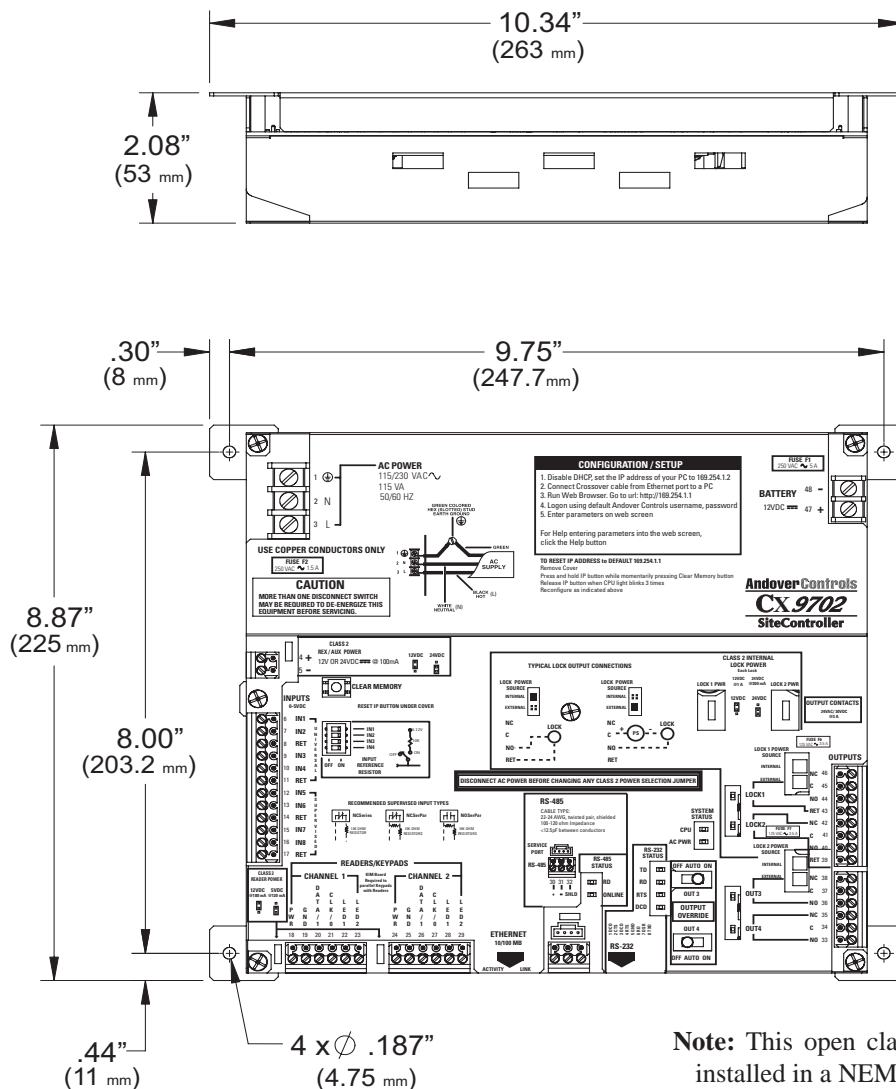# Andover Continuum

CX9702 SiteController

Controller Installation

To install the controller, follow these steps:

1. Mount the controller in an enclosure or to a panel using screws. (See the "Physical Dimensions and Mounting" section of this document.)

NOTE: Read the "Wiring Rules" section of this document before performing the next steps. Do not apply power to the controller until all connections are secured.

2. Connect the AC power supply connector of the controller to a standard 115V three-prong power cord.

3. Locate the REX/AUX power connector and jumpers. Configure the jumper to indicate either 12 or 24 VDC. (See the "Power Connections" section of this document for jumper settings.)

4. Locate the battery connector block and connect the battery to the corresponding terminals. (See the "Power Connections" section of this document.)

5. Connect the Ethernet and Communication Port connections based on your requirements. (See the "Ethernet and Comm Port Connections" section of this document.)

6. Connect the Universal Inputs, Card Reader/Keypad, and Form C Digital Output connections based on your requirements. (See the corresponding sections of this document.)

7. Apply power to the CX9702 controller.

8. Configure the controller using the controller's embedded WebServer pages and CyberStation online help topics.

Schneider Electric

Physical Dimensions and Mounting

10.34"
(263 mm)

2.08"
(53 mm)

.30"
(8 mm)

9.75"
(247.7mm)

8.87"
(225 mm)

8.00"
(203.2 mm)

.44"
(11 mm)

4 x ⌀ .187"
(4.75 mm)

Note: This open class product must be installed in a NEMA Type 1 enclosure.

Wiring Rules

These modules are intended for installation within the enclosure of another product with a minimum NEMA 1 rating or IP10 equivalent.

For reliable input operation, follow these input wiring guidelines:
- Never lay wires across the surface of a printed circuit board.
- Wires should never be within 1" or 25 mm of any component on a printed circuit board.
- Use shielded input wire.
- Terminate the shield of the input wires at one end of the run only — preferably at the end where your I/O module is located.
- When stripping wire, be careful not to drop small pieces of wire inside the cabinet.
- Don't run your input wiring in the same conduit with AC power.
- Don't run your input wiring in the same conduit with your output wiring.

Grounding the Controller

To insure proper operation of the controller, it must be connected to a good Earth ground. The connection must be made as close to the module as possible.

Inspecting the Ground

Be sure to have your grounds inspected before you begin the installation process.
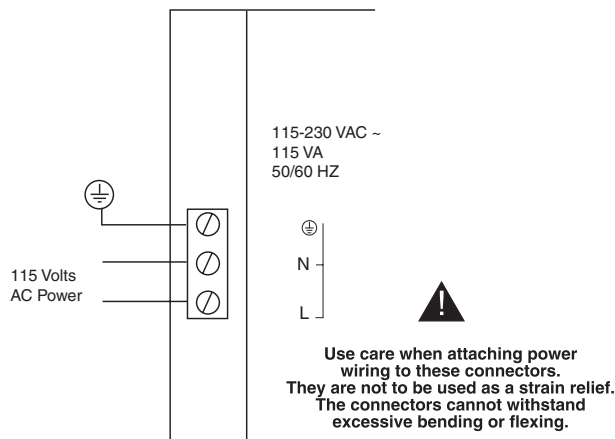
Check your grounds as follows:

Inspect the building power distribution panel for Earth-ground termination. If the ground termination is any of the following, it is not adequate and must be corrected:
- Does not exist
- Is connected to a corroded or galvanized pipe
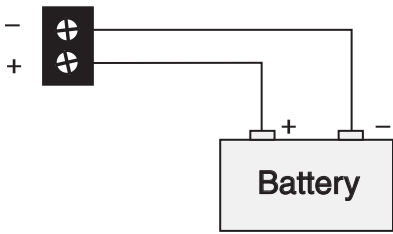- Is connected using a small gauge wire (less than 14 AWG).

Be sure your Andover Continuum cabinet is connected to the ground with a copper conductor that terminates at the distribution panel.
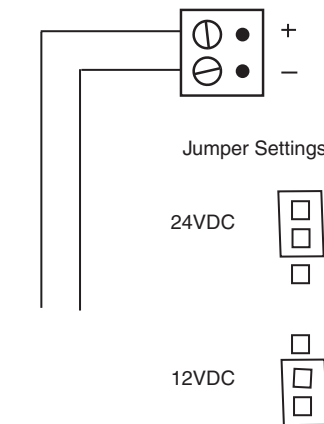
Power Connections

AC Power Supply Connections

115-230 VAC ~
115 VA
50/60 HZ

N

L

115 Volts
AC Power

**Use care when attaching power
wiring to these connectors.
They are not to be used as a strain relief.
The connectors cannot withstand
excessive bending or flexing.**

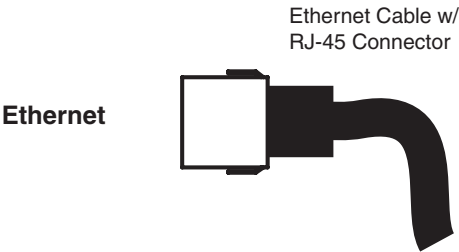## Battery Back-Up Connection

−

+

+   −

Battery

Note: Schneider Electric Battery part number:
01-2100-423 (12V/7.0 AHr lead-acid battery)
Back-up duration expandable by use of
greater amp-hour batteries.

REX/AUX Power Connection

Jumper selectable 12V or 24V DC @ 100mA

+

−

Jumper Settings

24VDC

12VDC
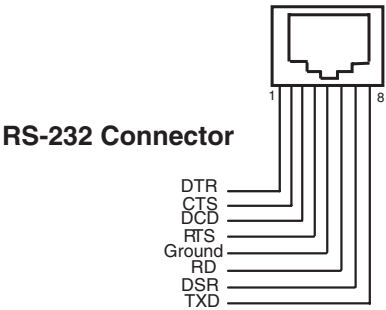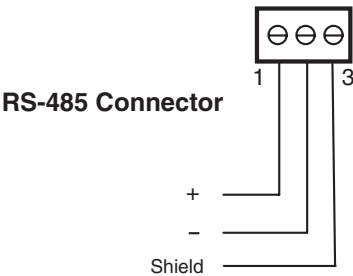
Ethernet and Comm Port Connections

Ethernet Cable w/
RJ-45 Connector

Ethernet

Service Port

RS-485 4-pin connector

For use with the RoamIO$_2$

RS-485 Connector

1   3

+

−

Shield

RS-232 Connector

1   8

DTR
CTS
DCD
RTS
Ground
RD
DSR
TXD

Universal Input Connections

Each universal input connector contains four inputs as illustrated below. Each input can be operated as a supervised or general purpose Universal Input. You can assign any input to any door or reader for any function, including: Door Switch input, Request to Exit (REX), Alternate Door Access (ADA) REX Input, Bond Sensor input, and ADA Entry Request input.
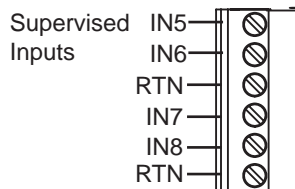
Universal Inputs
IN1
IN2
RTN
IN3
IN4
RTN
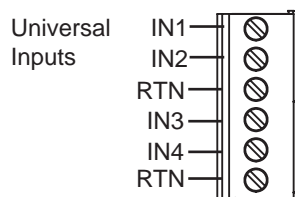
NOTE:
DIP Switches allow you to select whether or not you want a pull-up resistor in the circuit. Default is set to "ON" for general use. To utilize one of these inputs as a supervised input, the DIP switch must be set to the "ON" Position.
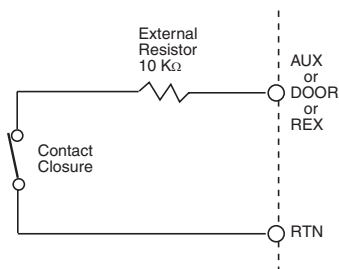
ON
1
2
3
4
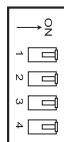
Supervised Input Connections

Four supervised inputs can be used for closure contacts such as relays or switches. They provide connection of conventional normally open or normally closed contacts to the CX9702 SiteController. One or more 10K Ohm resistors must be placed across the input as shown below.

Supervised Inputs
IN5
IN6
RTN
IN7
IN8
RTN

Supervised Input Connection Wiring

Normally Closed (NC) Series

External Resistor 10 KΩ

AUX or DOOR or REX

Contact Closure

RTN

Normally Closed (NC) Series Parallel

External Resistors 10 KΩ

AUX or DOOR or REX

Contact Closure

RTN
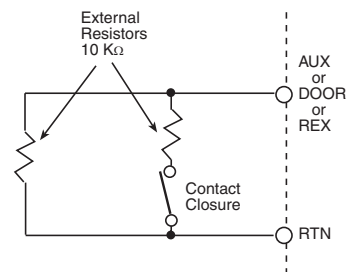
Normally Open (NO) Series Parallel

External Resistors 10 KΩ

AUX or DOOR or REX

Contact Closure

RTN
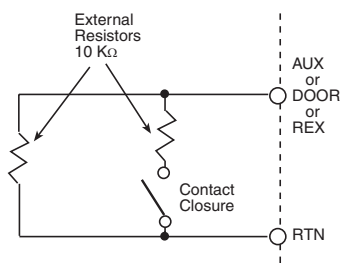
Card Reader/Keypad Connections

Each card reader/keypad connector contains an input as illustrated below. Each reader input can be connected to a card reader, dedicated keypad, or a reader/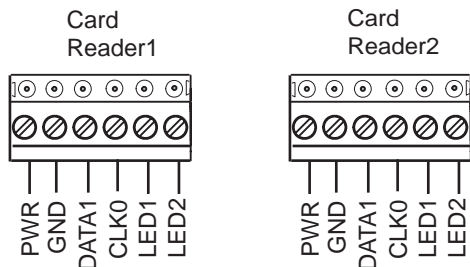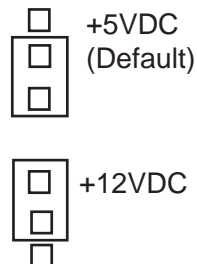keypad combination. A Keyboard Interface Module (KIM) is required to connect separate reader and keypad devices on the same reader input. Card reader voltage (+5 VDC or +12 VDC) is jumper selectable. The jumpers are located to the left of the card reader connectors on the main board.

Card Reader/
Keypad Inputs

Card Reader Voltage
Jumper Settings
(Single Pin)

Card
Reader1

Card
Reader2

PWR GND DATA1 CLK0 LED1 LED2

PWR GND DATA1 CLK0 LED1 LED2

+5VDC
(Default)

+12VDC

NOTE: Disconnect AC power before changing any Class 2 Selection Jumper.

Connecting a Single Card Reader

PWR (+5 VDC or +12 VDC
Set by Voltage Jumper)

GND

Weigand
Reader
or
Reader with Keypad

PWR
GND
DATA I
DATA 0
LED1
LED2

DATA / I

CLK / 0

LED1

LED2
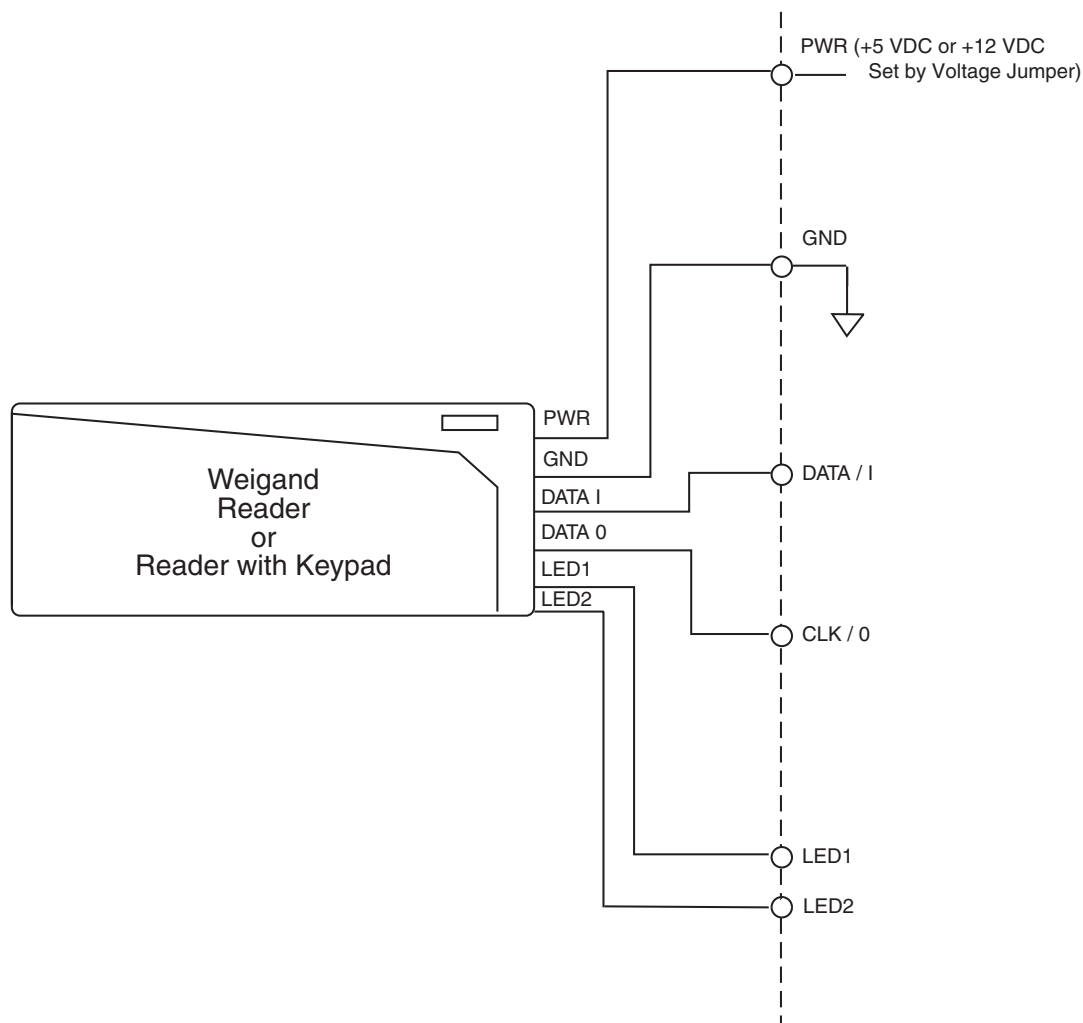
Connecting Two Readers or a Keypad and a Reader

With the addition of the Keypad Interface Module (KIM), the controller can interface to both a keypad and a reader simultaneously. This assumes that they are both Wiegand devices of similar voltage range. The KIM module presents the CX9702 SiteController with one pair of signals.

CX9702
SiteController

PWR
(Set by
Voltage
Jumper)

GND

Wiegand Reader
or
Reader with Keypad
or Keypad only

PWR
GND
LED
DATA 1
DATA 0

LED

Keypad Interface Module

P3
DATA / I
DATA / 0

P1
DATA / I
CLK / 0

P2
DATA / I
DATA / 0

DATA / I
CLK / 0

Wiegand Reader
or
Reader with Keypad
or Keypad only

DATA 1
DATA 0
LED
GND
PWR
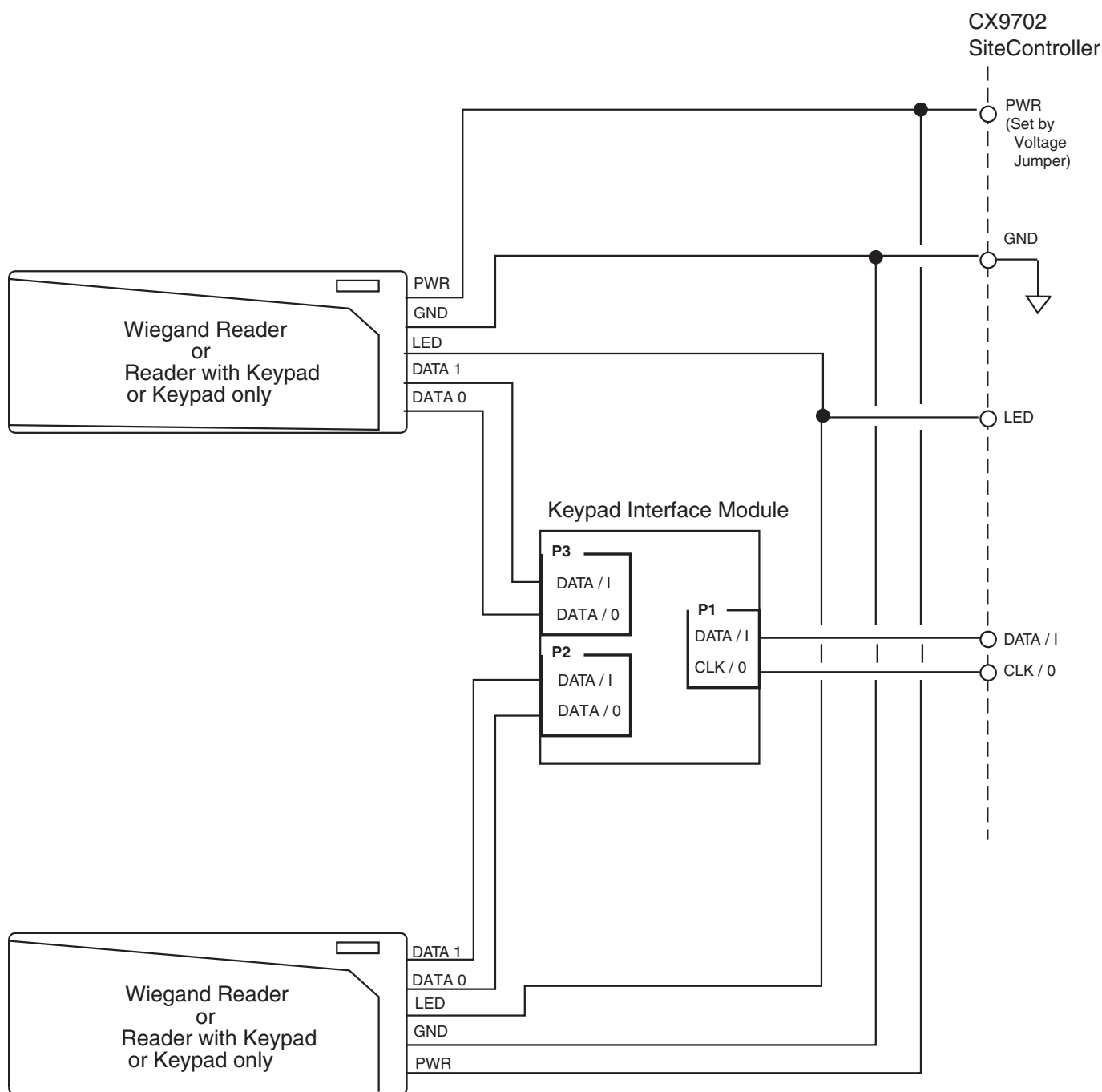
Door Lock Power Connections

The two door lock output connections on the CX9702 SiteController can be supplied power internally from the controller or externally from a separate power supply. Power sourcing is jumper selectable. Jumpers are located to the left of each lock output connection.

TYPICAL LOCK OUTPUT CONNECTIONS

CLASS 2 INTERNAL LOCK POWER
Each Lock

LOCK POWER SOURCE
INTERNAL
EXTERNAL

NC
C
NO
RET
LOCK

LOCK POWER SOURCE
INTERNAL
EXTERNAL

NC
C
NO
RET
+ PS - LOCK

LOCK 1 PWR   12VDC @1 A   24VDC @300 mA   LOCK 2 PWR

12VDC   24VDC
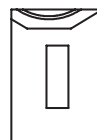
Note: If used, the voltage of internally supplied power is indicated by a jumper selection, as shown above.

Door Lock/Form C Digital Output Connections

The CX9702 SiteController includes four Form C single-pole double-throw relay outputs, two of which are commonly used for door lock outputs. Form C relays contain both a normally open (NO) and a normally closed (NC) output. These output contacts operate as a standard relay, as described in the "Relay Operation" text box. The illustration below is a simplified schematic of each output channel.

OUTx NC

OUTx COM

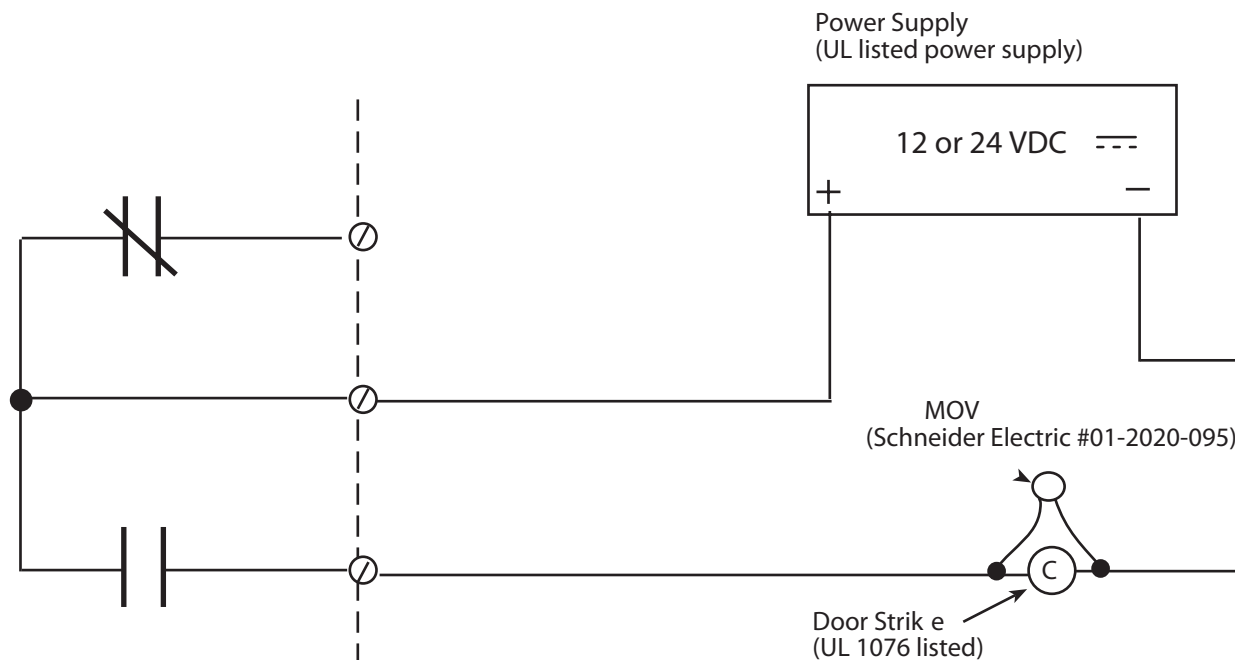OUTx NO
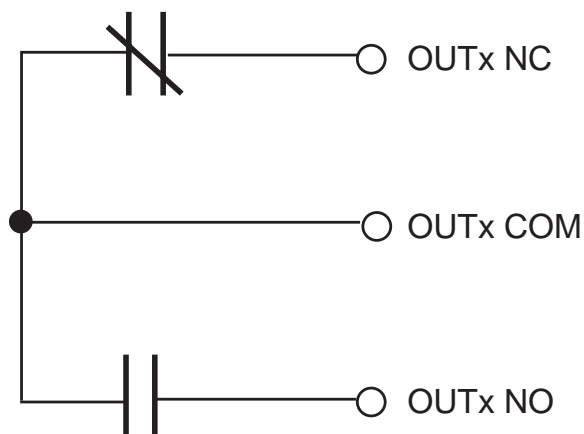
Relay Operation:
When the output is set to ON:
• NO contacts close
• NC contacts open

Wiring Door Outputs (NO Circuit)

The illustration below represents a typical door output installation when the circuit is normally open (NO). The figure shows a normally de-energized lock (when secured) in a fail secure mode. Always be sure to use "panic" hardware that allows emergency exit from the secured area. Note the location of the metal oxide varistor (MOV) and the Door Strike electric locking mechanism.

Power Supply
(UL listed power supply)

12 or 24 VDC

MOV
(Schneider Electric #01-2020-095)

Door Strik e
(UL 1076 listed)

Wiring Door Outputs (NC Circuit)

The illustration below represents a typical door output installation when the circuit is normally closed (NC). The figure shows a normally de-energized lock (when secured) in a fail safe mode. If a power loss occurs, the lock opens. Note the location of the metal oxide varistor (MOV) and the electromagnetic door lock.

MOV
(Schneider Electric #01-2020-095)

Electromagnetic Door Lock
(UL 1076 listed)

12 or 24 VDC
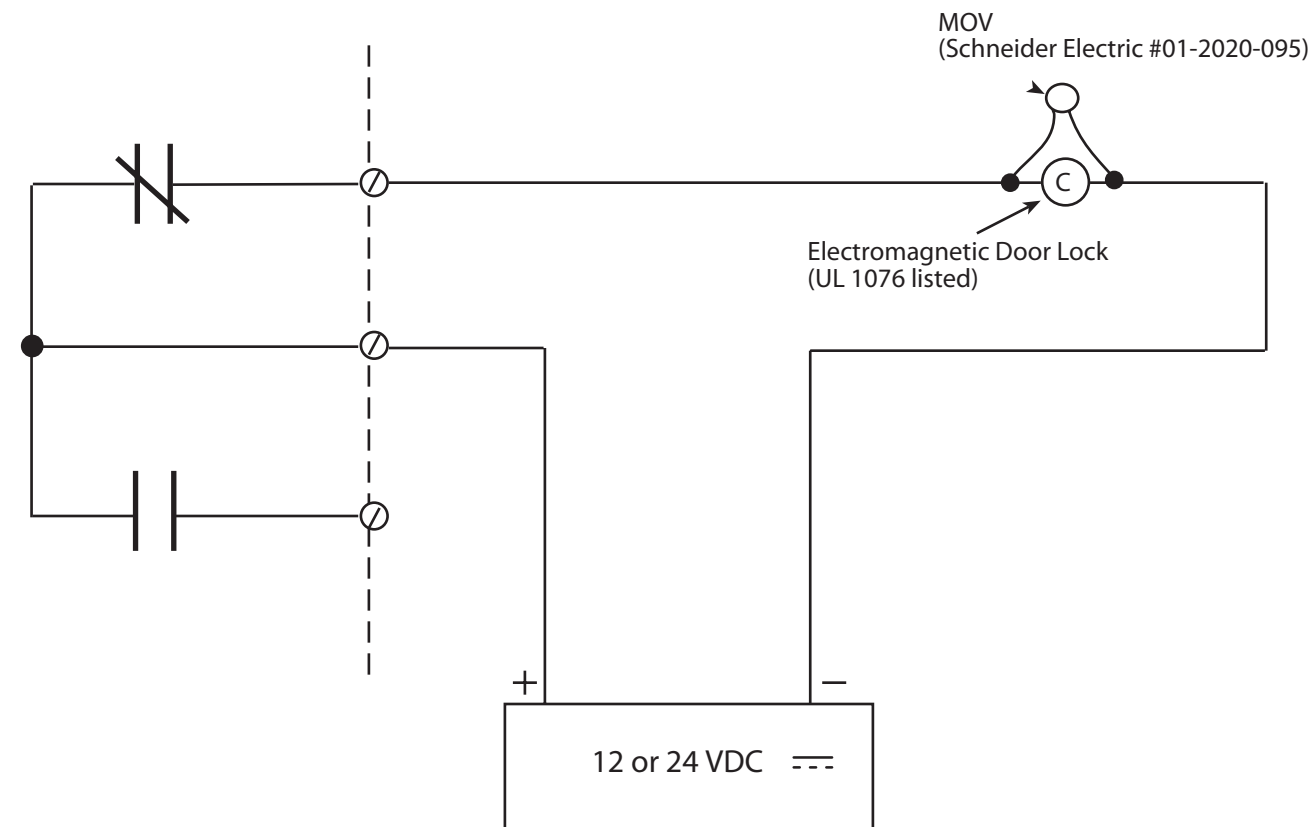
Configuring the SiteController

(**NOTE**: Check with your system administrator for assistance.)

1. Disable the DHCP Services on your PC.

2. Disconnect your computer from the network and set your IP address to 169.254.1.2 and your subnet mask to 255.255.0.0.

3. Using a CAT5 cable (straight-through or crossover), connect the PC Ethernet port to the SiteController Ethernet port.

4. Run your web browser, then go to URL: http://169.254.1.1 to display the Andover Continuum Embedded WebServer page in the SiteController.

5. Select **Controller Configuration** from the WebServer page.

6. Log on using the default Andover Continuum user name and password.

7. Enter relevant configuration parameters on the WebServer Configuration web pages.

8. After entering the parameters, click the **Commit Changes/Restart Controller** button on the WebServer page. (Restore the PC, and connect the SiteController to the network when it reboots.)

For more information, please see the online help topics in the controller's embedded web pages or refer to SiteController cover.

Specifications

Dimensions
Open Class: 8.9"H x 10.3"W x 2.1"D (225H x 262W x 53D) mm
Small Enclosure: 14"H x 15"W x 3.25"D (356H x 381W x 82D) mm
Medium Enclosure: 16"H x 22"W x 3.25"D (406H x 559W x 82D) mm

Weight
Open Class: 2.0 lbs (.96 kg)
Small Enclosure: 11.0 lbs (6.09 kg)
Medium Enclosure: 16.0 lbs (8.35 kg)

Enclosure Type
Open class; small or medium-size locked NEMA 1 enclosure with tamper switch available

Operating Environment
Temperature: 32º to 120º F (0º to 49º C)
Humidity: 10 to 95% RH, non-condensing

Power
115/230VAC, 50/60 Hz, 115VA consumption

Peripheral Power
30W, 5V/12V/24V (included in consumption total), for readers and locks

Overload Protection
Fused with 1.5A 3AG fuse, 1500 volt transformer isolation. MOV protected.

Real Time Clock
Battery-backed by UPS

Battery Backup Operation
Full Operation for 1 hour (typical), can be programmed to switch to CPU operation only (5 hours), or memory and clock backup only (7 days) using Schneider Electric battery P/N: 01-2100-423. Expandable by use of greater amp-hour batteries.

Batteries
Qty 1, 12V/7.0 AHr lead-acid battery (included with enclosure bundles)

Battery Charging Circuit
Included in power supply, 3 days deep discharge recovery time, fused

Card Reader Inputs: 2

Card Reader Type
Supports Wiegand swipe and proximity readers, and keypads that support the Wiegand 8-bit burst format. Also supports ABA mag stripe readers.

Maximum Number of Bits per Card: 256

Card Reader Power
5 V @ 120mA, 12V @ 180 mA, fused, jumper-selectable per controller

Distance, Card Reader to Controller
500 ft. max. using 18-ga. wire; 200 ft. max. using 22-ga. wire

Door Switch Inputs
2, single or double resistor supervision. Useable as general-purpose digital inputs

Request-to-Exit Inputs
2, single or double resistor supervision. Useable as general-purpose digital inputs

Request-to-Exit Power
12V @ 100mA, 24V @100mA, fused, jumper-selectable

Universal Inputs
4; each may be configured as a Voltage, Thermistor, Digital, Counter or Supervised input

Voltage
Range: 0-5V
Resolution: 5 mV
Accuracy: +/- 15 mV (+/- 0.3% FSR)

Thermistor
Type: 10K Ohm, Type III Thermistor
Range: -30º to 230º F (-34º to 110º C)
Resolution: 40º to 100º F (4º to 38º C) range; 0.20º F(0.11º C) typical
Accuracy: 40º to 100º F (4º to 38º C) range; +/- 1.0 º F (+/- 0.55º C)

Digital & Counter
Input Type: Contact Closure
Frequency: 4 Hz (max.)
Pulse Width: 125 ms (min.) (Digital pulse widths are based on Scan Time.)

Supervised
Input Type: Single or Double Resistor Supervision, Parallel or Series Circuit

Door Strike Relay Outputs
2 Form C relays, no override switches.
Usable as general-purpose digital outputs

Door Strike Power
12V @ 1A, 24V @ 300 mA per output, fused, jumper-selectable per controller. Power can be interrupted by removing a jumper

Output Indication
LED's

Digital Relay Outputs
2 Form C relays, with local override switches

Relay Contact Rating
3A@24VAC; 3A@30VDC

Ethernet LAN Interface
10/100 Ethernet twisted pair, RJ-45

Ethernet Distance
327 feet (100m) standard between 2 nodes using 10/100 base-T un-shielded twisted pair cable. Standard Ethernet repeaters allow for longer distances

Serial Comm. Interface
Port 1: RS-485 Infinet, maximum of 4 nodes. Includes service port.

Port 2: RS-232: Modem, printer, Plain English™ software interface (modem or printer provided by others). (No terminal interface)

Serial Comm. Speed
300 to 19.2K baud selectable

Infinet Bus (optional)
4,000 feet (1,220m) standard for Infinet using approved shielded, twisted pair, low capacitance cable. Infilink module allows extension to longer distances. 4 Infinet nodes maximum

SNMP
Standard: Node system information.
Optional: alarm information via SNMP Trap. Supports MIB level I and II.

CX system information, alarms via SNMP TRAPs or direct polling, plus MIB II data

Power
3-position barrier strip

Ethernet
RJ-45 connector for Ethernet
10/100 base-T

Infinet, Inputs, Outputs
Removable terminal strips

User Terminal, Modem
RJ-45 connector

Microprocessor
Motorola Coldfire, 32-bit, 66 MHz

Memory
SDRAM: 32MB; FLASH: 4MB

Storage
290,000 Card Records,
with 2,000 Events

Software Compatibility
CyberStation 1.53 or greater

Agency Listings
UL/CUL 916, FCC CFR 47 Part 15, EN55022, AS/NZS 3548, VCCI Class A, CE, Enclosure: UL 916 and CSA, C22.2. No. 205-M198

Regulatory Notices

Federal Communications Commission
FCC Rules and Regulations CFR 47, Part 15, Class A
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.
Complies with FCC Part 68 Rules (when optional modem is installed).
FCC Registration Number: AU7NMOIBMT5656R REN Number: 0.1B

Caution: The user that changes or makes modifications not expressly approved by Schneider Electric for compliance could void the user's authority to operate the equipment.

Industry Canada
ICES-003
This is a Class A digital device that meets all requirements of the Canadian Interference Causing Equipment Regulations.

CE - Compliance to European Union (EU)
89/336/EEC - EMC Directive
This equipment complies with the rules of the Official Journal of the European Union specified in the EMC directive
89/336/EEC governing the Self Declaration of the CE Marking for the European Union.

N1831 **C-Tick (Australian Communications Authority (ACA))**
AS/NZS 3548
This equipment carries the C-Tick label and complies with EMC and radio communications regulations of the Australian Communications Authority (ACA), governing the Australian and New Zealand (AS/NZS) communities.

WEEE - Directive of the European Union (EU)
This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2002/96/EC, governing the disposal and recycling of electrical and electronic equipment in the European community.

UL 916 Listed product for the United States and Canada, Open Energy Management Equipment

Related Documentation

Document	Document Number
Andover Continuum CyberStation Online Help	N/A