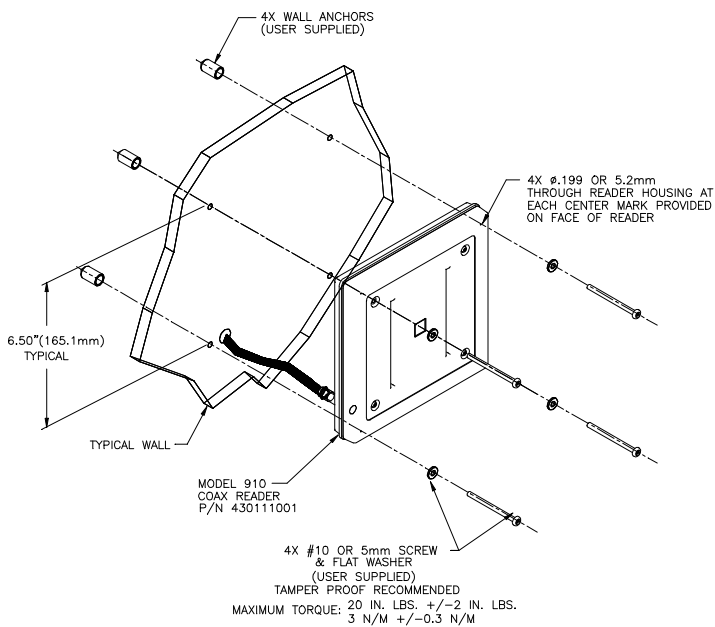
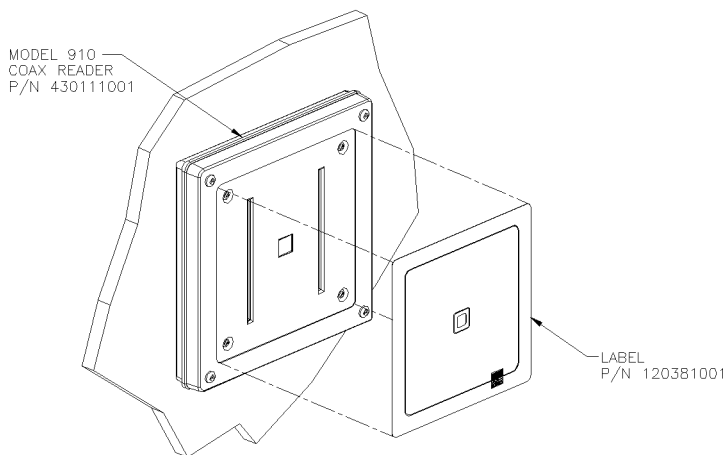


FIGURE 2: Mounting the Label on the 910 Coax Reader



Model 911 - Glass Mount

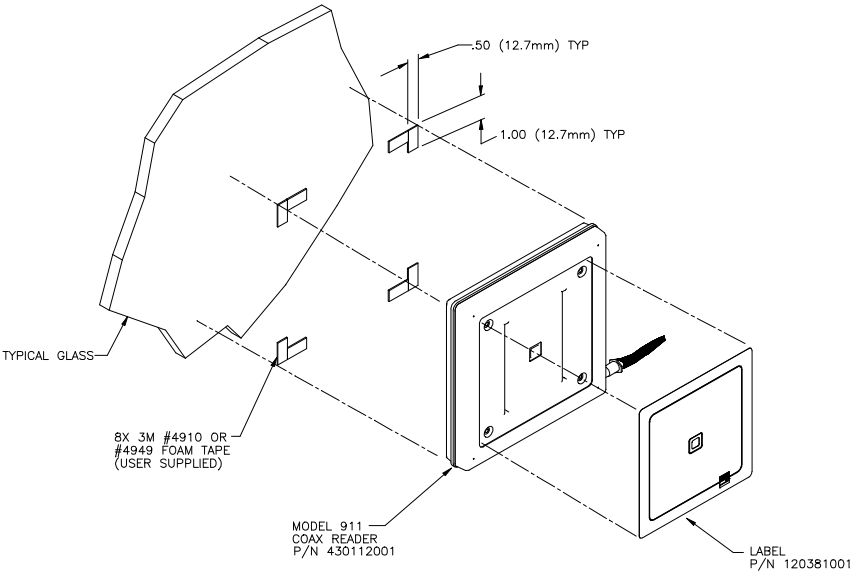
Before beginning the installation ...

- Determine the location of the reader. It can be mounted in any position and the coax connection at the side of the reader can be orientated to suit each installation.
- Verify that you have the foam adhesive tape needed to mount the reader to the wall. 3M #4910 (clear) or #4949 (black) double coated foam adhesive tape is recommended.
- Check that the air and glass temperature is greater than 50° F (10° C). The ideal application temperature range is 70° F to 100° F (21° C to 38° C).
- Determine if this area is subject to high humidity or frequent contact with water. If it is, application of a silane primer is recommended, such as Dow Corning #2-6040 or Union Carbide #A-187.

Refer to Figure 3 while completing the steps below.

1. Once the above items have been completed, clean both the glass and the reader mounting surface using a mixture of approximately equal parts of Isopropyl alcohol and water.
2. Apply the label to the glass facing the side of the reader making sure that the CASI-RUSCO logo is located at the bottom right corner. The label **MUST** be installed to ensure environmental seal.
3. Apply the foam tape to each corner of the reader housing as shown in Figure 3 on page 7 using even pressure and verifying that the tape makes complete and secure contact with the housing.
4. Connect the coax cable to the reader.
5. Mount the reader to the glass using the same even pressure as in the previous step. Verify that the tape makes complete and secure contact with the glass.
6. Allow the tape to cure for several minutes before attempting to move or apply additional weight to the reader.
7. After the reader is secured to the glass, apply the label to the recessed area of the reader housing making sure that the CASI-RUSCO logo is located at the bottom right hand corner of the reader. The label **MUST** be installed to ensure environmental seal.

FIGURE 3: Mounting the 911 Coax Reader - Glass Mount



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. If there is an MSM unit installed, check the cabling and electrical connections from the reader to the MSM and from the MSM to the microcontroller.
2. Verify that the microcontroller is properly configured. Remember: these readers require the use of a special board (4CRP) in the Micro/5. Refer to the Micro/5 Installation Guide.
3. Check that the proper version of firmware is installed in the microcontroller. Refer to the Micro/5 Installation Guide.
4. Upon powering up the micro, the reader's LED should light as yellow.
5. Select a known good Proximity Perfect or ProxLite test badge. Be sure the badge is properly entered in the host system.
6. Check that the door is secure. Present the badge to the reader. Observe that the reader beeps briefly and the LED flashes.
7. Observe that the LED turns on as green indicating a valid access has been granted by the host.
8. Open the door. This verifies that the door strike operates correctly.

Troubleshooting the Reader

If the operation of a component is in doubt, substitute a known good component and retry the system.

If the above items check out, continue with the sections below. The symptom is listed first in bold followed by an explanation of the possible cause(s). Suggested items to check or try are listed last.

The yellow LED is not on: The yellow LED indicates that there is power going to the reader.

1. Check the coax connection at the 4CRP, MSM and the reader. Ensure that all coax connectors are clean and corrosion free.
2. Check that there is 13.5V from the Micro/5.
3. Check that the coax cable is not cut or does not have a short between the center conductor and the shield.

The reader beeps three consecutive times approximately every 30 seconds: This means that the reader has lost communications with the Host. One cause could be that the Micro/5 is going through a power-up reset. This cycle lasts approximately 10 to 40 seconds. If the reader continues beeping, then try the following:

1. Check the Host system to verify that the Micro/5 is responding properly.
2. If an MSM unit is connected between the reader and the Micro/5, ensure that the coax cables from the 91x Reader and the MSM go to the designated F-connectors on the MSM. If this is correct, use a bullet (double female) F-connector to connect the reader directly to the Micro/5. If the beeps stop, then the MSM unit is not working properly.

The beeper does not sound and the LED does not blink off when a badge is presented to the reader OR the badge read range is very poor: When the beeper sounds and the yellow LED blinks off, this indicates that a badge has been read and its data has been sent to the microcontroller. Try the following:

1. Check that the reader was not mounted on or within 6 inches of a large metal object such as a metal door or window mullion.

2. Check that the reader is not mounted within 3 feet of a computer terminal or within 10 inches (250mm) of another reader.
3. Present a Proximity Perfect or ProxLite test badge (known to be working) to the reader. If the beeper and yellow LED still fail to indicate a valid badge read and send, replace the reader with a reader that you know is working correctly. If this corrects the problem, the original reader is faulty and should be replaced. If this does not correct the problem, the badge is probably defective.

LED blinks off and the beeper sounds when a badge is presented but the LED does not turn green and the door is not opened: This indicates that the badge is not valid. Verify that the badge and the reader are properly entered into the system.

The LED turns green after presenting a badge but the door does not open: Check the wiring between the 4CRP board connector and the door strike.

Technical Specifications

Operating Temperature Range: -31° F to +151° F (-35° C to +66° C).

Index of Protection: IP55 (IEC 529)

Physical Dimensions: 7.50 in (H) x 7.50 in (W) x 1.13 in (D)

191mm (H) x 191mm (W) x 32mm (D)

Parts List:

- Model 910 Reader - Wall Mount
- Model 911 Reader - Glass Mount
- Optional Back-to-Back Foil Cover (Pack of 10)

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

Maximum Reader Range: ProxPerfect 6 inches (150mm), ProxLite up to 5 inches (125mm)

Maximum Cabling Distance: The maximum cable distance between the reader and the 4CRP board in the microcontroller is 1000 feet (305m).

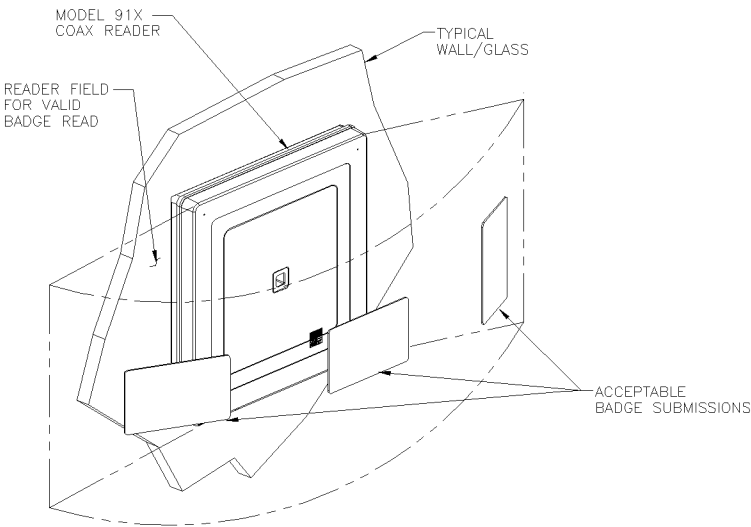
Color: Black with Grey Label

Pinouts: Single coax F-connector on the reader.

Functional Specifications

Product Operation: The reader transmits a **wake-up** field extending all around the reader. When a badge is presented, energy from the field powers the electronics inside the badge allowing it to transmit its unique data to the reader. The reader receives, interprets and checks the data, sending only uncorrupted badge data to the microcontroller. Due to the nature of the **wake-up** field, the maximum read range will be realized only if the badge is presented to the reader on an imaginary semi-circle centered on the reader, as shown below.

FIGURE 4: Badge to Reader Presentation



While the reader will read and send another badge’s data immediately, the risk of multiple badge reads is reduced by a two second **same badge send** delay.

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

Compatibility: Interfaces to all CASI-RUSCO systems.

Reader Technology Types: CASI-RUSCO Proximity Perfect Read/Write technology and CASI-RUSCO ProxLite Read Only technology.

Badge Formats: CASI-RUSCO Proximity Perfect or ProxLite badges.

Mounting: The 910 Reader is designed to be mounted onto a wall. The 911 Reader is designed to be mounted onto a glass surface.

Indicators: Two multi-colored LEDs (each facing opposite sides to allow for bidirectional operation) and a beeper are incorporated into the reader.

- **Red:** If communications with the microcontroller are lost, the LED turns red.
- **Yellow:** Normally, the LED is yellow when power is applied to the reader. Blinks off briefly to indicate that a badge has been read and sent to the microcontroller.
- **Green:** Indicates that the microcontroller has activated the door strike.
- **Beeper:** The beeper sounds briefly to indicate that a valid badge has been read and sent to the microcontroller. If the reader does not receive confirmation from the microcontroller of having received the badge information, the information is re-sent a second time and the beeper sounds briefly a second time. If confirmation is not received a third time, the beeper sounds once more, the reader stops resending the badge information and the badge must be presented again.

A short triple beep every 30 seconds indicates a disruption in communications with the microcontroller.

Supervised F/2F Mode Operation: The reader sends badge 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 every second until an acknowledgment is received. If an acknowledgment is not received after the third attempt, the reader stops reading badges, 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 badges again, the beeper stops sounding and the red LED stops flashing.

NOTES