

Access Control Interface Module

D9210C



BOSCH

en Installation and Operation Guide

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1 Introduction

This document assumes basic security system installation skills such as measuring voltages, stripping wire, and making proper wire connections. It also assumes familiarity with the proper installation of Bosch Security Systems Control/Communicator control panels and the related programming tasks.

The material and instructions in this document have been carefully checked for accuracy and are presumed to be reliable. However, Bosch Security Systems, Inc. assumes no responsibility for inaccuracies and reserves the right to modify and revise this document without notice.



NOTICE!

References made to the D9412 control panel will reflect the following product offerings: D9412GV4, D9412GV3, D9412GV2, D9412G, D9412.



NOTICE!

References made to the D7412 control panel will reflect the following product offerings: D7412GV4, D7412GV3, D7412GV2, D7412G, D7412.

1.1 New with D9210C

In addition to replacing the obsolete D9210B micro-controller and its supporting components, the D9210C has the following additional improvements:

- Terminal placement modified to group terminals by function.
- Cage style terminal strip (replaces screw-finger type).
- Additional 12 VDC terminal for powering 12 VDC readers.
- Dual rotary address switches replace DIP address switches.
- Interconnect wiring connector for SDI Bus.
- More robust door contact relay.
- Single Wiegand status LED (replaces 2 LEDs).
- Door Status LED added.

1.2 Other Literature Referenced

Throughout this document, references will be made to other documentation. For a more complete and detailed description of the D9210C Access Control Interface Module, see the following table that lists the complete part number for ordering purposes.

Name of document	Part Number
D9210C Program Entry Guide	F01U201526
Security System Owner's Manual	71-06633-000

Table 1.1 Other Literature Referenced

1.3 Documentation Conventions

These conventions are intended to call out important features, items, notes, cautions, and warnings that the reader should be aware of in reading this document.

1.4 FCC Notice

This equipment generates, uses and can radiate radio frequency energy. If not installed in accordance with the manufacturer's instructions, it may cause interference to radio communications. It has been tested and found to comply with the specifications in Subpart J of Part 15 of FCC Rules for Class B Computing Devices.

If this equipment causes interference to radio or television reception, which can be determined by turning the equipment on and off, the installer is encouraged to correct the interference by one or more of the following measures:

- Re-orient the antenna of the radio or television.
- Connect the AC transformer to a different outlet so the control panel and radio or television are on different branch circuits.
- Relocate the control panel with respect to the radio or television.

If necessary, the installer should consult an experienced radio or television technician for additional suggestions, or send for the Interference Handbook prepared by the Federal Communications Commission. This booklet is available from the U.S. Government Printing Office, Washington DC 20402, stock no. 004-000-00450-7.

1.5 Regulatory Listings

UL 294 (ALVY Access Control System Units)	UL 1076 (APOU: Property Alarm Units)	UL 609 (AOTX: Local Alarm Units)	FCC Part 15 Class B
UL 365 (APAW: Police Station Alarm Units)	UL 1610 (AMCX: Central Station Alarm Units)	UL 864 (UOXX: Control Unit Accessories, System)	CSFM (California Office of the State Fire Marshal)
UL 1023 (NBSX: Household Burglar Alarm System Units)	UL 985 (UTOU: Control Units and Accessories Household System Type)		

2 System Overview

2.1 System Description

2.1.1 Operational Primer

The interface module is a fully supervised, addressable SDI bus device that allows access control integration for the D9412 Family (8 doors) and D7412 Family (2 doors) control panels. Each interface module can store up to 999 user tokens, each with a different access level for each door. Authority for access is controlled by the level of the user, the time of day, the state of the door and the armed state of the area to the interface module. Each of the authority restrictions can be controlled through automatic and manual functions.

Users can be added to the system either by local programming using the Remote Programming System (RPS), D5200, or by adding tokens using the Add User function through the control center.

The interface module is not programmed using a local or remote programmer. The interface module must be connected to the SDI bus to function properly and receive operational programming parameters and user data.

2.1.2 Outputs

Dry contact SPDT relay for 12/24 V strikes. The relay provides a Normally Closed (NC), Common (input voltage) and Normally Open (NO) output. When the relay is energized, the outputs switch to an opposite state.

12 VDC. Provides a connection for a 12 VDC reader or a 12 VDC buzzer.

2.1.3 Inputs

Supervised zone input for the door contact. The zone input on the interface module is used for the door contact that is physically mounted on the door to which the strike is connected. The input can be configured for shorts or opens on faults but is normal only when the 1000 k Ω EOL (end-of-line) resistor is in the circuit.

Unsupervised tamper input. The unsupervised tamper input is normal when open. Upon a short, the point number assigned to the supervised zone is reported as a MISSING PT### report.

Unsupervised Request to Enter [RTE] and Request to Exit [REX] inputs. The [RTE] input and [REX] input are normally open inputs sharing the same common terminal. When momentarily shorted (500 ms) by a dry contact, input will initiate the door sequence. Typical applications include a N/O momentary push button or a N/O momentary relay activation from a Door motion detector device.

The [REX] input generates Door Request to Exit and is used to exit the area assigned to the interface module without having to use an identification. The [RTE] generates Door Request to Enter and is used to enter the area assigned to the interface module.

Programming REX Shunt Only and RTE Shunt Only allows you to initiate only the shunt and buzz when the [RTE] or [REX] inputs are shorted. This eliminates the need for a strike and would be used in applications where a push bar is used to open the door.

It is advisable to assign a point number to the device used to activate the [RTE] and [REX] inputs, such as an infrared with addressable ZONEX. This ensures that the device is supervised.

2.1.4 Reader (Connections)

LED. Common upon card read response and strike activation. Sink up to 35 mA from 5-14 VDC source. Output impedance is 180Ω.

Buzzer output. Common upon strike activation. Sink up to 35 mA from 5-14 VDC source. Output impedance is 100Ω.

+5 VDC readers. Power out to 5.2 VDC card reader. V out 5 V +/- .25 V for 20 to 140 mA load, 150 mA maximum continuous.

DATA 0. Data 0 from card reader. High impedance pull up to +/-5.2 V.

DATA 1. Data 1 input from card reader. High impedance pull up to +/-5.2 V.

2.1.5 SDI (Connections)

PWR. Provides power to the interface module and buzzer.

A PANEL DATA. Transports data communications between the interface module and the security panel.

B PANEL DATA. Transports data communications between the interface module and the security panel.

COM (Common). Provides electrical common between the interface module and the power source.

2.1.6 Functions

Normal Door Sequence. The Normal Door Sequence of the interface module is initiated by a valid access granted (User ID) or door request [RTE/REX]. This initiates the strike, shunt and buzz time to activate the strike, shunt the point, and create an event reporting the door sequence has begun.

When the door is held open past the normal door sequence time, an extended door sequence time is initiated. This extended time extends the shunt and re-activates the buzzer. If programmed, CLOSE DOOR # will display at the control center assigned to the door. The normal door sequence will not activate if the interlock point is in an off normal (open or short) condition.

The Interlock Point can be assigned to multiple door controllers. This is useful for applications that require doors to not activate when a point is faulted until the interlock point is normal.

Door States. There are four door states for the interface module. These door states can be controlled through the control center, the Remote Programming System (RPS), scheduled events (Skeds) and automatic programmable functions in the interface module parameters.

- **Locked Door.** This state is considered a normal door state.
- **Unlock Door.** This state allows the door to be opened for free access.
- **Secure Door.** This state will not allow access unless a Fire Unlock occurs.
- **Fire Unlock.** This state allows free access no matter what the previous door state or armed state is. This is a programmable option that can be used to allow free access into the building upon a fire alarm.

Automatic Functions and Door State. The interface module has two automatic functions that control door state based on the armed state of the area:

- **Auto Door.** With this function as [YES], the door will be unlocked when the area is disarmed.
- **Disarm on Open.** With this function as [YES], a user with valid access rights will activate the strike and disarm the system after the door is opened. With this function as [NO], the area will disarm upon the strike activation.

2.1.7

Access Levels

Armed State Rights. Users can be prevented from access depending upon the armed state of the area that the interface module is assigned to. **M** indicates the user has access no matter what the armed state, **P** indicates the user has access as long as the area is perimeter armed or disarmed, and **D** indicates the user only has access when the area is completely disarmed.

Disarm Access Level. Users are allowed to disarm the area with an access identification. Care should be taken to ensure that the user first has the authority to activate the strike based on the Armed State. **P** indicates the user will disarm the area from Master to Perimeter Instant. **D** indicates the user will disarm the area from Master or Perimeter to the disarmed state.

Unlock Door. Provides an automatic free access at a specific time period. Requires a Lock Door Sked to return the door to normal. Can be overridden by manual control at the control center.

Secure Door. Provides an automatic prevention of access at a specific time period. Requires a Lock Door Sked to return to normal. Can be overridden by manual control at the control center.

Lock Door. Provides an automatic lock door state at a specific time to return the door to normal requiring valid cards or tokens to allow access.

Message Suppression. Provides an automatic message off or on function at a specific time for Door and Access Granted or No Entry messages.

Access Ctl Level On/Off. Provides an automatic on or off for each of the 14 levels dealing with the access control. Once a level is turned off, all doors are affected.

Diagnostics. Patterns of LED activation indicate door state and identification validity. Other indications include SDI failure.

2.2 Physical Overview

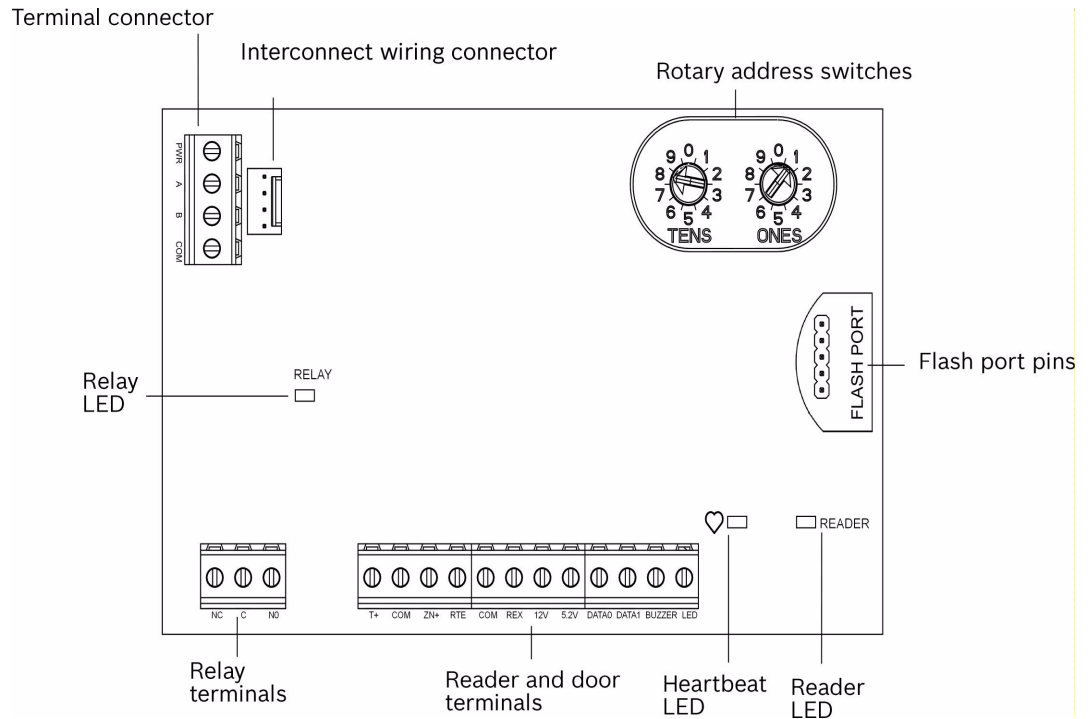


Figure 2.1 Board Layout

Component	Description
Terminal connector	RGBY wiring connector used to wire PWR, A, B and COM.
Relay LED	Illuminates when the onboard relay is active.
Relay terminals	Provides normally open (N/O) and normally closed (N/C) connections to the door strike.
Reader and Door terminals	Terminals used for wiring doors and readers to the D9210C.
Heartbeat LED	System status indicator light signifying whether the D9210C board is operational or not.
Reader LED	System status indicator light signifying whether the D9210C board is processing information.
Flash port pins	Used to install firmware to the D9210C using an Update Key.
Rotary Address switches	Two address switches which determine the address for the module's address.
Interconnect wiring connector	Parallel the PWR, A, B, and COM terminals on the terminal connector.

Table 2.1 Component callouts

LED	Action	State
Heartbeat, blue	LED blinks on and off.	System is operational.
	LED is solid on or off.	System is off or not operational.
Reader, yellow	LED is blinking rapidly.	Card data is executing.
	LED is off.	No card data is being received.

Table 2.2 Diagnostic and status LEDs

2.3 Basic features, displays, and reports

2.3.1 Basic features

- Highly reliable and simple to use.
- Provides direct interface to 26-bit Wiegand card readers.
- Onboard buzzer output.
- Card data LED indicator for card data when valid format is read.
- Operational LED which indicates the CPU is functioning and unit is powered.
- Onboard relay for switching 12/24 VDC/VAC power.
- Option to unlock or lock door upon SDI bus failure.
- Supervised Onboard point.
- Request to Exit and Request to Enter inputs that can have a shunt only option.
- Easily programmable entry and exit door strike and shunt control.
- Four door states: Locked, Unlocked, Secured, Fire Unlock.
- Disarm states using a token.
- Pre-warn for holding door open too long.
- Disarm system before or after a door opens.
- Automatic Unlock door on disarm, Locked Door when armed.
- Optional Deactivate strike when the door opened.
- Interlock point assignment to prevent access until interlock point is normal.
- 999 Cards or Tokens.
- Fourteen programmable levels of access authority.
- Users can be added or deleted remotely, locally and with Command Center.

2.3.2 Displays and reports

- Access Granted with user identification and user name.
- No Entry with user identification and door user name.
- Request to Enter with door point text.
- Request to Exit with door point text.
- Door Unlocked with door point text.
- Door Locked with door point text.
- Alarm Point ### with door point text.
- Trouble Point ### with door point text.
- Missing Point ### with door point text.
- Please Close Door with door point text.

2.4 Materials Included

Bosch Security Systems ships the interface module in its own enclosure, or as a unit less enclosure. You will receive the following parts with your package depending upon what model is ordered.

- 1 k Ω 1/2 watt end of line resistor.
- Literature Pack containing: Operation and Installation Guide, Program Entry Guide, Access Control Interface Module Program Record Sheet.
- Hardware pack containing: three #6x3/8 self-tapping sheet metal screws to secure the module on the mounting skirt or the enclosure.

2.5 Ordered Separately

The D9210C Door Controller can be used with the Bosch Security Systems D7412 control panels (supports 2 doors) or D9412 control panels (supports 8 doors). Control panels and associated keypads are ordered separately.

**NOTICE!**

Compatible readers are not shipped with the unit. See *Section Table 3.3 UL Listed Compatible Readers for the D9210C, page 19*

2.6 Listings and Approval Information

2.6.1 Underwriters Laboratories (UL)

The interface module, when used with D9412 control panels or D7412 control panels, is listed by UL for use as part of an access control system; local, police-connect, central station, or proprietary burglar alarm system; household burglar alarm system units; control units and accessories household system type; and a commercial fire alarm system. The interface module is a signaling device subassembly also suitable as a burglar alarm unit accessory sub-assembly, and access control unit sub-assembly.

**NOTICE!**

In addition to the manual, refer to the D9412/D7412 control panel installation documentation regarding burglar alarm grades and fire alarm services supported.

3 Installation

Thank you for choosing our product. We have made an effort to identify the key steps for installing the interface module. To ensure installation goes smoothly, follow the installation steps in the order presented.

3.1 System Planning

Before proceeding, Bosch recommends drawing the system layout on a sheet of graph paper. Also, review the architect and engineering drawings, if available. This will help in setting addresses, marking the units, and routing and tag wires. The drawing should include the control panel, the interface module, the trip switches for RTE/REX, doors, readers, control centers assigned to the same area as the interface modules, and the wiring run.

Have the following documents handy while reading through this manual:

- *Access Control Interface Module Program Entry Guide.*
- *Access Control Interface Module Program Record Sheet.*
- *Control/Communicator Program Entry Guide and Program Record Sheet.*
- *Security System Owner's Manual.*
- *Power Supply Installation Instructions.*

Also, become familiar with the operation of the Remote Programming System (RPS) or the D5200 programmer.

3.2 Procedure

3.2.1 Mounting the enclosure and installing the interface module

Enclosure Placement

- The maximum distance allowance between the interface module and Wiegand card readers is 500 feet (152 m).
- Using 22 AWG (0.8 mm) wire, the interface module may be remoted up to 2500 feet (762 m) away from the control panel; using 18 AWG (1.2 mm) wire, the interface module may be remoted up to 5000 feet (1524 m).
- Consider placing the enclosure where a technician can gain easy access for troubleshooting the unit and where wiring can be routed easily.

3.2.2 Pulling and Marking the Wires

Running wire.

- Use *Table 3.1 Typical Wire Planning Chart for the D9210C* to estimate the wire bundle size for your knockouts and where to mount the interface module.
- Tag your wire runs to prevent confusion during installation and troubleshooting. Section *Figure 3.1 Wiring Diagram for Typical D9210C installation* shows the wiring for a typical interface module installation.

Purpose	Suggested Wire Tag	Approximate Diameter	Recommended Wire Type	Recommended Color Code
Power/SDI data	Tag A	0.25 in (6.4 mm)	4/22 AWG quad(2500 ft/762 m) 4/18 AWG quad(5000 ft/1,524 m)	A: (Green)B: (Yellow) PWR: (Red and Black)
RTE power/ input*	Tag B	0.25 in (6.4 mm)	4/22 AWG quad	4/22 AWG quad
REX power/ input*	Tag C	0.25 in (6.4 mm)	4/22 AWG quad	Yellow/Black
Strike power*	Tag D	0.375 in (9.5 mm)	2/16-18 AWG zip	Red
Door contact*	Tag E	0.125 in (3.2 mm)	2/22 AWG(500 ft/152 m)	White
Reader*	Tag F	0.375 in (9.5 mm)	6/22 AWG conductor(500 ft/152 m)	12 VDC: Red5 VDC: Orange COM: BlackD1: WhiteD0: Green LED: BrownBuzzer: Yellow
Buzzer*	Tag G	0.125 in (3.2 mm)	2/22 AWG twist	+(Red), - (Blk)
Emergency Exit*	Tag I	0.125 in (3.2 mm)	2/18 AWG twist	Blue
Power Supply Transformer	Tag J	0.25 in (6.4 mm)	2/18 AWG zip	Brown
* Be sure to multiply the wires by the number of interface modules in the enclosure.				

Table 3.1 Typical Wire Planning Chart for the D9210C

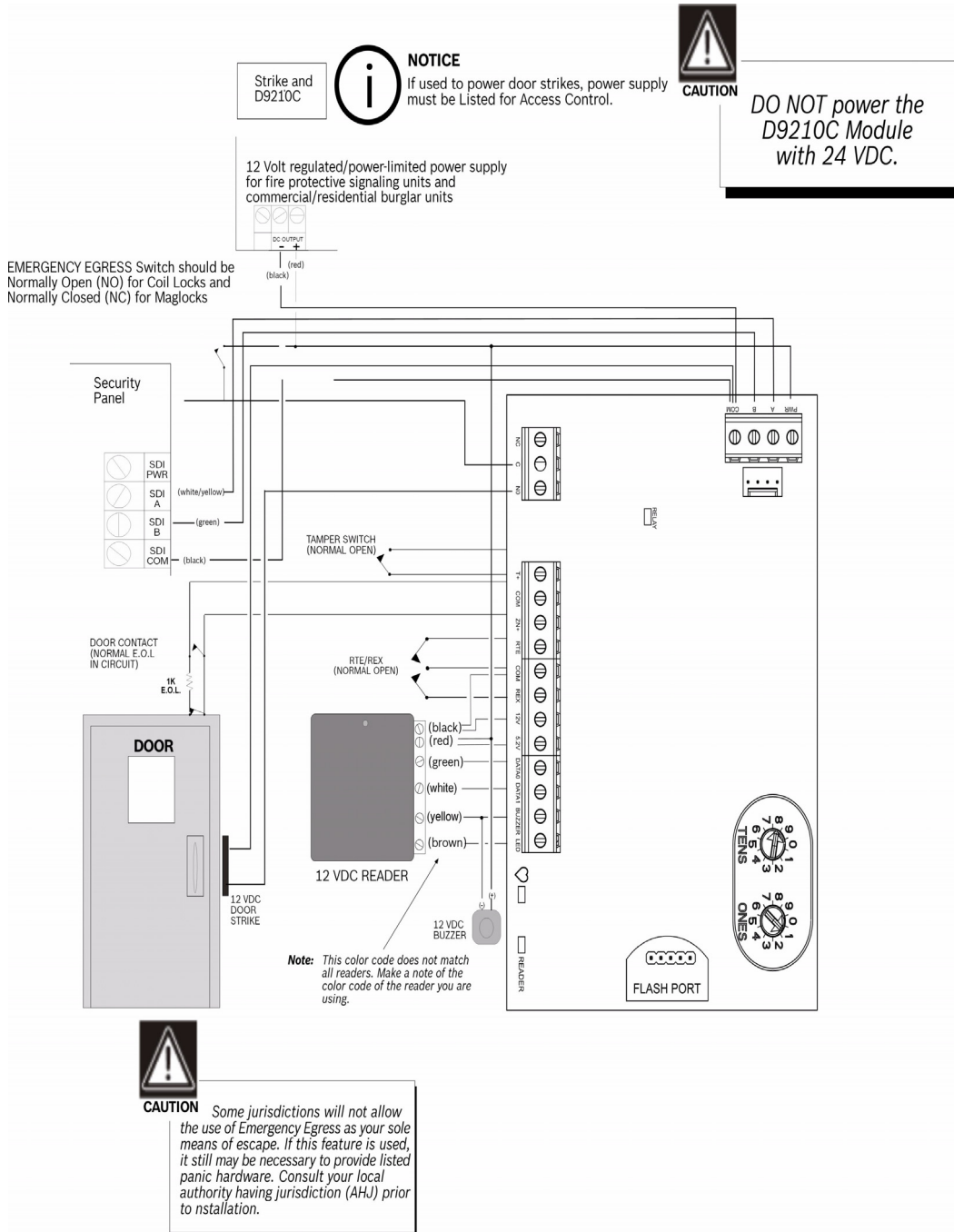


Figure 3.1 Wiring Diagram for Typical D9210C installation



NOTICE!

Do not install or replace an interface module while it is connected to live power circuits. The interface module should be powered down until it is ready to be tested.

3.2.3

Door Contact (Onboard) Point

ZN+, COM

Description. The interface module monitors the sensor loop for normal, shorted, or open conditions. This loop is provided for a door contact. The maximum distance the door contact may be remoted from the interface module is 500 feet. The door contact can be programmed as a perimeter, interior, or 24 hour burglar alarm point.

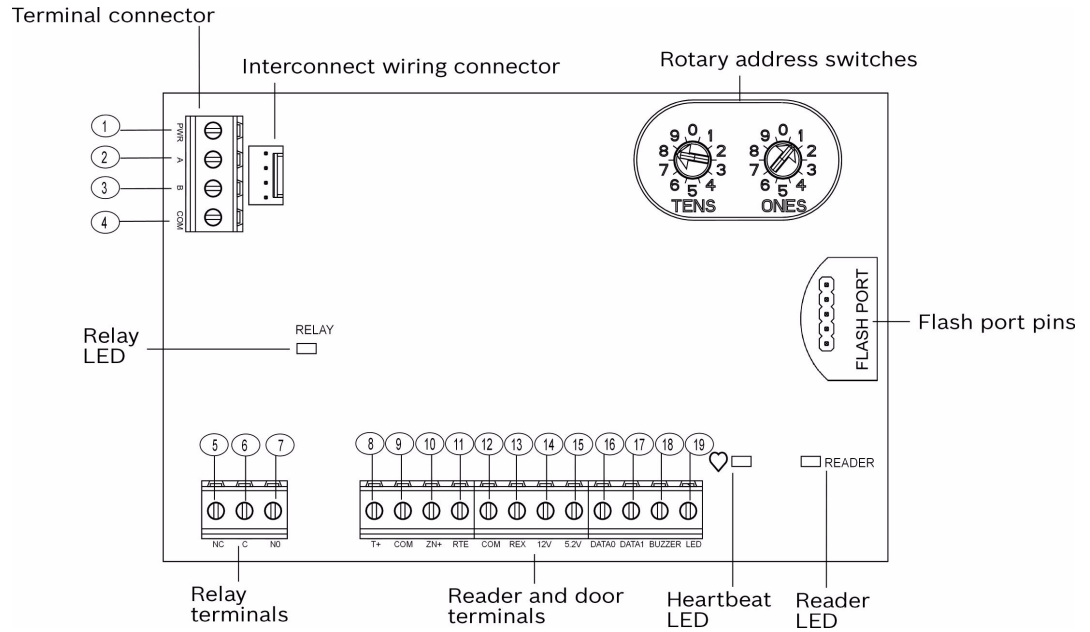


Figure 3.2 Terminal locations

Callout	Description	Callout	Description	Callout	Description
1	PWR	8	T+	15	5.2V
2	A	9	COM	16	DATA0
3	B	10	ZN+	17	DATA1
4	COM	11	RTE	18	BUZZER
5	NC	12	COM	19	LED
6	C	13	REX		
7	NO	14	12V		



NOTICE!

See the *D9210C Access Interface Module Program Entry Guide* for assigning a point to the door controller and the control panel *Program Entry Guide* for the point types.

Point Sensor Loop. Install a 1 kΩ resistor at the door contact, not at the terminal of the input. This will provide supervision against grounds on the loop. Connect only one contact, that being the door, to this input.

Point Tolerance. Section Table 3.2 *Point Tolerance Voltages*, page 17 shows the voltages that determine the condition of the on-board point. Use the point common as your (-) reference when measuring the point (+). Set your meter for 10 to 24 VDC range.

Voltage (VDC)	Description
0 - 1.2	Loop shorted
1.8	Coming from a shorted condition, the interface module restores the Door Point at 1.8 VDC
2.65	Normal loop voltage
4.0 - 5.0	Loop open
3.5	Coming from an open condition, the interface module restores the Door Point at 3.5 VDC

Table 3.2 Point Tolerance Voltages

3.2.4

Door Lock Terminals

NC, C, NO

Description

A relay provides a dry contact single pull double throw output. Some strikes require a closed circuit to unlock the door while others require an open circuit to unlock the door. The relay will support 12 VDC @ 2A or 24 VDC @ 2.5 A or 12/24 VAC @ 1A.

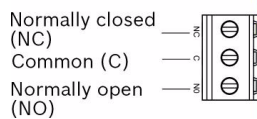


Figure 3.3 Terminal locations

Common (C). For 12/24 VDC strikes, provide the input power here from the power supply.

Normally Closed (NC). For door strikes that require an interruption of power to open, connect the positive side of the door strike to this terminal.

Normally Open (NO). For door strikes that require power to open, connect the positive side of the door strike to this terminal.

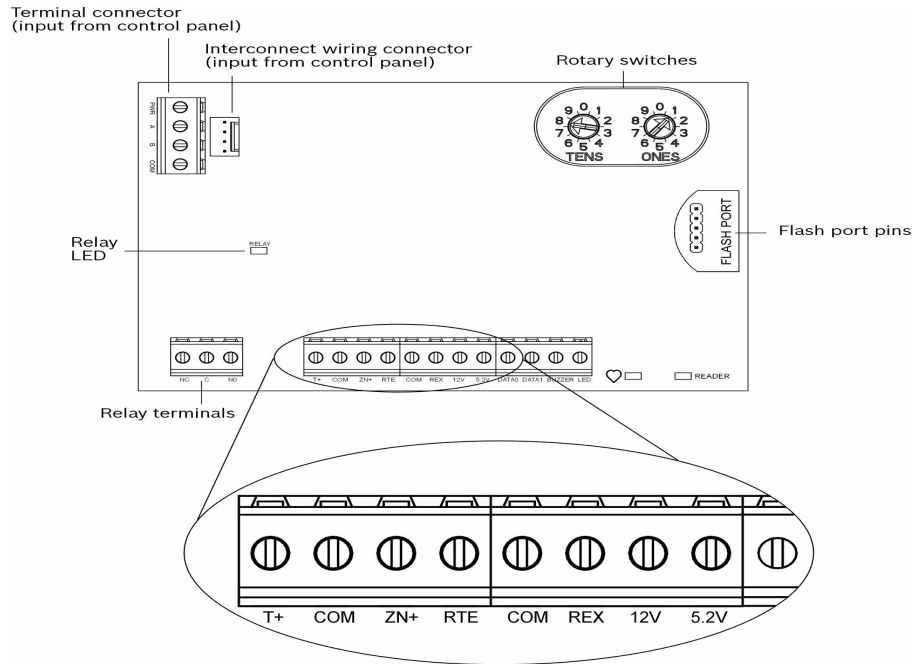


Figure 3.4 Terminal locations

3.2.5

Request to Enter [RTE]

COM, RTE

Description. When RTE is momentarily shorted to COM, the strike is activated and the door point is shunted.

Shunt Only. An option is provided that only shunts the point when this input is momentarily shorted. To activate the shunt, but not the strike, program RTE Shunt Only? as [YES].

3.2.6

Request to Exit [REX]

COM, REX

Description. When REX is momentarily shorted to COM, the strike is activated and the door point is shunted.

Shunt Only. An option is provided that only shunts the point when this input is momentarily shorted. To activate the shunt, but not the strike, program [REX] Shunt Only? as [YES].

NOTICE!



A Request to Exit Device (REX) must not be used for emergency exit applications. NFPA 101 requires that a UL listed panic device be used to provide direct power from the standby power source. Refer to *Section Figure 3.1 Wiring Diagram for Typical D9210C installation, page 15* for wiring an emergency exit device. Check with your local Authority Having Jurisdiction (AHJ) prior to installing your system.

3.2.7

Connecting the enclosure tamper switch

T+, COM

Description. A short to this loop will generate a Missing Trouble Point ### for the point number assigned to the interface module. With this tamper point faulted, the interface module will still function.

Connect an N/O tamper switch to T+ and COM. Upon opening the enclosure, the tamper switch will short the inputs and generate the Missing Trouble Point ### message.

**NOTICE!**

SDI FAILURE ### and MISSING PT ### are reported to the central station when the SDI bus has failed or the interface module is missing.

3.2.8**Connecting the card reader**

Description. These terminals provide connection for a standard 26-bit Wiegand reader.

Compatible Readers. Table 3.3, Page 19 specifies the UL listed Wiegand readers and associated tokens that are compatible with the interface module. Bosch Security Systems guarantees only these readers will function properly and only the readers noted below can be used in UL certified systems.

Model	Power	Description	Tokens	Cards	Format
ARD-AYH12	35 mA (5-16 VDC)	RFID Proximity Reader		Proximity read-only	
ARD-AYJ12	35 mA (5-16 VDC)	RFID Proximity Reader		Proximity read-only	
ARD-AYK12	35 mA (5-16 VDC)	RFID Proximity Reader		Proximity read-only	
ARD-AYQ12	35 mA (5-16 VDC)	RFID Proximity Reader		Proximity read-only	
ARD-AYCE65B	92 mA @ 12 VDC (5-16 VDC)	RFID with keypad		Proximity read-only	
ARD-R10	10 to 16 VDC	iCLASS/MIFARE Reader		iCLASS/iCLASS TAG proximity cards, or key fob	32-bit
ARD-R40	80 mA/medium 260 mA peak at 12 VDC (10 to 16 VDC)	HID iClass Wall Mount		iCLASS/iCLASS TAG proximity cards, or key fob	32-bit
D8223*	+12 @ 175 mA	Proximity, Gray	N/A	D8236 proximity cards	26-bit
D8224	+5 @ 80 mA	Proximity, slim, Gray	N/A	D8236 proximity cards	26-bit
D8224-SP	30 mA (5 to 16 VDC)	Low profile Proximity Card Reader	D8236KF-10 Wiegand Proximity Token	D8236-10 proximity cards	26-bit
D8225	5 to 16 VDC	HID Prox Mini Mullion	D8236KF-10 Wiegand Proximity Token	D8236-10 proximity card	26-bit
D8229	+5 @ 120 mA	Keypad reader	N/A	N/A	26-bit
¹ D8201/ 8201W	85 mA maximum (12 VDC nominal)	Low profile reader	D8238 Wiegand Proximity Token	D8239/D8239W Wiegand Proximity Card	
¹ D8203/ D8203W	40 mA maximum (12 VDC nominal)	Mullion Proximity reader	D8238 Wiegand Proximity Token	D8239/D8239W Wiegand Proximity Card	
¹ D8227	35 mA maximum (5 VDC)	Insert card reader		D8230-25 Wiegand Magstripe Card	
¹ D8221	40 mA typical (5 VDC to 12 VDC)	Swipe card reader		D8231-10 Wiegand Swipe Card	

* 12 VDC power from interface module source.

¹ The following items have been discontinued.

Table 3.3 UL Listed Compatible Readers for the D9210C

Readers can be mounted up to 500 ft. (152 m) from the interface module. A typical reader connection is shown in the illustration below.

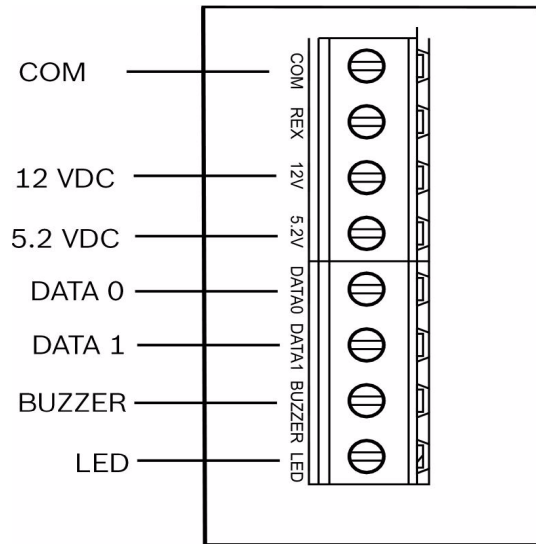


Figure 3.5 D9210C Terminal

Terminal	Description
COM	The black wire provides the common for the reader. (Use this terminal when comparing other reader voltages.)
12 VDC	The red wire is used to provide 12 VDC readers with power. Current is limited only by the source providing the power.
5.2 VDC	The orange wire is used to provide 5 VDC readers with power.
DATA 0	The green wire is the carrier of binary one (1) pulses from the reader.
DATA 1	The white wire is the carrier of binary zero (0) pulses from the reader.
BUZZER	The yellow wire is the common for the reader buzzer or external buzzer.
LED	The brown wire is the common for the reader LED.



NOTICE!

LED Terminal can be used for the reader buzzer or common for the external buzzer.

3.2.9

Setting the rotary switches and tagging the unit

The D9412GV4/D9412GV3/D9412GV2/D9412G/D9412 control panels support up to eight door controllers. The D7412GV4/D7412GV3/D7412GV2/D7412G/D7412 control panel supports up to two door controllers. Each interface module uses one of eight addresses. Addresses cannot be duplicated. Because the interface module is always supervised, two interface modules having the same address will not function correctly.

Fill out the *Program Record Sheet* pages (included in the *Program Entry Guide*). Be sure the program record for this door controller contains the area assignment, address assignment and control center assignment.



NOTICE!

Whenever possible, be consistent when numbering doors, control centers, and areas. This will help when programming a system with more than one door. For example, assign Door 1 to Area 1 and Control Center 1.

The interface module rotary switches provide a TENS and ONES setting for the module’s address. Set the address by setting the rotary switches based on *Section Table 3.4 D9210C Rotary Switches, page 21. Section Figure 3.6 D9210C Rotary Switches, page 21* shows the rotary switches settings for address 81.

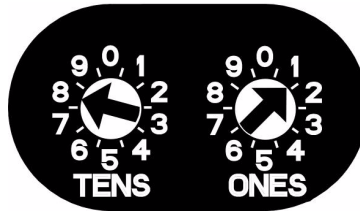


Figure 3.6 D9210C Rotary Switches

Serial Device

Fail mode	Central Station Modem IIIa ²	TENS	ONES	Control Center Display
UNLOCKED	SDI #33	8	1	D9210 #1
UNLOCKED	SDI #34	8	2	D9210 #2
UNLOCKED	SDI #35	8	3	D9210 #3
UNLOCKED	SDI #36	8	4	D9210 #4
UNLOCKED	SDI #37	8	5	D9210 #5
UNLOCKED	SDI #38	8	6	D9210 #6
UNLOCKED	SDI #39	8	7	D9210 #7
UNLOCKED	SDI #40	8	8	D9210 #8
LOCKED	SDI #33	9	1	D9210 #1
LOCKED	SDI #34	9	2	D9210 #2
LOCKED	SDI #35	9	3	D9210 #3
LOCKED	SDI #36	9	4	D9210 #4
LOCKED	SDI #37	9	5	D9210 #5
LOCKED	SDI #38	9	6	D9210 #6
LOCKED	SDI #39	9	7	D9210 #7
LOCKED	SDI #40	9	8	D9210 #8

Table 3.4 D9210C Rotary Switches

3.2.10

Connecting Power and SDI



CAUTION!

Do not connect 24 VDC or non-isolated [from the strike] 12/24 VAC of the interface module.

Refer to *Section Figure 3.7 Power Supply and SDI Connections, page 23* for the following connections:

SDI Connection

PWR. Connect the red wire to the SDI terminal. The red wire provides power to the interface module and buzzers.

A PANEL DATA. Connect the yellow wire to the SDI terminal. The yellow conductor from the control panel connected to this terminal.

B PANEL DATA IN. Connect the green wire to the SDI terminal. The green conductor from the control panel is connected to this terminal.

COM (Common). Connect the black wire to the SDI terminal. The black conductor provides electrical common between the interface module and the power source.



NOTICE!

Always ensure a common terminal connection exists from the interface module to the control panel so the power supply and control panel have the same ground reference. Use any common terminal on the interface module silk screen for connections.

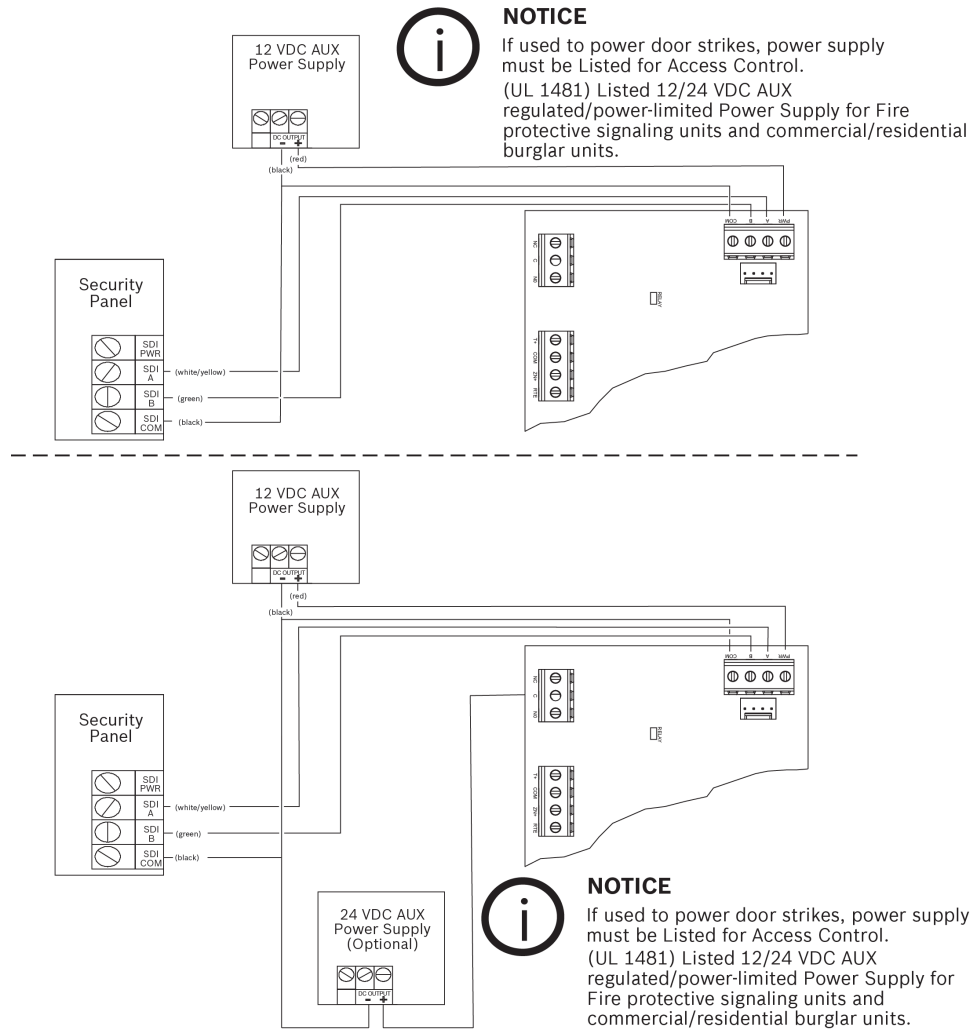


Figure 3.7 Power Supply and SDI Connections



NOTICE!

It is very important to include the strike current. Bosch Security Systems recommends use of an auxiliary power supply to isolate door controls and ensure the integrity of the system.

3.2.11

Programming and activating the interface module

Description. The interface module needs to be assigned to an area before it can communicate properly with the control panel. In addition, the address settings and the power need to be connected.

The rotary settings in *Section Table 3.4 D9210C Rotary Switches, page 21* determine the address of the interface module. At the top of the ACCESS Control Interface Module Program Record Sheet, the address number noted next to the rotary settings in *Section Figure 3.6 D9210C Rotary Switches, page 21* will determine which parameters for the door controller are sent.

To activate the interface module, follow the instructions in the Program Entry Guide. Use the ACCESS Program Record Sheet to match the door to the proper address and to ensure that the door is assigned to the proper area.

3.2.12 Testing the interface module

Description. The interface module comes shipped with a default program that allows a quick test run upon installing the unit. Go through the following items to verify the interface module is functioning properly. If problems arise, refer to *Section 5 Troubleshooting, page 26*

Interface Module. Verify that the Heartbeat LED is pulsing approximately once every second. This indicates the microprocessor is running. Go to the Unlock Door function. A number from 1 to 8 should appear for the door controller. If an F appears, the unit has failed or is not responding correctly to the control panel's polls.

Zone. Using the keypad, verify the point is normal when the door is closed, the point goes off normal when the door is opened and a shunt is not applied, and that the point stays normal upon opening the door on a valid access granted.

Strike. Read a valid token to activate the strike. If tokens have not been added, use the Door Control, Door Unlock mode to cycle the strike. In addition, you will cycle the strike when you test the [RTE/REX] inputs (if shunt only is not programmed [YES]).

RTE/REX. Fault these inputs to activate the strike. The default for the strike time is 10 seconds. Test each separately.

Buzzer. The buzzer should have sounded on each strike activation. Also hold the door open past the normal shunt time and ensure the Extend Buzz functions.

Reader. Depending on the reader, the reader LED will be red upon powering up the interface module. During the above tests, it will turn green anytime the strike is activated. To verify the reader, check that the Reader LED blinks rapidly while a card is passed through the reader or a token is held up to the proximity reader. Review the instructions that come with the specific reader for more information on operational use.



NOTICE!

For other LED functionality, refer to *Section 5 Troubleshooting, page 26*.

4 Operation

4.1 Door Release Application

The interface module can be used for door release functions. When used in this configuration, the strike relay contacts must be supervised. This can be accomplished with the use of an end-of-line relay commonly used for smoke detectors. Connecting the interface module for this application is shown in the illustration below.

Program Point Index in the POINTS handler as Supervisory with Point Response as [A] Supervisory on Open and Trouble on Short.

The power supply, end-of-line relay, and the interface module must be in the same enclosure or adjacent enclosures connected via conduit not longer than 20 feet (6 m).

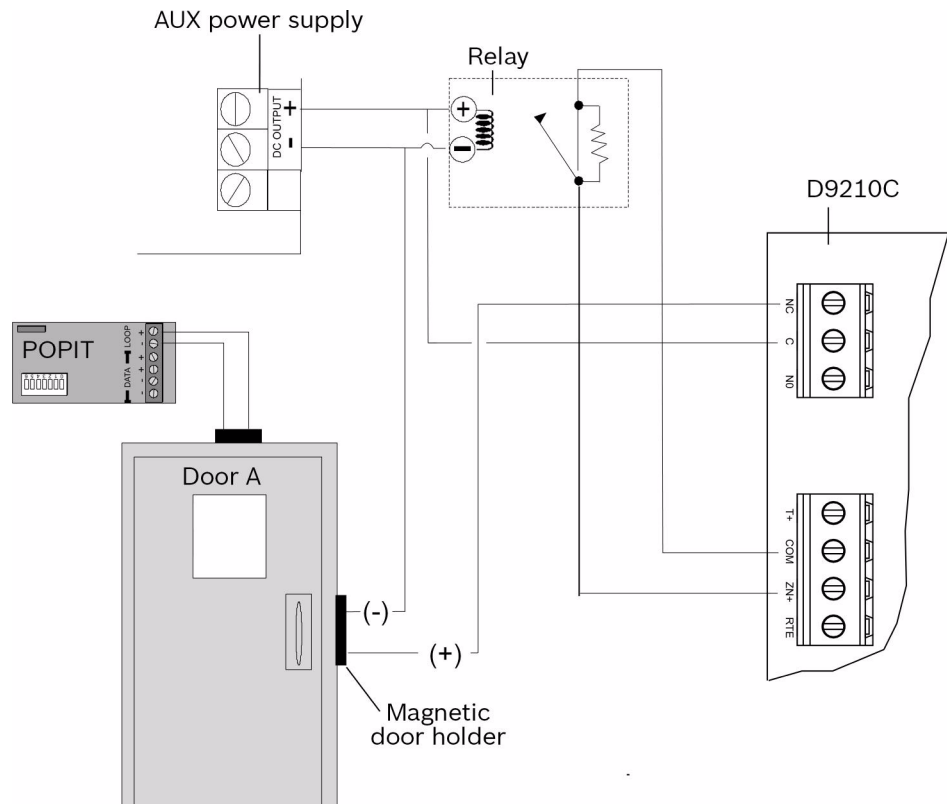


Figure 4.1 D9210C Door Release Application Connections



NOTICE!

When using the interface module for the Door Release, you must use the D8004 Transformer Enclosure for the power supply.

5 Troubleshooting

5.1 LED on Reader

Use the LED Troubleshooting Guide and the LED on the reader patterns to troubleshoot the interface module. It is important to use the Door Control function to validate actual door states when troubleshooting.

Reader Action	If Reader LED is	then Door State is	so LED will toggle
Idle reader LED			
	Red	Locked	
	Red	Secured	
	Green	Unlocked	
	Continuous Red/ Green	Locked on Fail (Rotary address switch optional)Unlocked on Fail (Rotary address switch optional)	SDI disconnected, D9210C is not programmed with an area, D9210C faulty.
Access Granted			
	Red: Valid token to activate strike.	Locked	Red to Green for duration of strike time.
	Green: Valid token will not activate strike because strike is latched to allow access.	Unlocked	Green to Red to Green
Access Denied			
	Red: Valid token format not added.	Locked	Red to Green to Red (pattern repeats twice)
	Red: Valid token but level is turned off.	Locked	Red to Green to Red (pattern repeats twice)
	Red: No access allowed regardless of level because door is secured.	Secured	Red to Green to Red (pattern repeats three times)
Custom Function			
	Red: Valid token will run.	Locked/Secured	Red to 1 second Green to Red
	Green: Valid token will run.	Unlocked	Green to 1 second Red to Green
Adding IDs			
	Red: Adding new token	Learn Mode while door is secured or locked.	Red to 2 second Green back to Red
	Red: Changing token that exists.	Learn Mode while door is secured or locked.	Red to Green to Red to Green to Red

Reader Action	If Reader LED is	then Door State is	so LED will toggle
	Green: Changing token that exists.	Learn Mode while door is unlocked.	Green to 1 second Red to Green
	Green: Adding new token	Learn Mode while door is unlocked.	Green to 2 second Red to Green

Table 5.1 LED Troubleshooting Guide

A Appendices

A.1 D9210C Terminal Quick Reference and Electrical Specifications

#	Terminal	Description	Electrical Specifications
1	PWR	12 VDC power input	8.5 - 13.8V [depending on reader draw: 110 mA (board) + 150 mA (reader max) = 260 mA]
2	A	Data from the control panel to the D9210C	High impedance bi-directional differential bus
3	B	Data back to the control panel from the D9210C	RS-485 @ 9600 baud
4	COM	Common for connection to SDI COM on control panel and common on power supply	
5	NC	Continuity with LCK COM when relay is off	12/24 V @ 2.0 A max (30 VDC max)
6	C	Input to feed LCK N/C (T2) and Lock N/O (T3)	
7	NO	Continuity with LCK COM when relay is on.	12/24 V @ 2.0 A max (30 VDC max)
8	T+	Positive input for Tamper, normally open	Input 1 k Ω pull upV in < 1.8 V on > 3.2 V off
9	COM	Common for on-board point and tamper inputs	1K Ω termination resistor between T9 and T10 required
10	ZN+	Positive Input for on-board point (zone)	
11	RTE	Input from Request to Enter (RTE) momentary short device	Input 1k Ω pull upV in < 1.8 V on > 3.2 V off
12	COM	Common input for REX/RTE devices	
13	REX	Input from Request to Exit (REX) momentary short device	Input 1 k Ω pull upV in < 1.8 V on > 3.2 V off
14	12 VDC	Power for 12V reader	8.5-13.8V
15	+5.2VDC	Power out to 5.2 VDC card reader	V out 5 V+/_ .25 V for 20 - 140 mA load150 mA maximum continuous
16	DATA 0	Data 0 input from card reader	High impedance inputs with 47k Ω pull up to +5.2 VDC
17	DATA 1	Data 1 input from card reader	High impedance inputs with 47k Ω pull up to +5.2 VDC
18	BUZZER	Buzzer common upon strike activation	Sink up to 35 mA from 5 - 14 VDC sourceOutput impedance is 100 Ω
19	LED	LED common upon card read response and strike activation	Sink up to 35 mA from 5 - 14 VDC sourceOutput impedance is 180 Ω

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