Cisco Physical Access Gateway User Guide

Release 1.1.0 and higher

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Text Part Number: OL-20932-02

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The following information is for FCC compliance of Class A devices: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

The following information is for FCC compliance of Class B devices: The equipment described in this manual generates and may radiate radio-frequency energy. If it is not installed in accordance with Cisco's installation instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

Modifying the equipment without Cisco's written authorization may result in the equipment no longer complying with FCC requirements for Class A or Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

• Turn the television or radio antenna until the interference stops.

• Move the equipment to one side or the other of the television or radio.

• Move the equipment farther away from the television or radio.

• Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems, Inc. could void the FCC approval and negate your authority to operate the product.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Cisco and the Cisco Logo are trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1005R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

Cisco Physical Access Gateway User Guide

CONTENTS

Preface vii

Obtaining Documentation and Submitting a Service Request vii

Safety Warnings vii

CHAPTER 1 **Overview** 1-1

System Overview 1-2

The Cisco Physical Access Gateway 1-2

Support for Multiple Cisco Physical Access Gateways 1-3

Cisco Physical Access Manager 1-4

Optional Expansion Modules 1-5

Module Features 1-6

CAN Bus Connections for Optional Modules 1-7

Installation and Configuration Summary 1-8

Door Device Wiring Requirements 1-9

Understanding Supervised and Unsupervised Input Devices 1-10

Power Options and Requirements 1-12

Power Options 1-12

Current Draw Requirements 1-12

Installing Surge Suppressors on Output Device Connections 1-13

Connect Reader Devices with Module Power Off 1-13

Mounting a Gateway or Optional Module 1-14

Wall Mounting a Gateway or Optional Module 1-14

CHAPTER 2 **Installing and Configuring the Cisco Physical Access Gateway** 2-1

Contents 2-1

Overview 2-2

Package Contents 2-3

Physical Overview and Port Description 2-3

LED Status 2-5

Installing the Cisco Physical Access Gateway 2-7

Configuring and Managing the Gateway Using a Direct Connection 2-15

Understanding Network Time Protocol (NTP) Settings 2-15

Connecting a PC to the Gateway 2-16

Entering the Gateway Network Settings 2-17
Changing the User Password 2-19
Upgrading the Gateway Firmware Using a Direct Connection 2-20
Displaying Serial Numbers and Other Information 2-22
Configuring the Gateway Using the Cisco Physical Access Manager 2-23
Resetting the Cisco Physical Access Gateway 2-24
Soft Reset (Powercycle) 2-24
Hard Reset (Restore Factory Defaults) 2-24

CHAPTER 3 **Connecting a Cisco Reader Module** 3-1
Overview 3-1
Package Contents 3-2
Physical Overview and Port Description 3-3
Status LEDs 3-6
Installing the Cisco Reader Module 3-6

CHAPTER 4 **Connecting a Cisco Input Module** 4-1
Overview 4-1
Package Contents 4-2
Physical Overview and Port Description 4-3
Status LEDs 4-5
Installing the Cisco Input Module 4-5

CHAPTER 5 **Connecting a Cisco Output Module** 5-1
Overview 5-1
Package Contents 5-2
Physical Overview and Port Description 5-3
Status LEDs 5-5
Installing the Cisco Output Module 5-6

APPENDIX 6 **Safety Warnings** 6-1
Statement 1071—Warning Definition 6-1
Statement 369—Power over Ethernet (PoE) IEEE 802.3af 6-6
Statement 353—This Product Must be Connected 6-7
Statement 1040—Product Disposal 6-9
Statement 1004—Installation Instructions 6-10

APPENDIX A **Environmental Specifications** A-1

Environmental Specifications for the Cisco Physical Access Gateway A-1

Environmental Specifications for the Cisco Reader Module A-2

Environmental Specifications for the Cisco Input Module A-2

Environmental Specifications for the Cisco Output Module A-3

Preface

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

Safety Warnings

Before you install the device, observe the safety warnings described in Appendix 6, "Safety Warnings".

CHAPTER 1

Overview

This document provides information to install and configure the components located near each door of a Cisco Physical Access Control system.

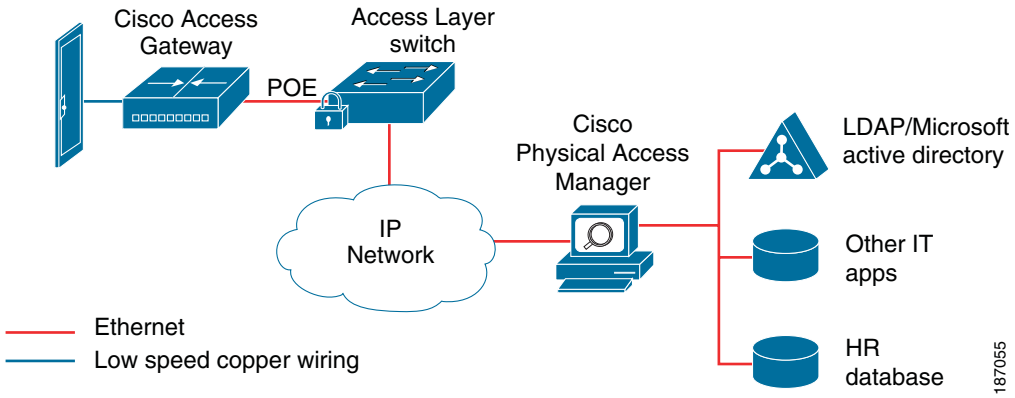
This document includes the following information:

- System Overview, page 1-2
  - The Cisco Physical Access Gateway, page 1-2
  - Support for Multiple Cisco Physical Access Gateways, page 1-3
  - Cisco Physical Access Manager, page 1-4
- Optional Expansion Modules, page 1-5
  - CAN Bus Connections for Optional Modules, page 1-7
- Installation and Configuration Summary, page 1-8
- Door Device Wiring Requirements, page 1-9
- Power Options and Requirements, page 1-12
  - Power Options, page 1-12
  - Current Draw Requirements, page 1-12
  - Installing Surge Suppressors on Output Device Connections, page 1-13
  - Connect Reader Devices with Module Power Off, page 1-13
- Mounting a Gateway or Optional Module, page 1-14

System Overview

Cisco Physical Access Control is a comprehensive solution of hardware and software components, connected through an IP network as shown in Figure 1-1.

Figure 1-1 Cisco Physical Access Control: System Overview



The Cisco Physical Access Gateway

A Cisco Physical Access Gateway is installed near each door to provide processing and control for the connected door hardware, such as card readers, locks, and other input and output devices. This architecture allows access control to be deployed incrementally, door by door, eliminating the central panel and simplifying system design, wiring, and planning.

The Gateway is required, and can control up to two doors. Each Gateway supports the following:

Table 1-1 Cisco Physical Access Gateway Features and Benefits

Feature	Benefit
250,000 cardholder cache and a 150,000 Transaction buffer	Door continues to function in case network connectivity is lost
Web server built in	Simplifies configuration and monitoring
All communication is128 Bit AES encrypted	Protects credentials, preserves security
Device pre-provisioning using network services	Simplifies deployment
Plug & Play support	Modules can be added or deleted without disrupting service

If additional connections are required, you can connect up to 15 optional modules using a three-wire Controller Area Network (CAN) bus. These modules can be added or removed without affecting the operation of the system or other modules. See the "Optional Expansion Modules" section on page 1-5 for more descriptions of the available modules.

Note The modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.

Related Documentation

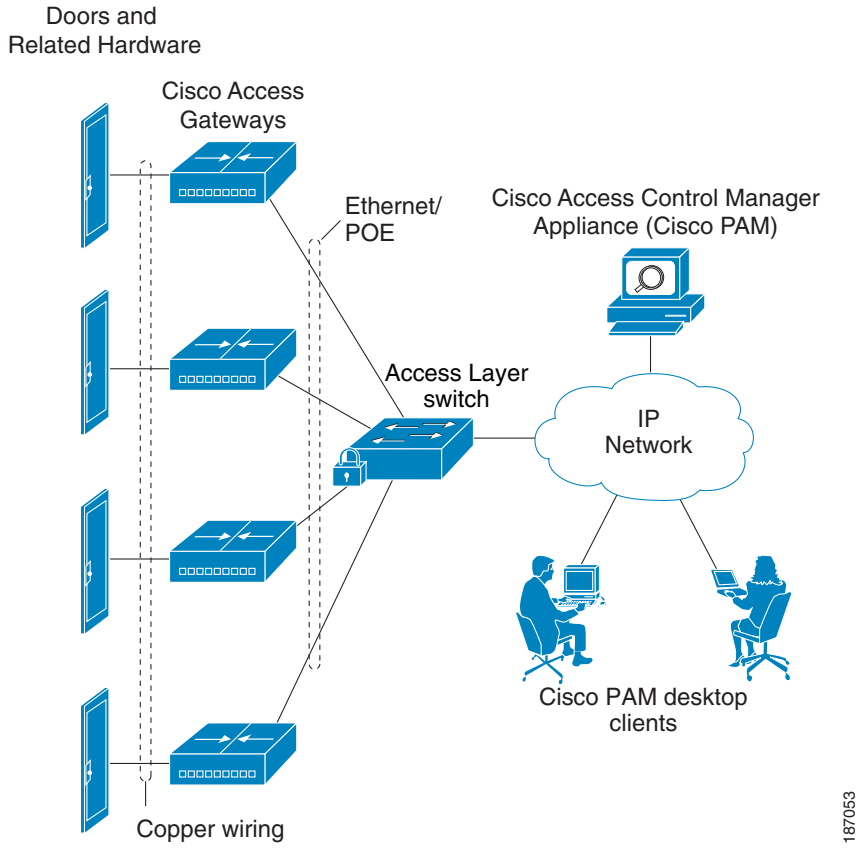
For installation and configuration instructions, see Chapter 2, "Installing and Configuring the Cisco Physical Access Gateway".

See the Cisco Physical Access Manager User Guide for advanced configuration and management of the access control components.

Support for Multiple Cisco Physical Access Gateways

A Cisco Physical Access Gateway is installed for each door, and connected to the IP network using an Ethernet connection, as shown in Figure 1-2. This network connection provides communication with the Cisco Physical Access Manager for advanced configuration, and management with the other Gateways in the system. If the network connection is lost, the Gateway continues to provide access control functionality for the connected door devices.

Figure 1-2 Multiple Cisco Physical Access Gateways

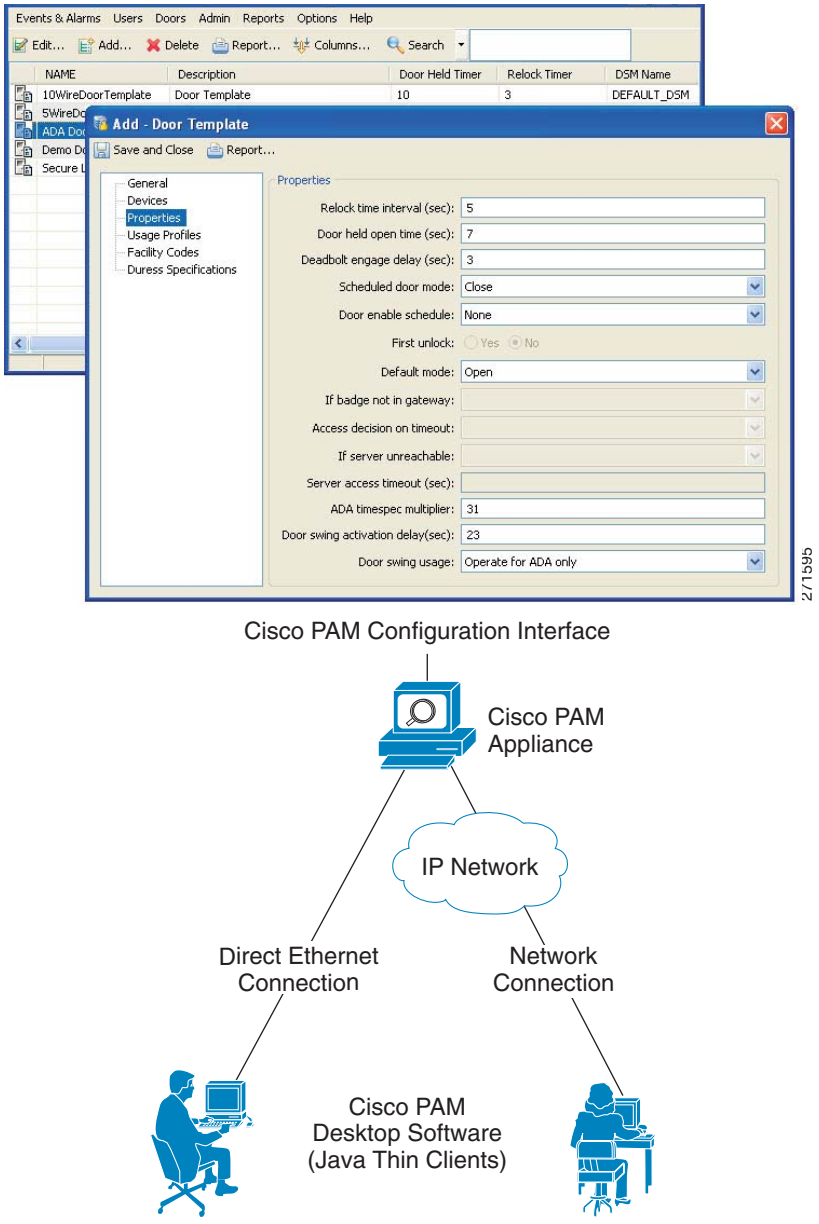


Note See the "Power Options and Requirements" section on page 1-12 for more information on support for Power over Ethernet (PoE).

Cisco Physical Access Manager

The Cisco Physical Access Manager appliance (Cisco PAM) is a hardware and software solution that provides advanced configuration, monitoring, and report generation for the entire system. Each Cisco Physical Access Gateway is connected to the Cisco PAM appliance over an Ethernet-based IP network, as shown in Figure 1-2 on page 1-3. A Java-based desktop application is installed on a PC connected to the network, and used to configure and monitor the system, as shown in Figure 1-3.

Figure 1-3 Configuring and Monitoring Using the Cisco Physical Access Manager



The Cisco PAM appliance includes the following main features:

- 1 RU appliance
- Java thin client architecture
- Policy support: two-door, anti-passback
- Report generator (canned & custom)
- Badge design & enrollment
- Microsoft Active Directory integration
- Fine grained user rights
- Global I/O
- Device pre-provisioning
- Capacity & feature licenses
- IT data integration
- Warm standby high availability
- Audit trails

Related Documentation

For more information on the Cisco PAM appliance, including installation and configuration instructions, see the Cisco Physical Access Manager User Guide.

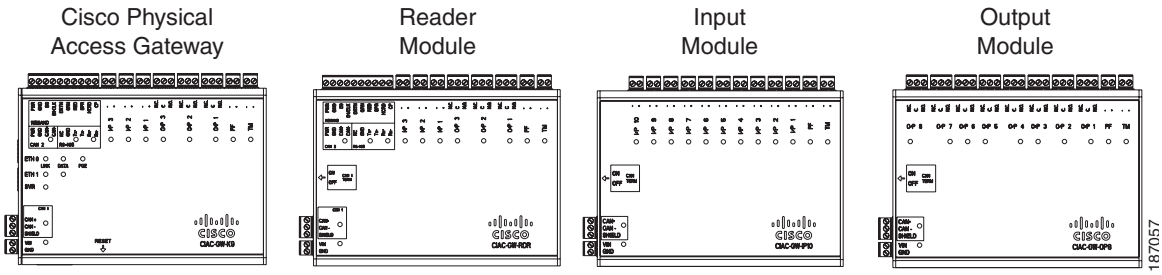
Optional Expansion Modules

Each Cisco Physical Access Control system includes at least one Cisco Physical Access Gateway to provide processing and connections for input and output devices such as card readers and locks. If additional connections are required, you can add optional modules to extend the functionality of the Gateway.

Module Features

Figure 1-4 shows the modules for a Cisco Physical Access Control system.

Figure 1-4 Cisco Physical Access Gateway and the Optional Modules



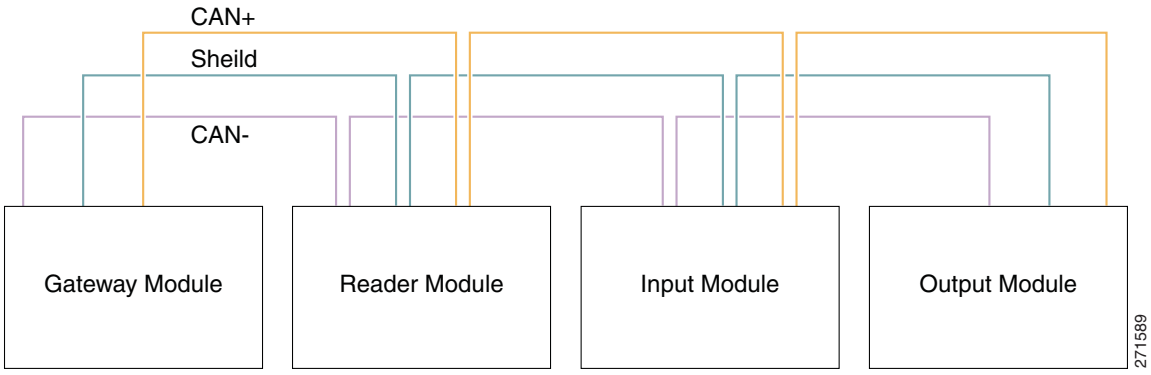
Gateway	Cisco Reader Module	Cisco Input Module	Cisco Output Module
• Mandatory module. • Connects up to two doors using the 10 pin Wiegand reader port, which can be configured as two five-pin ports. • Connects up to 15 optional expansion modules using a three-wire CAN bus.[1] • Power-over-Ethernet (POE) or 12 through 24V DC • Two Ethernet ports • Three output ports: Form C contacts rated at 5A 30VDC • Three supervised input ports[2] • Tamper & Power Fail inputs (can be configured as additional unsupervised inputs) • One RS-485 serial port (not supported in this release).	• Requires connection to an Access Gateway using a three-wire CAN bus. • Connects up to two doors using the 10 pin Wiegand reader port, which can be configured as two 5 pin ports. • Power: 12 through 24V DC • Three output ports: Form C contacts rated at 5A 30VDC • Three supervised input ports • Tamper & Power Fail inputs (can be configured as additional unsupervised inputs) • One RS-485 serial port (not supported in this release).	• Requires connection to an Access Gateway using a three-wire CAN bus. • 10 supervised input ports • Example inputs are: Push button switches, Glass Break sensors, or any contact closure input. circuit • Power: 12 through 24V DC • Tamper & Power Fail inputs (can be configured as additional unsupervised ports)	• Requires connection to an Access Gateway using a three-wire CAN bus. • 8 output ports: Form C contacts rated at 5A 30VDC • Example outputs are: lights, LEDs, or any contact closure output circuit. • Power: 12 through 24V DC • Tamper & Power Fail inputs (can be configured as additional unsupervised ports)

1. The modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.
2. A supervised input supports four states: normal, alarm, open and short. An unsupervised input only indicates normal or alarm.

CAN Bus Connections for Optional Modules

The optional modules are connected to a Cisco Physical Access Gateway using a CAN bus connection, as shown in Figure 1-5.

Figure 1-5 CAN Bus Wiring



The CAN bus must adhere to the following rules:

- The maximum length for the CAN bus is 1320 feet (400 Metres).
- The last device in a CAN bus must be terminated by setting the CAN terminator switch to ON.
  - The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus).
  - Set the terminator switch to OFF for all other modules in the CAN bus.
  - For the location of the CAN terminator on each device, see the physical port description for that device.
- The Gateway and Reader modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.

Related Documentation

See the following chapters for instructions to install the modules and related equipment:

- Chapter 2, “Installing and Configuring the Cisco Physical Access Gateway”
- Chapter 3, “Connecting a Cisco Reader Module”
- Chapter 4, “Connecting a Cisco Input Module”
- Chapter 5, “Connecting a Cisco Output Module”

Installation and Configuration Summary

The following steps are an example of the main installation and configuration tasks for a Cisco Physical Access Control system. The exact procedure and order of installation for your system may vary.

Step 1 Unpack and mount the Cisco Physical Access Gateway.

Step 2 Unpack and mount optional reader, input or output modules, if necessary.

Step 3 Connect door readers, input and output devices to the Cisco Physical Access Gateway or optional modules.

Step 4 Connect power to the Cisco Physical Access Gateway and any optional modules.

Step 5 Connect an Ethernet cable from a PC to the ETH1 interface on the Gateway module.

Note To enter the Gateway initial configuration, be sure to connect your PC to the ETH1 port. The ETH0 port is used for network communication.

Step 6 Open a web browser on your PC and enter `https://192.168.1.42`. This URL opens the web-based configuration page.

Note Be sure to include the *s* in `https://`. This connects your browser to the secure URL.

Step 7 Enter the default username and password:

default username: **`gwadmin`**

default password: **`gwadmin`**

Step 8 Enter and save the Network settings in the Initial Setup window. See the "Configuring and Managing the Gateway Using a Direct Connection" section on page 2-15. Wait until the Gateway resets and the web browser displays the screen *Network Settings Applied*.

Step 9 Verify the connections to the optional modules, door readers and other input and output devices.

Step 10 Connect an Ethernet cable from the Gateway ETH0 port to the IP network, and verify IP network connectivity.

Step 11 Perform additional configuration, verification, and monitoring tasks as described in the Cisco Physical Access Manager User Guide.

Door Device Wiring Requirements

The wires used for an access control door depend on the devices installed at the door. Before installing the wiring for an access control system, do the following:

- Determine the number and type of door devices used at each door (as shown in Figure 1-6).
- Determine the number and type of wires used for each device, based on the descriptions in Table 1-2.
- Determine the length of the wires based on the distance between the device and the access control Gateway, or optional module (such as a Reader, Output or Input module).

Figure 1-6 Air Return Using Ceiling Space or Using Ductwork

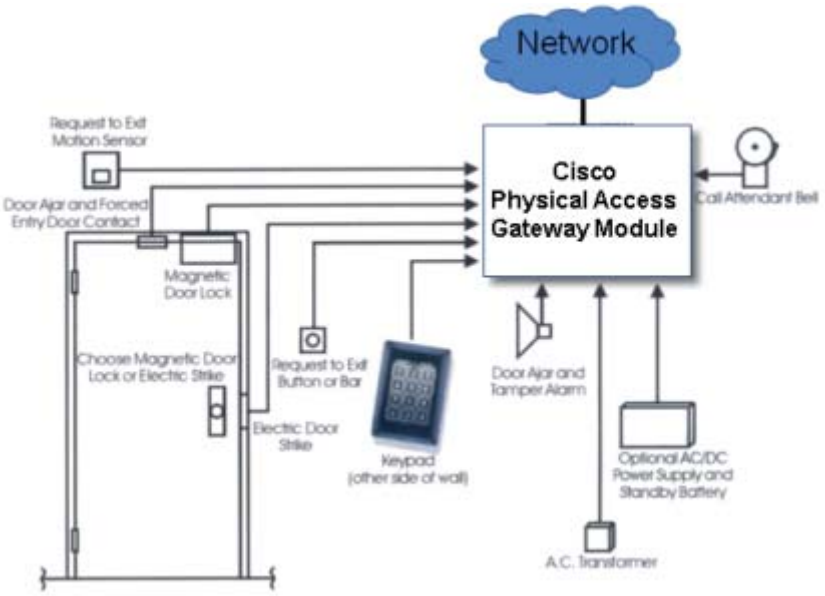


Table 1-2 describes the wires used for typical input and output door devices. Refer to the device documentation for more information and to verify the following requirements.

Table 1-2 Wires Used for Typical Door Devices

Function	# of Wires	Typical Wire Gauge	Type	Use
Request to Exit	2	22	Input	Used to exit the door. This may be replaced by an egress crash bar if the exit is not alarmed.
Door position switch	2	22	Input	Used to determine if door is open or closed. This device can cause a *door forced open* alarm after a time out. This devise is usually supervised.

Table 1-2 Wires Used for Typical Door Devices (continued)

Function	# of Wires	Typical Wire Gauge	Type	Use
Reader	6 per reader	22	Wiegand	A reader device includes the following: • 2 Wiegand data wires • 1 LED • 1 beeper • 2 power (12VDC) wires (500 feet maximum length)
Electric strike or magnetic lock	2	18	Output	Opens the locking device. Include a reverse bias diode or other surge suppressor to protect against reverse current. See the "Installing Surge Suppressors on Output Device Connections" section on page 1-13 for more information.
Alarm bypass	2	22	Output	Optionally used to turn off the alarm contact at the door while the strike is energized.
Bell or call	2	22	Input	Optional call button that creates an event to notify a CPAM user that a person is trying to get in the door.

Understanding Supervised and Unsupervised Input Devices

Door input devices can be supervised or unsupervised

- Unsupervised input devices have two states: active or inactive.
- Supervised input devices have four states: active, inactive, short, and open.

Unsupervised inputs have limited functionality. If a wire is cut or shorted between the input module and a normally open device. The server cannot determine the change and the device would remains in inactive state even when the switch is closed.

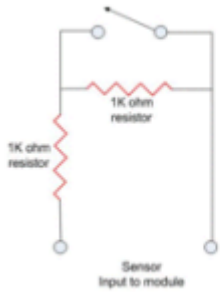
To make the input device supervised, use two 1K resistors in the circuit (Figure 1-7).

- In the *inactive* state, the circuit measures 2000 ohms.
- In the *active* state, the circuit measures 1000 ohms.
- In the *short* state the circuit measures 0 ohms
- In the *open* state the circuit measures infinite ohms.

Once the input device is supervised, CPAM can determine if a wire is cut or shorted.

Note You must also configure the device as supervised in CPAM. See the Cisco Physical Access Manager User Guide for more information.

Figure 1-7 Example of a Supervised Door Sensor



Example used: Door Sensor

OHMs	State	Door State	Error Posted?	Input Trusted?
2000	Inactive	Closed	No	Yes
1000	Active	Open	No	Yes
Zero	Short	?????	Yes	No
Infinite	Open	?????	Yes	No

Power Options and Requirements

This section includes the following information:

- Power Options
- Current Draw Requirements
- Installing Surge Suppressors on Output Device Connections
- Connect Reader Devices with Module Power Off

Power Options

Table 1-3 summarizes the power options for each module. The Cisco Physical Access Gateway supports Power over Ethernet (PoE) and DC power. All other modules support DC power only.

- The DC power connections on each module are Voltage In (VIN) and Ground (GND).
- For information on configuring PoE, see the documentation for your network switch. Your switch must support PoE and be properly configured to use this feature with the Cisco Physical Access Gateway.

Table 1-3 Power Options for the Cisco Physical Access Control Modules

Module	Power over Ethernet (PoE)	12 through 24V DC
Cisco Physical Access Gateway	Supported	Supported
Cisco Reader Module	Not Supported	Supported
Cisco Input Module	Not Supported	Supported
Cisco Output Module	Not Supported	Supported

Current Draw Requirements

Each Cisco Physical Access Control module requires a minimum amount of available power, as described in Table 1-4. The current draw requirements listed in Table 1-4 account for inefficiencies in power supplies and are to be used for power budgeting. The requirements do not represent actual power usage.

Table 1-4 Current Draw Requirements for the Cisco Physical Access Control Modules

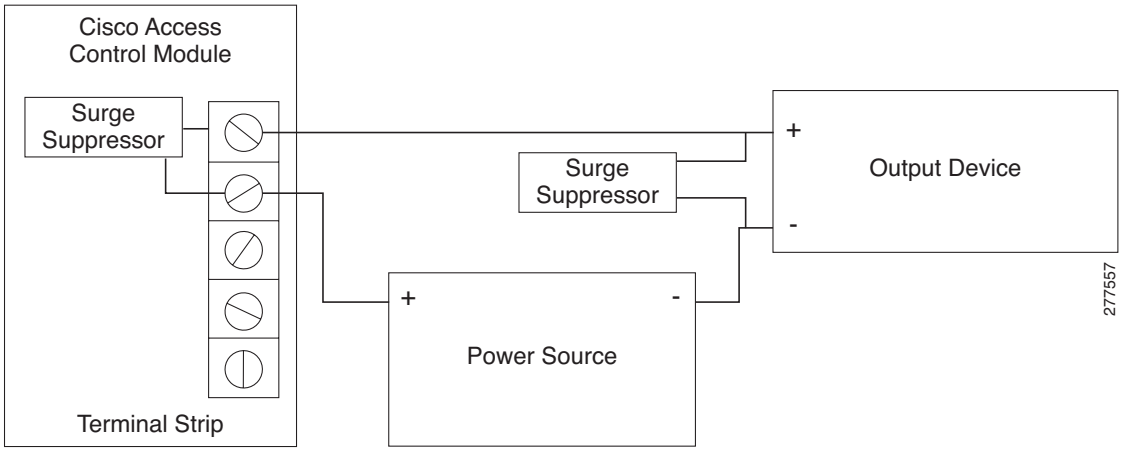
Module	Current Draw Requirement	Notes
Cisco Physical Access Gateway	1.5A	1.5A is required for the Gateway module only. Add an additional 1A if a reader or lock is attached to the module.
Cisco Reader Module	1A	1A is required for the Reader module only. Add an additional 1A if a reader or lock is attached to the module.
Cisco Input Module	1A	N/A
Cisco Output Module	1A	N/A

Installing Surge Suppressors on Output Device Connections

Install a surge suppressor between all output devices and the Gateway, Reader, or Output modules to protect the devices from power surges. Use one of the following methods:

- If the base on a lock device receives power from an external power source, install an isolation relay between the output device and the Gateway, Reader, or Output module.
- Install a MOV (Metal Oxide Varistor) surge protection product, such as the Ditek DTK-ESS Electric Switch Suppressor kit from Diversified Technology Group. An example installation is shown in Figure 1-8. You can also use a diode 4N4001 for surge suppression.

Figure 1-8 Sample Surge Suppressor Installation



Connect Reader Devices with Module Power Off

Disconnect power from the Gateway or Reader module before connecting reader devices to the modules. Connecting a reader device when the modules are powered can cause the Gateway or Reader module to malfunction.

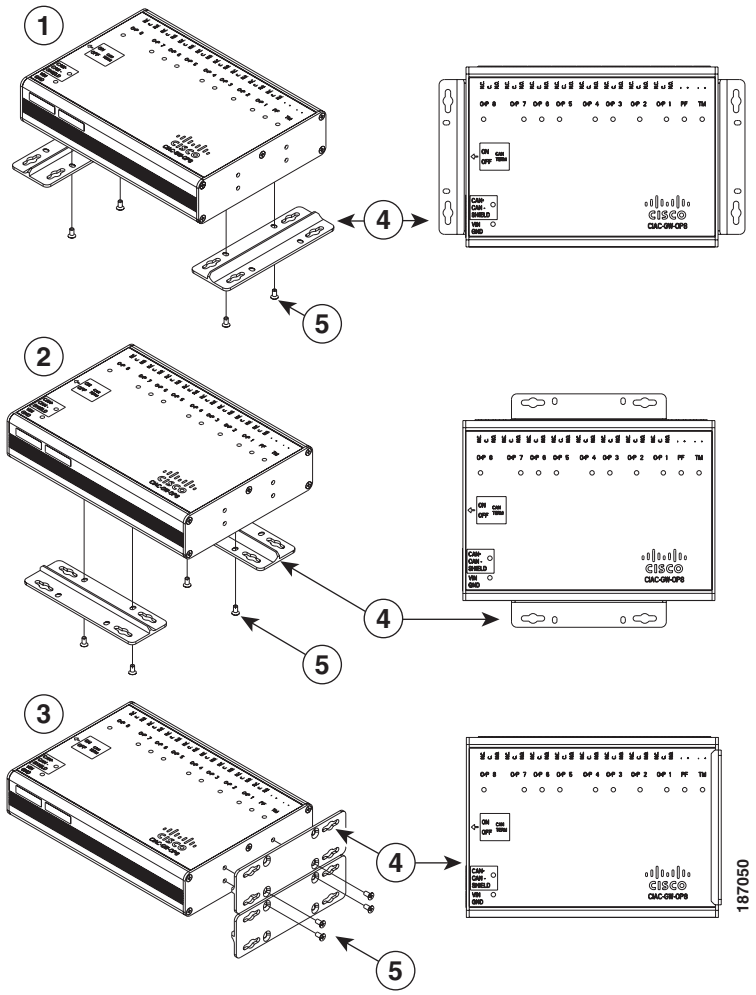
Mounting a Gateway or Optional Module

Each Cisco Physical Access Gateway and optional module includes two mounting brackets and four screws to mount the Gateway to the wall.

Wall Mounting a Gateway or Optional Module

Figure 1-9 shows the three options for attaching the included wall-mount brackets to a module.

Figure 1-9 Three Options for Installing Wall Mount Brackets



1	Option 1: Bottom end mounting	**4**	Mounting Brackets (included)
2	Option 2: Bottom side mounting	**5**	Screws
3	Option 3: Side mounting		

Wall Mount Installation Kit Contents

Each module includes a wall mount installation kit that contains the following:

Table 1-5 Wall Mount Installation Kit Contents

Hardware Item	Quantity
Wall Mount brackets	2
Screws	8

CHAPTER 2

Installing and Configuring the Cisco Physical Access Gateway

Contents

This chapter includes the following information:

- Overview, page 2-2
- Package Contents, page 2-3
- Physical Overview and Port Description, page 2-3
- Installing the Cisco Physical Access Gateway, page 2-7
- Configuring and Managing the Gateway Using a Direct Connection, page 2-15
  - Understanding Network Time Protocol (NTP) Settings, page 2-15
  - Connecting a PC to the Gateway, page 2-16
  - Entering the Gateway Network Settings, page 2-17
  - Changing the User Password, page 2-19
  - Upgrading the Gateway Firmware Using a Direct Connection, page 2-20
  - Displaying Serial Numbers and Other Information, page 2-22
- Configuring the Gateway Using the Cisco Physical Access Manager, page 2-23
- Resetting the Cisco Physical Access Gateway, page 2-24

Overview

The Cisco Physical Access Gateway (Figure 2-1) is installed near each door to provide access control and connections for card readers, door locks and other input and output devices. The Gateway is connected to the Cisco Physical Access Manager using an Ethernet connection to the IP network. Power is supplied through a Power over Ethernet (PoE) connection, or using a DC power source. Each Gateway includes connections for up to two Wiegand door readers, three input devices, and three output devices. Optional expansion modules are available to add additional doors and devices to the Gateway.

Figure 2-1 Cisco Physical Access Gateway

Package Contents

Each Cisco Physical Access Gateway includes the following:

- Six End-Of-Line (EOL) 1K termination resistors (used for supervised input interfaces)
- Two mounting brackets, with 4 screws for each bracket
- Regulatory compliance and safety information
- Quick Start guide
- Connector plugs, including the following:

Type	Quantity
10 Pin	1
3 Pin	4
2 Pin	6

Physical Overview and Port Description

Figure 2-2 and Figure 2-3 show the location of each port, including connections for power, Ethernet, door readers and other input and output devices.

Figure 2-2 Cisco Physical Access Gateway Ports and Connectors: Side View

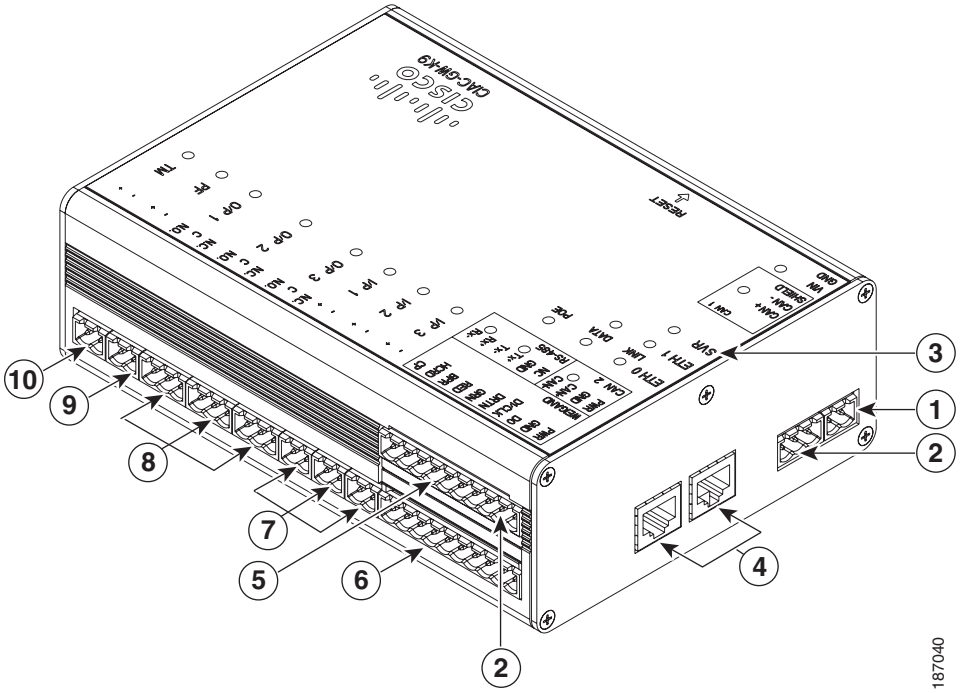
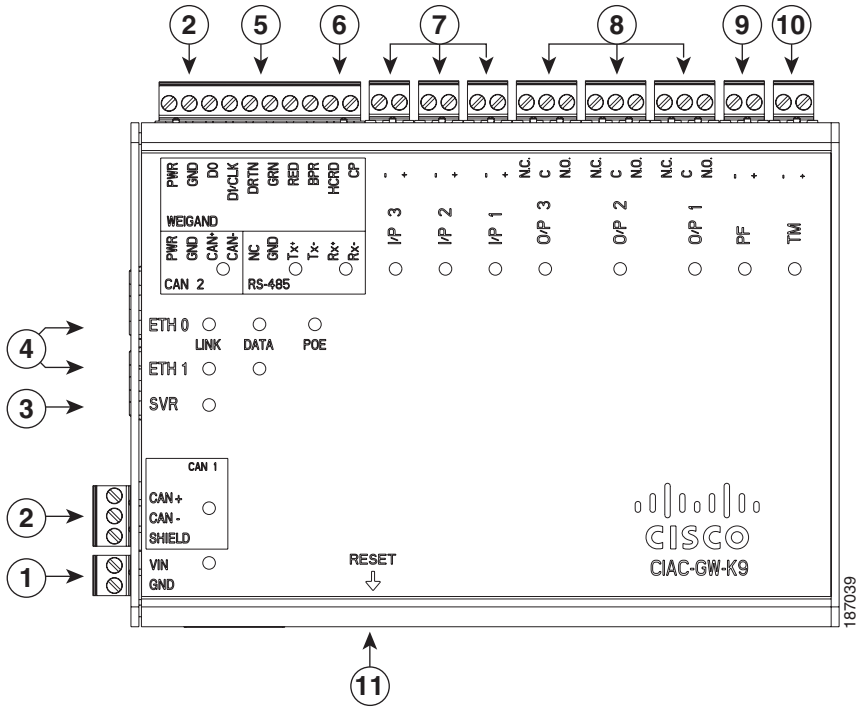


Figure 2-3 Cisco Physical Access Gateway Ports and Connectors: Top View



1	Power—Two-pin connector for Voltage In (VIN) and Ground (GND) to connect a 12 to 24 VDC external power source.
2	CAN—A three-wire CAN bus is used to connect additional modules, including the Cisco Reader Module, Cisco Input Module, and Cisco Output Module. **Note** Modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.
3	SVR (Server)—When the LED is steady green, the Gateway is connected to a Cisco PAM appliance.
4	Fast Ethernet interfaces—There are two 10/100 BASE-TX RJ-45 connectors: • **ETH 0**: connects the Gateway to the network. ETH 0 also supports Power over Ethernet (PoE) for the device (optional). • **ETH 1**: connects the device to a PC to access the device configuration web page.
5	Serial interface—The RS-485 interface is not supported in this release.
6	Wiegand interface—This interface can be configured as the following: • One 10-pin Wiegand/clock and data reader interface to connect a single door reader. • Two 5-pin Wiegand/clock and data interfaces to connect two door readers (for installations where a 5-pin interface is sufficient). **Note** Disconnect power from the Gateway or Reader module before connecting reader devices to the modules. Connecting a reader device when the modules are powered can cause the Gateway or Reader module to malfunction.

7	Input interfaces—Three input interfaces used to sense the contact closure. Each input can be configured as supervised or unsupervised and can be configured to sense a Normally Open (NO) or Normally Closed (NC) contact. • An unsupervised input senses a simple contact closure state, including Normal or Alarm. When connected to open contacts, the terminal voltage range is 4V to 5V. For closed contacts, the voltage range is 0V to 0.7V. • A supervised input senses four contact states, including Normal, Alarm, Open and Short. These inputs require 1K End-Of-Line (EOL) termination resistors installed at the contacts (two resistors are included in the accessory kits for each Input port).
8	Output interfaces—Three Form C (5A @ 30V) relay output interfaces. Each output connection can be configured as either Normally Closed (NC) or Normally Open (NO). • C & NO connection: The relay is normally open. The circuit is closed when triggered. • C & NC connection: The relay is normally closed. The circuit is opened when triggered. **Notes:** • Install surge protection between the output device and the Cisco PAM module, as described in the "Installing Surge Suppressors on Output Device Connections" section on page 1-13. • Common (C) is always used, and either NC or NO is used to complete the connection. • All Generic Output devices installed in Cisco PAM systems prior to release 1.1.0, were connected to the Gateway, Reader, or Output modules with the wiring reversed. If upgrading to Cisco PAM release 1.1.0 from an earlier release, disconnect all Generic Output devices and do the following: – Connect Normally Open devices to the N.O. and C connectors on the Gateway, Reader, or Output module. – Connect Normally Closed devices to the N.C. and C connectors on the Gateway, Reader, or Output module.
9	PF—Power fail input: an unsupervised input that raises a "power fail" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).
10	TM—Tamper input: an unsupervised input that raises a "tamper" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).
11	Reset—Resets the device. See the "Resetting the Cisco Physical Access Gateway" section on page 2-24 for more information.

LED Status

Table 2-1 describes the Gateway module status LEDs:

Table 2-1 Gateway LEDs

Status	Description
SVR	
Steady Green	The Gateway is connected to a Cisco PAM appliance.

Table 2-1 Gateway LEDs (continued)

Status	Description
Input Port LEDs	
OFF	Input is not configured
GREEN	Input is configured and in normal state
BLINKING GREEN	Input is configured, and is receiving and alarm or other data.
BLINKING RED	Input is configured, short
RED	Input is configured, open
Output Port LEDs	
Off	Output not configured
Solid Green	Output configured and in default state
Blinking Green	Output configured and active

Installing the Cisco Physical Access Gateway

- Before You Begin, page 2-7
- Procedure, page 2-7

Before You Begin

Before you install a Cisco Physical Access Gateway, verify the following:

- Verify that the module has access to a power source. See the "Power Options and Requirements" section on page 1-12 for more information.
- Verify that you have the necessary mounting brackets or other hardware. See the "Mounting a Gateway or Optional Module" section on page 1-14.

Procedure

To install the Cisco Physical Access Gateway, perform the following procedure:

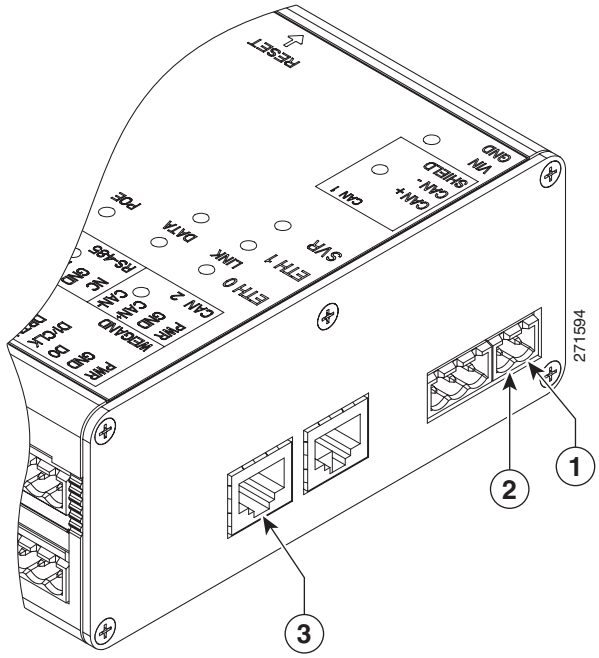
Step 1 Mount the Gateway to a wall. See the "Mounting a Gateway or Optional Module" section on page 1-14 for more information.

Step 2 Connect the Gateway to a power source.

- If using a DC power source, insert a two-pin connector plug into the DC power port (Figure 2-4), and connect the Voltage In (VIN) and ground (GND) wires.
- If using PoE, connect an Ethernet cable from the IP network to the ETH0 port (Figure 2-4).

See the "Power Options and Requirements" section on page 1-12 for more information.

Figure 2-4 Power Connections for the Cisco Physical Access Gateway



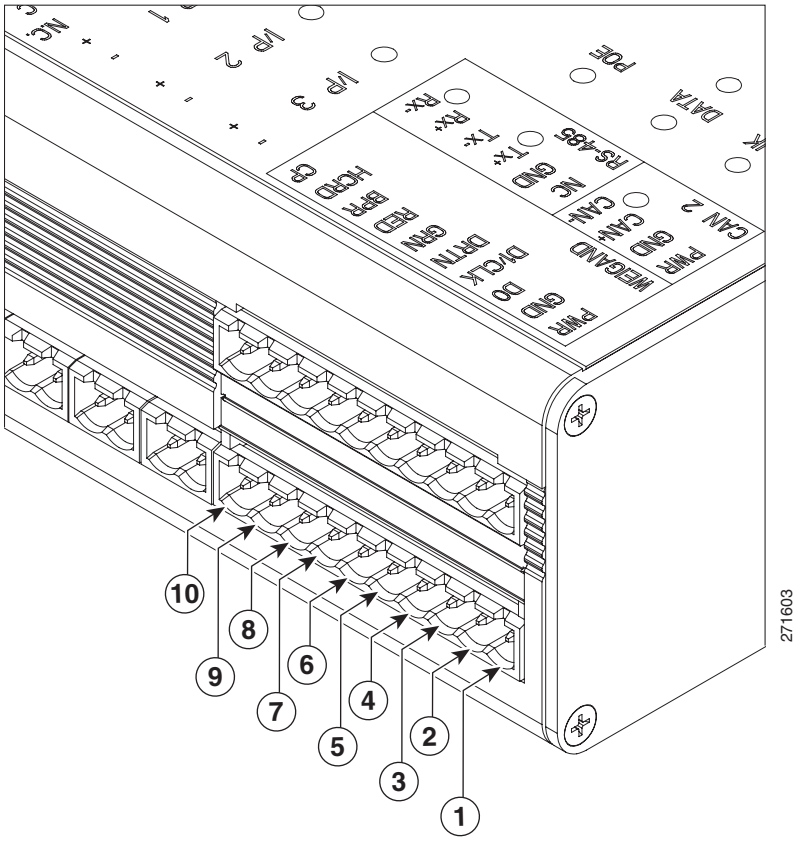
1	DC power GND (ground)— Connects the DC ground wire to the Gateway.
2	DC power Voltage In (VIN)—Connects the DC Voltage In (VIN) wire to the Gateway.
3	ETH0 for PoE—Connects the Ethernet cable from the Access Layer switch to the Gateway. To use this power option, the switch must support PoE.

Step 3 Connect one or two door reader devices to the Wiegand interface using one of the following configurations:

- Connect a single door reader using all 10 Wiegand interface pins.
- Connect one or two door readers using 5-pin Wiegand interface connections (for installations where a 5-pin interface is sufficient).

Figure 2-5 shows the location of the Wiegand interface connections. The table describes the connections for 10-pin and 5-pin reader interface connections. The wire connectors from the reader device are shown in parentheses. If attaching a second reader, use the alternative connections shown in the column on the far right.

Figure 2-5 Wiegand Interface on the Gateway and Reader Modules



	Chassis Label	Description	One Reader 10 Wire Connection	First Reader in a 5 Wire Connection	Second Reader in a 5 Wire Connection
1	PWR	+12v	PWR (red) [1]	PWR (red)	PWR (red)
2	GND	Ground	GND (black)	GND (black)	GND (black)
3	D0	Data 0	D0 (green)	D0 (green)	----------
4	D1/CLCK	Data 1	D1/CLCK (white)	D1/CLCK (white)	----------
5	DRTN	Shield	DRTN (shield)	DRTN (shield)	DRTN (shield)
6	GRN	Output [2]	GRN (orange)	GRN (orange)	----------
7	RED	Output	RED (brown)	---------- [3]	GRN (orange)
8	BPR	Output (Beeper)	BPR (yellow) (yellow)	----------	----------

	Chassis Label	Description	One Reader 10 Wire Connection	First Reader in a 5 Wire Connection	Second Reader in a 5 Wire Connection
9	HCRD	Hold Control	HCRD (blue)	----------	D1/CLCK (white)
10	CP	Card Present	CP (purple)	----------	D0 (green)

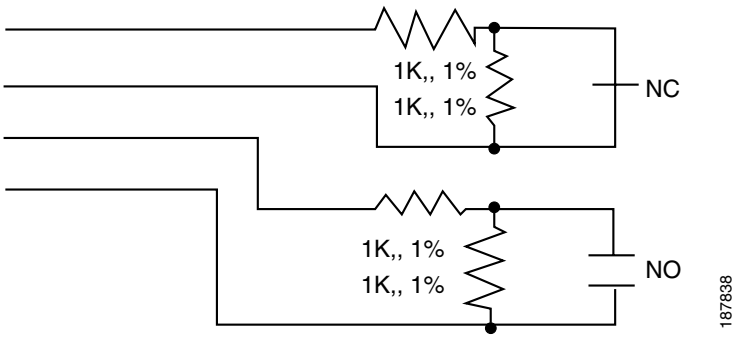
1. Wire colors are shown in parentheses.
2. Outputs show the LED color and reader wire color (in parentheses). For example, "GRN (orange)" supports a green LED. Attach the orange wire from the reader device.
3. ---------- means the wire slot is not used.

Step 4 Connect input devices to the Gateway:

a. Insert two-pin connector plugs into the input ports (see Figure 2-7).

b. (Optional, for supervised input connections only). Install two End-Of-Line (EOL) 1K termination resistors in each supervised input interface (one terminator in each connector). Figure 2-6 shows the terminator installation for a Normally Closed (NC) and Normally Open (NO) input connection.

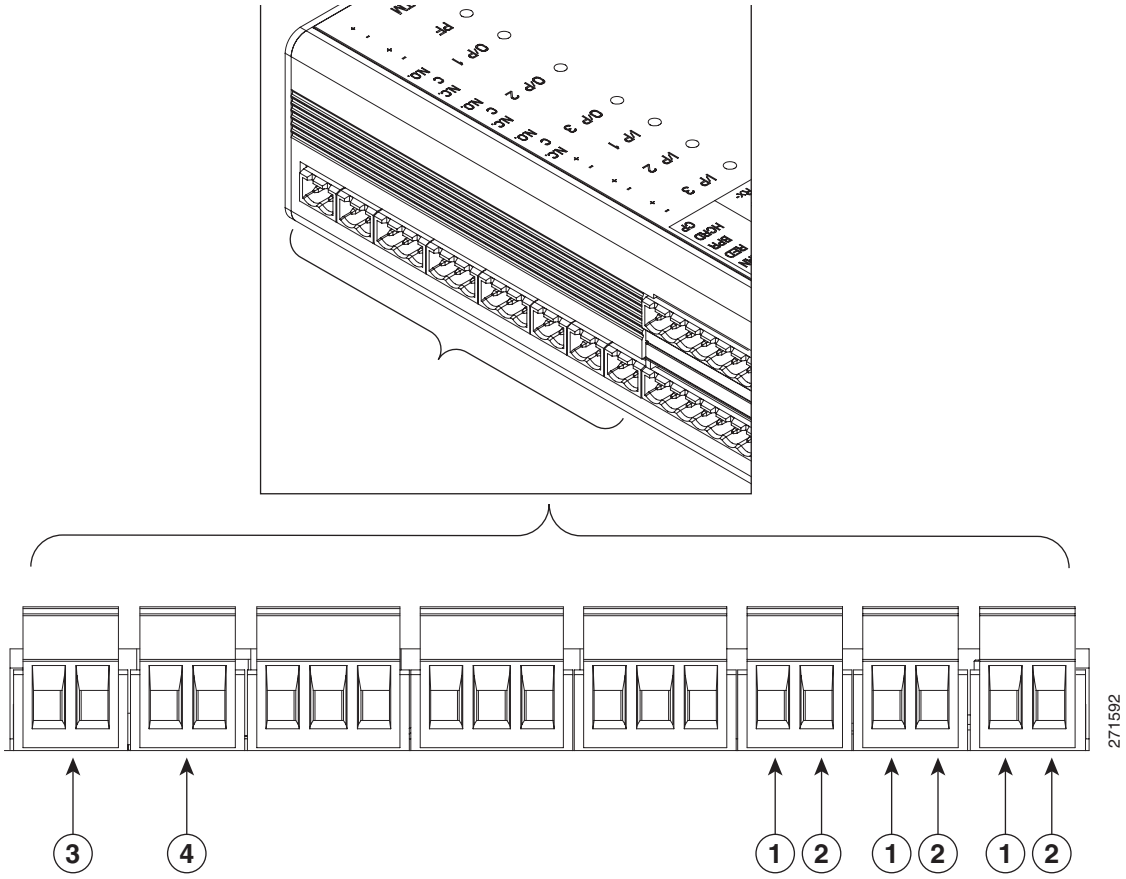
Figure 2-6 Input Connections: Cisco Physical Access Gateway and Reader Module



c. Connect the wires from the input devices (see Figure 2-7).

Note Each of the input connections can be configured as supervised or unsupervised. The tamper and power fail inputs can be configured as additional unsupervised ports. A supervised input supports four states: normal, alarm, open and short. An unsupervised input indicates only normal or alarm.

Figure 2-7 Input Connections: Cisco Physical Access Gateway and Reader Module



1	Positive Input Connections—Positive connection to an Input device.
2	Ground Input Connections—Ground connection to an Input device.
3	TM—Tamper input: an unsupervised input that raises a “tamper” alarm when the circuit is open. Can be configured as a general input device using the Cisco Physical Access Manager. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).
4	PF—Power fail input: an unsupervised input that raises a “power fail” alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).

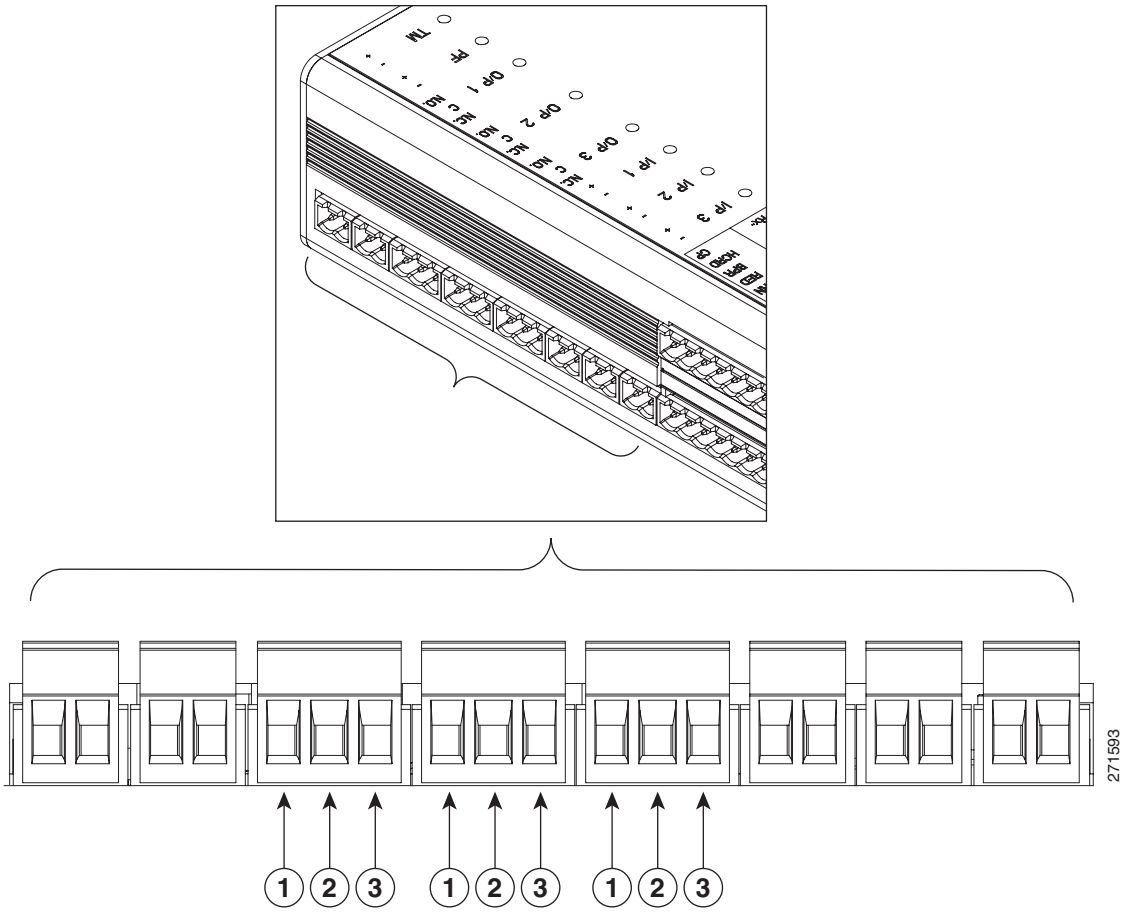
Step 5 Connect output devices to the Gateway (Figure 2-8). Each of the three Form C (5A @ 30V) relay output connections can be configured as either Normally Closed (NC) or Normally Open (NO).

a. Insert three-pin connector plugs into the output ports.

b. Connect the wires from the output devices.

- Common (C) is always used, and either NC or NO is used to complete the connection.
- If the relay is normally open, use the C & NO connections. The circuit is closed when triggered.
- If the relay is normally closed, use the C & NC connections. The circuit is opened when triggered.

Figure 2-8 Output Connections: Cisco Physical Access Gateway and Reader Module



1	Normally Open (N.O.) connection	**3**	Normally Closed (N.O.) connection
2	C		

Step 6 Connect optional expansion modules to the Gateway, if necessary:

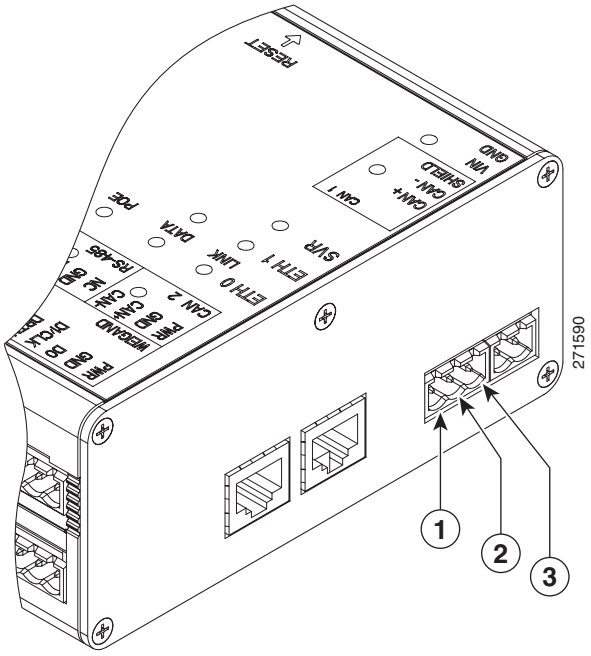
a. Insert a three-pin connector plug into the CAN1 port, as shown in Figure 2-9.

b. Connect the CAN wires to the CAN bus, as shown in Figure 2-10.

c. On the last device in the CAN bus, set the CAN terminator switch to ON. The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus). Set the terminator switch to OFF for all other modules in the CAN bus.

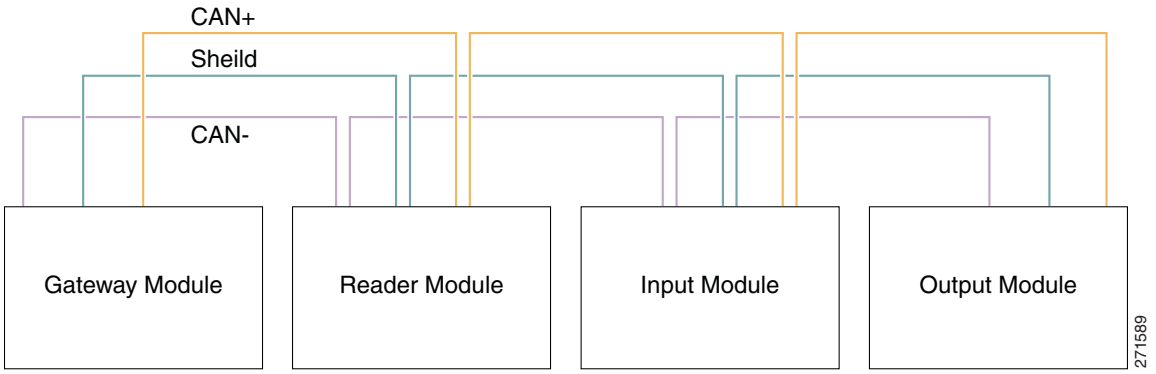
Note Modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.

Figure 2-9 CAN1 Connections: Cisco Physical Access Gateway and Reader Module



1	CAN+ Connects to the positive terminal of the CAN bus.
2	CAN- Connects to the negative terminal of the CAN bus.
3	Shield Connects to GND and/or Shield.

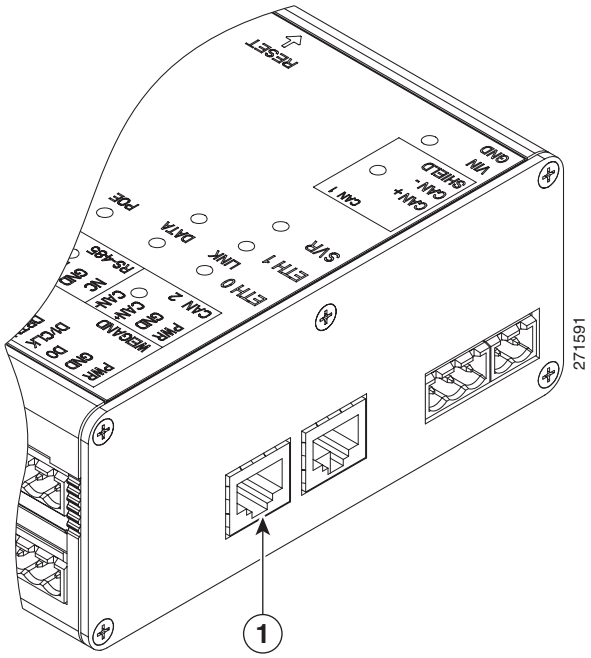
Figure 2-10 CAN Bus Wiring



Note On the last device in the CAN bus, set the CAN terminator switch to ON. The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus).

Step 7 Connect the Gateway to the IP network by connecting an Ethernet cable to the ETH0 port, as shown in Figure 2-11.

Figure 2-11 ETH 0 Ethernet Connection for the Cisco Physical Access Gateway



1	ETH0—Ethernet port for connecting the Gateway to the IP network. **Note** The ETH0 connection can also be used for Power over Ethernet. **Note** The ETH1 port is used to connect a PC to the Gateway for configuration and monitoring. See the "Configuring and Managing the Gateway Using a Direct Connection" section on page 2-15 for more information.

Step 8 Continue to the "Configuring the Gateway Using the Cisco Physical Access Manager" section on page 2-23.

Configuring and Managing the Gateway Using a Direct Connection

To enable the Gateway communication with the Cisco PAM appliance, connect a PC to the ETH1 port and use a web browser to enter basic network settings, as described in this section. You can also use the web administration tool to perform basic administration and monitoring tasks, such as upgrading the module firmware or displaying the module serial number.

This section includes the following information:

- Understanding Network Time Protocol (NTP) Settings
- Connecting a PC to the Gateway
- Entering the Gateway Network Settings
- Changing the User Password
- Upgrading the Gateway Firmware Using a Direct Connection
- Displaying Serial Numbers and Other Information

Tip You can also use the Cisco PAM desktop software to enter network settings and upgrade firmware images. See the "Configuring the Gateway Using the Cisco Physical Access Manager" section on page 2-23.

Understanding Network Time Protocol (NTP) Settings

Cisco Systems strongly recommends using a network time protocol (NTP) server to synchronize the date and time clock on each Gateway module, and on the Cisco PAM appliance. This ensures that events and messages between the server and the Gateway modules are in sync. If the time and date are not synchronized, inconsistent system behavior can occur.

We strongly recommend using the same NTP server setting for the Cisco PAM appliance, and for all Gateway modules.

- Gateways can receive the NTP server setting from a DHCP server, or by using the Cisco PAM desktop software.
  - To enter the Gateway DHCP settings, see the "Entering the Gateway Network Settings" section on page 2-17.
  - If DHCP is used to define the Gateway NTP server, any NTP settings defined using the Cisco PAM desktop software will not apply (the DHCP configuration takes precedence).
  - To enter the NTP setting for a single Gateway using Cisco PAM desktop software, choose **Hardware** from the **Doors** menu, right-click a Gateway module, and choose **Set Gateway Address**.
  - Beginning with Cisco PAM Release 1.3.0, you can also change the NTP server setting for multiple Gateways (Right-click the **Access GW Driver** and choose the **Set NTP Server** command). See the Cisco Physical Access Manager User Guide for instructions.
- To enter the NTP setting on the Cisco PAM server, use the Cisco PAM web administration tool. See the Cisco Physical Access Manager User Guide for instructions.

Note Other systems that are integrated with Cisco PAM, such as the Video Surveillance Manager (Cisco VSM), should use the same NTP server setting.

Connecting a PC to the Gateway

To enter the initial Gateway settings or perform other administration tasks, connect a PC to the Gateway ETH1 port and use a web browser to access the administration pages.

Before You Begin

To configure a Cisco Physical Access Gateway, you need the following:

- A PC and web browser.
  The Cisco Physical Access Gateway supports Internet Explorer 6.0 and higher.
- A Ethernet cable to connect your PC to the Gateway.
  Cross-over and straight-through cables are supported.
- Your PC must be configured to connect to the 192.168.1.0 network using Ethernet. Use any static host address on the network other than 192.168.1.42.
- Power connected to the Cisco Physical Access Gateway.
  See the "Installing the Cisco Physical Access Gateway" section on page 2-7 for more information.

In addition, gather the following information:

- The IP Address of the Cisco PAM appliance.
- You can use a DHCP server to assign an IP address for the Gateway.
  If a DHCP server is not used, gather the Cisco Physical Access Gateway IP address, IP gateway, subnet mask.
- The domain name server (DNS) for the Gateway if DNS names (not IP addresses) are used for the NTP or Cisco PAM addresses.

Procedure

Complete the following steps to log on to the administration tool.

Step 1 Connect an Ethernet cable from a PC to the ETH1 interface on the Gateway module.

- See the "Physical Overview and Port Description" section on page 2-3 for the port location.
- Be sure to connect your PC to the ETH1 port. The ETH0 port is used for network communication.
- Your PC must be configured to connect to the 192.168.1.0 network using Ethernet. Use any static host address on the network other than 192.168.1.42.

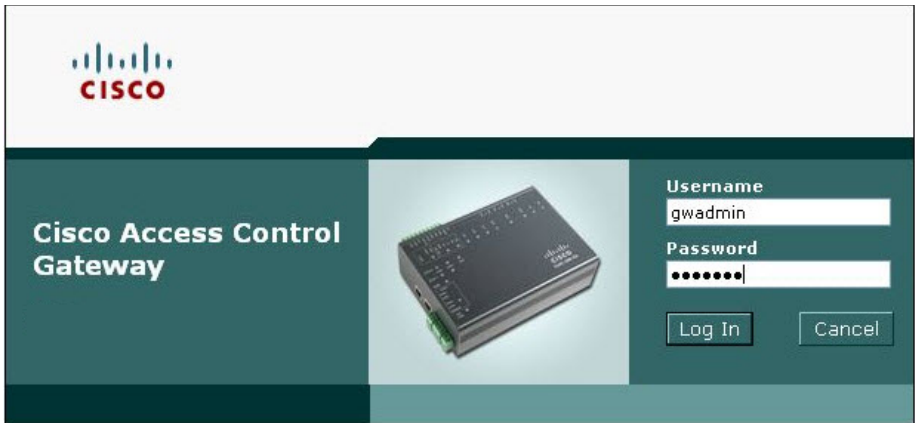
Step 2 Open a web browser on your PC and enter `https://192.168.1.42`. to access the web-based administration pages.

Step 3 Enter the default username and password (Figure 2-12).

default username: **`gwadmin`**

default password: **`gwadmin`**

Figure 2-12 Login Screen for the Cisco Physical Access Gateway



The web administration pages appear, and are described in the following sections.

Entering the Gateway Network Settings

Enter the network settings to enable IP communication between the Gateway and the Cisco PAM appliance. Network settings include the following:

- **ETH0 Configuration**: the ETH0 port provides IP network connectivity with the Cisco PAM appliance.
- **DNS Configuration**: enter a DNS configuration if names (not IP addresses) are used for the NTP or CPAM addresses.
- **Cisco PAM Configuration**: defines the IP address and port of the Cisco PAM appliance that is used to manage the Gateway.

Tip Gateway modules can be added to the IP network before or after the full module configuration is entered in Cisco PAM. For more information, see the Cisco Physical Access Manager User Guide.

Procedure

Complete the following steps for each Gateway in the system.

Step 1 Enter the **ETH0 Configuration** settings, as shown in Figure 2-13. The ETH0 port is used for network communications with the Cisco PAM appliance.

a. If a Dynamic Host Configuration Protocol (DHCP) server is configured on your IP network, check the **DHCP** box for ETH0 to automatically configure the required IP network settings, including IP address, Subnet Mask, and Gateway. The **DHCP** check box is checked by default.

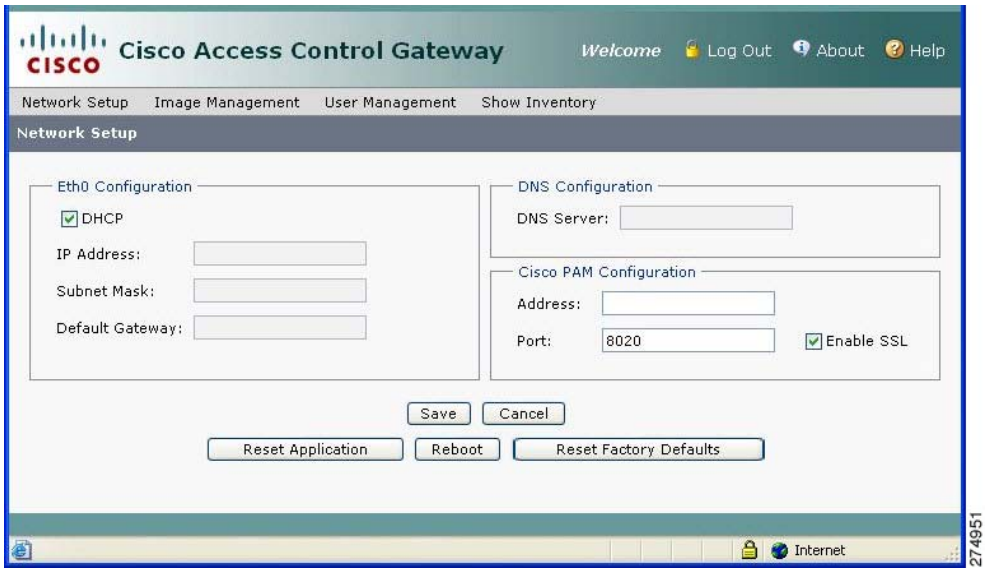
b. (Optional) If a DHCP server is not used to assign IP address settings, enter the following information in the **ETH0** fields:

   – **IP address**: Enter the IP address of the Cisco Physical Access Gateway.

   – **Subnet Mask**: Enter the subnet mask.

   – **Gateway**: Enter the IP gateway address.

Figure 2-13 Network Settings for the Cisco Physical Access Gateway



Step 2 (Optional) Enter the **DNS Server** address if names (not IP addresses) are used for the CPAM address.

Step 3 Enter the **Cisco PAM Configuration**:

a. Enter the Cisco PAM IP **Address** (IP address or name) to enable Gateway communication with the appliance.

b. Enter the **Port** number for the Cisco PAM appliance. The port number must be greater than 1024 and less 65535. The default is 8020.

Tip DHCP can also be configured to supply the Gateway with the IP address of the Cisco PAM appliance by configuring option 150 in the DHCP response. The Cisco PAM appliance TCP port number can be provided by DHCP option 151 of the DHCP response.

c. **Enable SSL**: The secure socket layer (SSL) is enabled for secure communication between the Gateway and Cisco PAM appliance by default. If necessary SSL can be disabled by unchecking the **Enable SSL** check box.

Note SSL is enabled by default on all Gateways and Cisco PAM appliances. If SSL is disabled for a Gateway but enabled for Cisco PAM, the Gateway will not be able to connect to the appliance. If the SSL settings are changed, reset all Gateways and the Cisco PAM appliance. We recommend enabling SSL to ensure secure communications.

Step 4 Click **Save** to save the settings. Wait until the Gateway resets and the web browser displays the screen *Network Settings Applied*.

Note Changes do not take effect until saved.

Step 5 Repeat Step 1 through Step 4 for each Gateway in the system.

Step 6 Perform additional configuration, verification, and monitoring tasks as described in the Cisco Physical Access Manager User Guide.

Changing the User Password

Tip You can also change the password for one or more Gateways using the Cisco PAM desktop software. See the "Changing Gateway Passwords" section in the Cisco Physical Access Manager User Guide for more information.

Procedure

To change the password used to access the Gateway, do the following:

Step 1 Click the **User Management** tab, as shown in Figure 2-14.

Figure 2-14 User Management for the Cisco Physical Access Gateway

Step 2 Enter the **Current Password**.

Step 3 Enter the **New Password**.

Step 4 **Re-enter** the new password to verify the setting.

Step 5 Click **Update** to save the changes.

Note The **Username** cannot be changed.

Tip To reset the device to the default password, see the "Hard Reset (Restore Factory Defaults)" section on page 2-24.

Upgrading the Gateway Firmware Using a Direct Connection

Tip You can also upgrade the firmware for a single Gateway, or all Gateways, over the network using the Cisco PAM desktop software. For instructions, see the Cisco Physical Access Manager User Guide.

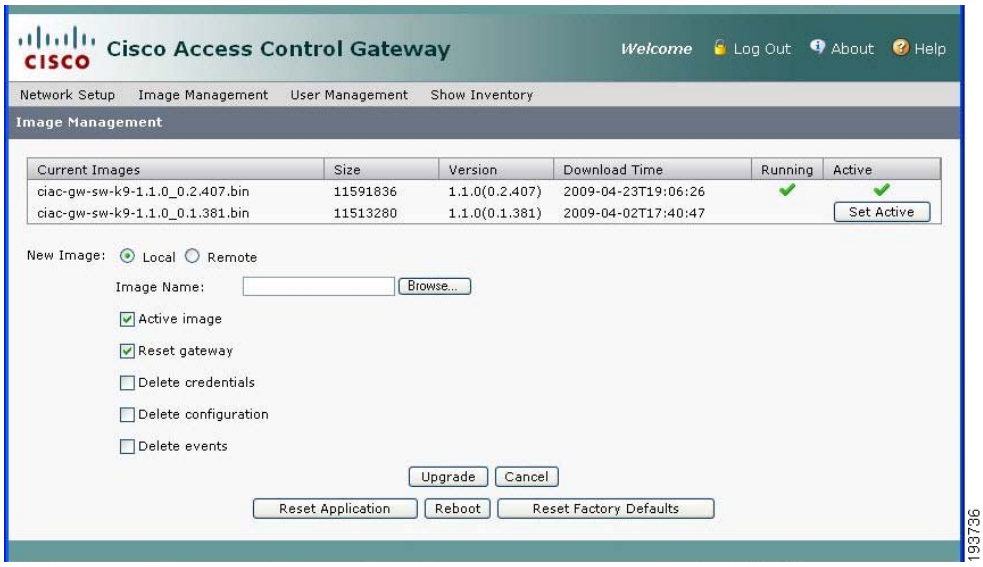
Procedure

To upgrade the Gateway firmware from a PC directly connected to the module, do the following:

Step 1 Log on to the Gateway administration tool, as described in the "Connecting a PC to the Gateway" section on page 2-16.

Step 2 Click the **Image Management** tab, as shown in Figure 2-15.

Figure 2-15 Image Management for the Cisco Physical Access Gateway



Step 3 Determine the active and running firmware images:

The **Image Management** window displays all firmware images loaded on the Gateway. The running image is the firmware currently operating the Gateway module. The active image is the image that will become the running image when the Gateway module is reset. The table displays the images currently loaded on the module:

- **Current Images:** a list of the firmware images currently loaded on the Gateway module.
- **Running**: the green check in the Running column indicates the image operating the Gateway.
- **Active**: the green check in the Active column indicates the image set as the active image. This is the image that will become the Running image when the Gateway is reset.

Step 4 Upload a new firmware image from a file located on a local disk or on a remote TFTP server:

Tip You can also choose an existing image: highlight the image name, click the **Set Active** button, and then reset the Gateway. The new active image becomes the running image only after the Gateway is reset (see the "Soft Reset (Powercycle)" section on page 2-24).

Option 1: Local Disk

To upload a firmware file from a local on the connected PC:

a. Choose the **Local** radio button, as shown in Figure 2-15.

b. Click the **Browse** button and choose a file from located on a local or network disk. The selected file appears in the **Image Name** field. You can also manually enter the directory path and filename.

Option 2: Remote TFTP Server

To upload a firmware file from a remote TFTP server:

a. Choose the **Remote** radio button.

b. Enter the **TFTP Server** IP address.

c. Enter the directory **Path** on the TFTP server for the firmware image. Be sure the path and filename are valid. The administration tool does not verify remote server paths.

Tip The directory path and filename for the remote image displays in the second **Image Name** field. You can also enter the path and filename manually.

d. Choose the options that will occur after the image is loaded to the Gateway:

Note When upgrading Gateway firmware images from a release prior to release 1.1.0, choose all available options.

- **Active image**: (checked by default) make the firmware file new active image.
- **Reset gateway**: (checked by default) perform a soft reset to powercycle the module. See the "Soft Reset (Powercycle)" section on page 2-24 for more information. Changes to the active image are applied only after the Gateway is reset.
- **Delete credentials**: delete the credential data stored on the Gateway.
- **Delete configuration**: delete the module configuration. The configuration is automatically reloaded when the module established communication with the Cisco PAM appliance.
- **Delete events**: delete all events stored on the module.

Step 5 Click **Upgrade** to copy the firmware image to the Gateway module and perform the selected options (if any).

When all options are selected, wait approximately 10-15 minutes for the firmware upgrade to complete.

Note The Gateway must be reset to enable the new active image. See the "Soft Reset (Powercycle)" section on page 2-24.

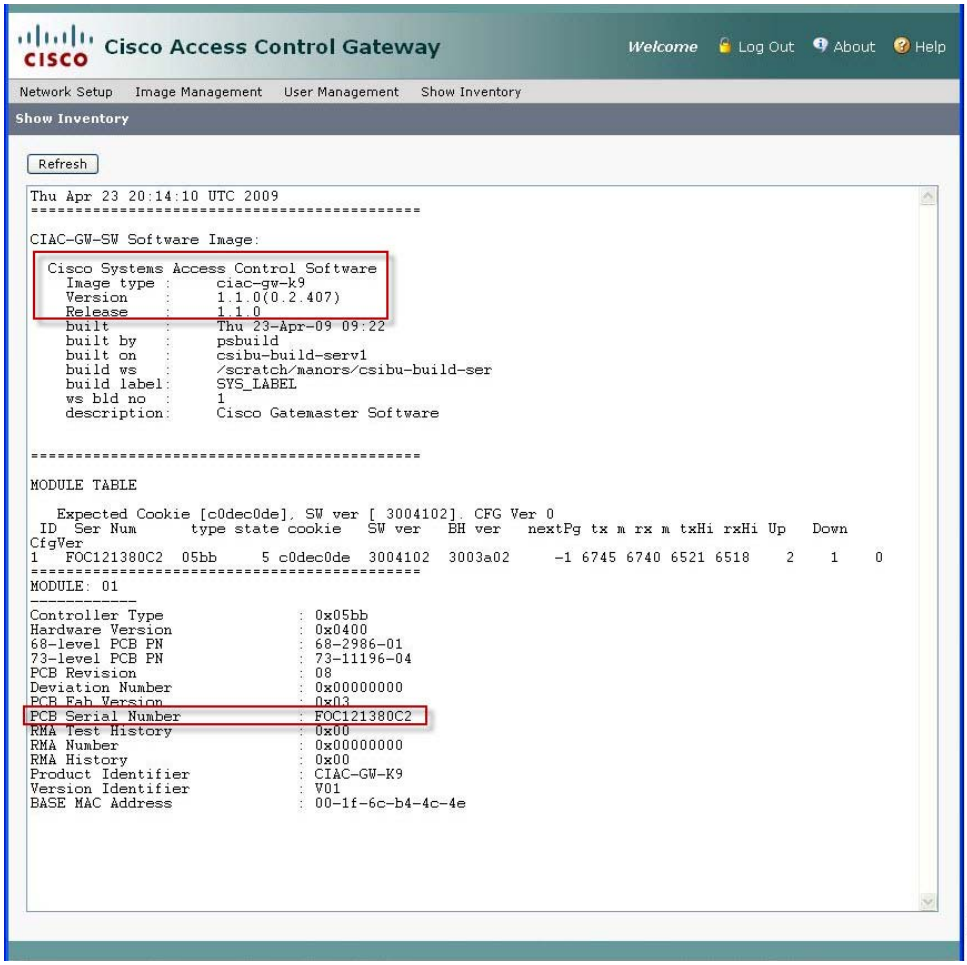
Displaying Serial Numbers and Other Information

Use the **Show Inventory** window to display the module serial number and other information, such as the module serial number.

Step 1 Log on to the Gateway administration tool, as described in the "Connecting a PC to the Gateway" section on page 2-16.

Step 2 Click the **Show Inventory** tab, as shown in Figure 2-16.

Figure 2-16 Show Inventory Window for the Cisco Physical Access Gateway



Tip The serial number is also displayed on the back of the module. To view the serial number in Cisco PAM, open the **Hardware** module device view, right-click on the **Gateway Controller**, and choose **Edit** to view the module properties.

Configuring the Gateway Using the Cisco Physical Access Manager

After the initial Gateway configuration is complete, use the The Cisco Physical Access Manager (Cisco PAM) desktop software for advanced configuration of Gateways and other components. For example, you can use Cisco PAM to configure doors, door devices and access policies enabled by the Gateway modules.

In addition, you can use Cisco PAM to do the following:

- Display the network and firmware settings for each Gateway.
- Change the Gateway module network settings.
- Change the NTP setting for multiple Gateway modules.
- Upgrade Gateway firmware images.

See the Cisco Physical Access Manager User Guide for more information.

Tip You can configure the Gateway modules in Cisco PAM before or after they are added to the IP network.

Resetting the Cisco Physical Access Gateway

Reset the Gateway to powercycle the module, restore the factory settings, or delete the stored logs and other data. The effect of the restart depends on the type of restart your perform, as described in the following sections. You can reset the module using the physical button on the side of the module, or in software using either the web administration tool or the Hardware device view in Cisco PAM.

- Soft Reset (Powercycle), page 2-24
- Hard Reset (Restore Factory Defaults), page 2-24

Soft Reset (Powercycle)

Use the soft reset to powercycle the Cisco Physical Access Gateway. A soft reset reloads the device firmware to clear any software issues, but does not impact stored data. The password, logs and other information are retained.

Use one of the following methods to perform a soft reset:

- **Hardware reset button**: Press and release the reset button once. See Figure 2-2 on page 2-3 for the location of the **Reset** button.
- **Gateway web administration tool**: Follow the instructions in the "Configuring and Managing the Gateway Using a Direct Connection" section on page 2-15 to connect a PC to the Gateway, and click the **Reset** button at the bottom of the screen.
- **Cisco PAM desktop software**: Open the **Hardware** module in the **Doors** menu and right-click on a **Gateway Controller** (blue icon). Choose **Reset** from the menu.

Hard Reset (Restore Factory Defaults)

A hard reset deletes all information on the device (including log and event data) and resets the password and all other configurations to the factory default. Any custom configurations previously entered on the device are removed.

Note the following:

- Allow five to 10 minutes for the hard reset erase operation to complete.
- Do not disconnect power from the module until the hard reset erase process is complete. Loss of power during a hard reset can result in equipment malfunction.
- The SVR LED flashes throughout the erase operation.
- The module reboots with the existing firmware image after the hard reset is complete.

Use one of the following methods to perform a hard reset:

- **Hardware reset button**: Press **Reset** button *three times in succession*. See Figure 2-2 on page 2-3 for the location of the **Reset** button.
- **Gateway web administration tool**: Follow the instructions in the "Configuring and Managing the Gateway Using a Direct Connection" section on page 2-15 to connect a PC to the Gateway, and click the **Restore Factory Defaults** button at the bottom of the screen.

CHAPTER 3

Connecting a Cisco Reader Module

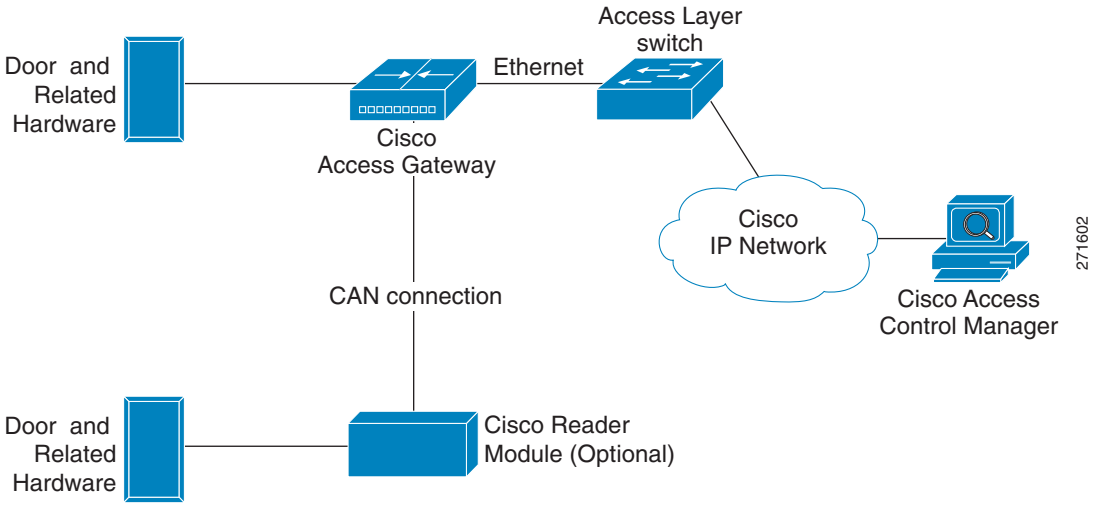
Overview

The optional Cisco Reader Module (Figure 3-1) is similar to the Cisco Physical Access Gateway, providing the same ports for Wiegand readers and other input and output devices. The Cisco Reader Module is attached to a Cisco Physical Access Gateway to provide additional connections for one or two doors, but does not include Ethernet connections for the IP network. Power is supplied using the 2-pin connector for 12 to 24 VDC external power.

Figure 3-1 Cisco Reader Module

The Cisco Reader Module is connected to a required Cisco Physical Access Gateway using a CAN connection, as shown in Figure 3-2.

Figure 3-2 Cisco Reader Module connected to the Cisco Physical Access Gateway



Package Contents

Each Cisco Reader Module includes the following:

- Six resistors (1K) for input supervision
- Two mounting brackets, with 4 screws for each bracket
- Regulatory compliance and safety information
- Quick start guide
- Connector plugs, including the following:

Type	Quantity
10 Pin	1
3 Pin	4
2 Pin	6

Physical Overview and Port Description

Each Cisco Reader Module includes ports for connecting up to two doors and associated input and output devices, as shown in Figure 3-3 and Figure 3-4.

Figure 3-3 Cisco Reader Module Ports and Connectors

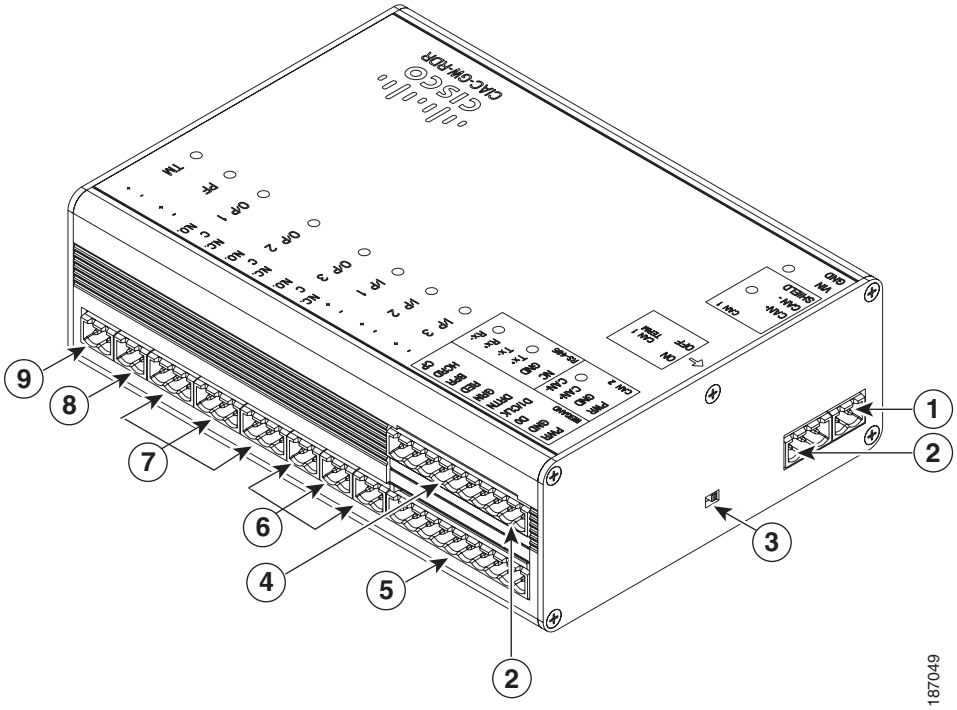
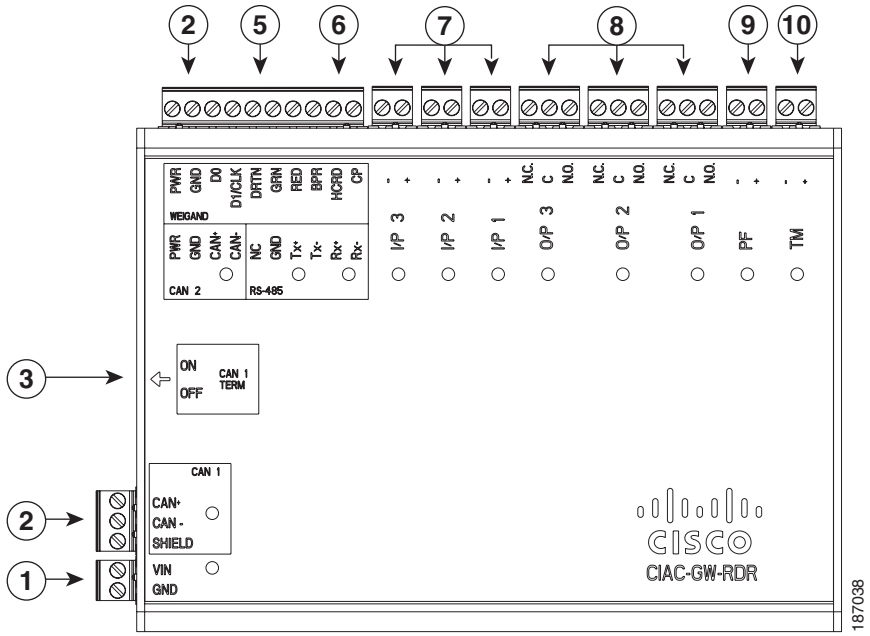


Figure 3-4 Cisco Reader Module Ports and Connectors: Top View



1	Power Two-pin connector for Voltage In (VIN) and Ground (GND) to connect a 12 to 24 VDC external power source.
2	CAN interfaces A 3-wire CAN bus is used to connect additional modules. **Note** Modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.
3	CAN terminator The CAN terminator switch is set to ON for the last device in a CAN wiring bus. This switch is set to set to OFF for all other devices in the CAN bus.
4	Serial Interface The RS-485 interface is not supported in this release.
5	Wiegand Interface One 10-pin Wiegand/clock and data reader interface. This interface can be configured as two 5-pin Wiegand/clock and data interfaces for installations where a 5-pin interface is sufficient. **Note** Disconnect power from the Gateway or Reader module before connecting reader devices to the modules. Connecting a reader device when the modules are powered can cause the Gateway or Reader module to malfunction.

6	Input interfaces Three input interfaces used to sense the contact closure. Each input can be configured as supervised or unsupervised and can be configured to sense a Normally Open (NO) or Normally Closed (NC) contact. • An unsupervised input senses a simple contact closure state, including Normal or Alarm. When connected to open contacts, the terminal voltage range is 4V to 5V. For closed contacts, the voltage range is 0V to 0.7V. • A supervised input senses four contact states, including Normal, Alarm, Open and Short. These inputs require 1K End-Of-Line (EOL) termination resistors installed at the contacts (two resistors are included in the accessory kits for each Input port).
7	Output interfaces Three Form C (5A @ 30V) relay output interfaces. Each output can be configured as either Normally Closed (NC) or Normally Open (NO). • C & NO connection: The relay is normally open. The circuit is closed when triggered. • C & NC connection: The relay is normally closed. The circuit is opened when triggered. **Notes:** • Install surge protection between the output device and the Cisco PAM module, as described in the "Installing Surge Suppressors on Output Device Connections" section on page 1-13. • Common (C) is always used, and either NC or NO is used to complete the connection. • All Generic Output devices installed in Cisco PAM systems prior to release 1.1.0, were connected to the Gateway, Reader, or Output modules with the wiring reversed. If upgrading to Cisco PAM release 1.1.0 from an earlier release, disconnect all Generic Output devices and do the following: – Connect Normally Open devices to the N.O. and C connectors on the Gateway, Reader, or Output module. – Connect Normally Closed devices to the N.C. and C connectors on the Gateway, Reader, or Output module.
8	PF Power fail input: an unsupervised input that raises a "power fail" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).
9	TM Tamper input: an unsupervised input that raises a "tamper" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).

Status LEDs

Table 3-1 describes the Gateway module status LEDs:

Table 3-1 Gateway LEDs

Status	Description
Input Port LEDs	
OFF	Input is not configured
GREEN	Input is configured and in normal state
BLINKING GREEN	Input is configured, and is receiving and alarm or other data.
BLINKING RED	Input is configured, short
RED	Input is configured, open
Output Port LEDs	
Off	Output not configured
Solid Green	Output configured and in default state
Blinking Green	Output configured and active

Installing the Cisco Reader Module

Installing the Cisco Reader Module is similar to installing the Gateway, except for the following:

- There are no Ethernet ports. The Cisco Reader Module is not directly connected to the IP network, and is not directly configured.
- The Cisco Reader Module does not support Power over Ethernet (PoE). The device is connected to a DC power source.
- The Cisco Reader Module must be terminated if it is the last device in a CAN wiring bus. See the "CAN Bus Connections for Optional Modules" section on page 1-7 for more information.

Before You Begin

Before you install a Cisco Reader Module, verify the following:

- Verify that the module has access to a power source. See the "Power Options and Requirements" section on page 1-12 for more information.
- Verify that you have the necessary mounting brackets or other hardware. See the "Mounting a Gateway or Optional Module" section on page 1-14.

Procedure

To install the Cisco Reader Module, perform the following procedure:

Step 1 Mount the module to a wall. See the "Mounting a Gateway or Optional Module" section on page 1-14 for more information.

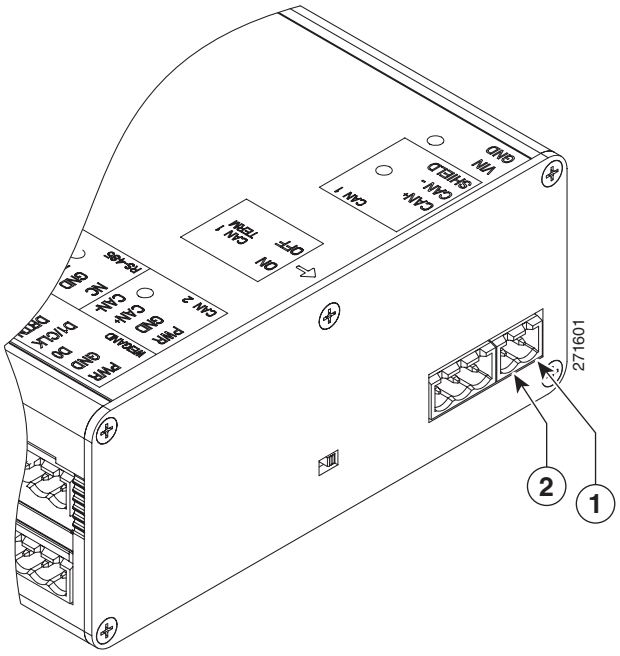
Step 2 Connect the module to the DC power source:

a. Insert a two-pin connector plug into the DC power port (Figure 3-5)

b. Connect the Voltage In (VIN) and ground (GND) wires.

See the "Power Options and Requirements" section on page 1-12 for more information.

Figure 3-5 Power Connection: for the Cisco Reader Module



1	DC power GND (ground) Connects the DC ground wire to the module.
2	DC power Voltage In (VIN) Connects the DC Voltage In (VIN) wire to the module.

Step 3 Connect the module to the Gateway using a CAN bus:

a. Insert a three-pin connector plug into the CAN1 port, as shown in Figure 3-6.

b. Connect the CAN wires to the CAN bus, as shown in Figure 3-7

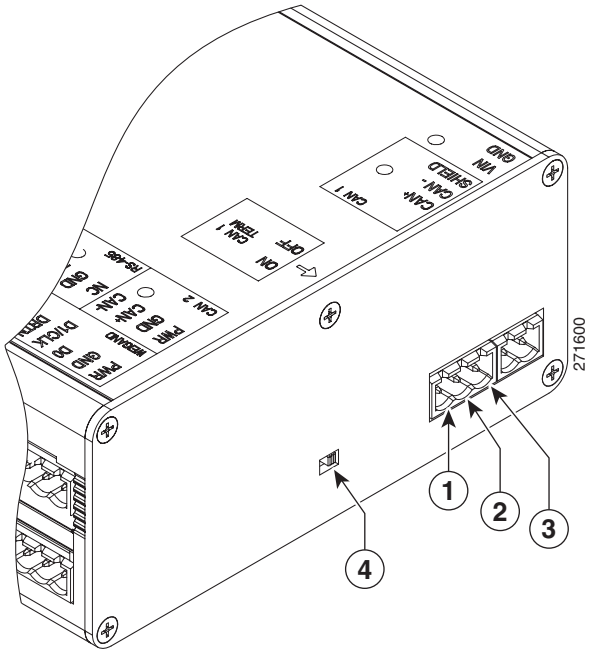
c. Turn the CAN terminator ON if the device is the last device in a CAN wiring bus.

Note The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus). Set the terminator switch to OFF for all other modules in the CAN bus.

Note The CAN2 interface is not supported in this release.

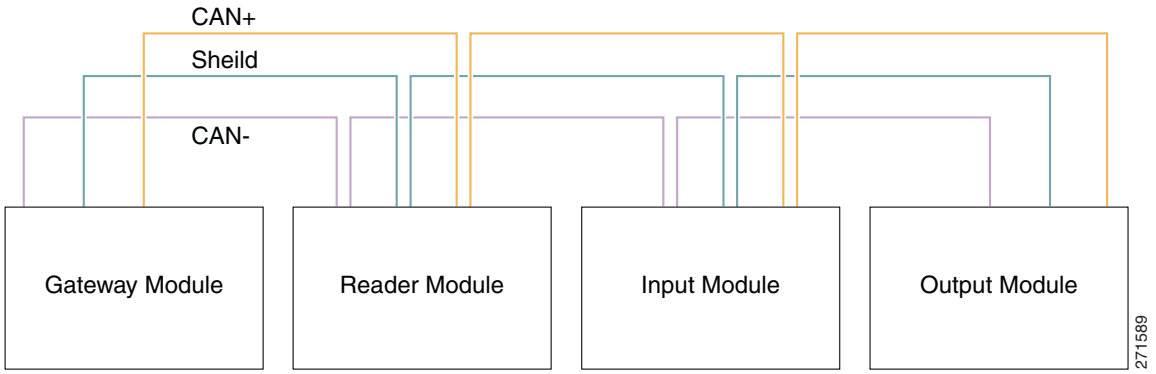
See the "Optional Expansion Modules" section on page 1-5 for more information:

Figure 3-6 CAN1 Connections: Cisco Physical Access Gateway and Reader Module



1	CAN+ Connects to the positive terminal of the CAN bus.
2	CAN- Connects to the negative terminal of the CAN bus.
3	Shield Connects to GND and/or Shield.
3	CAN Terminator Turn the terminator ON if the device is the last device in a CAN wiring bus.

Figure 3-7 CAN Bus Wiring

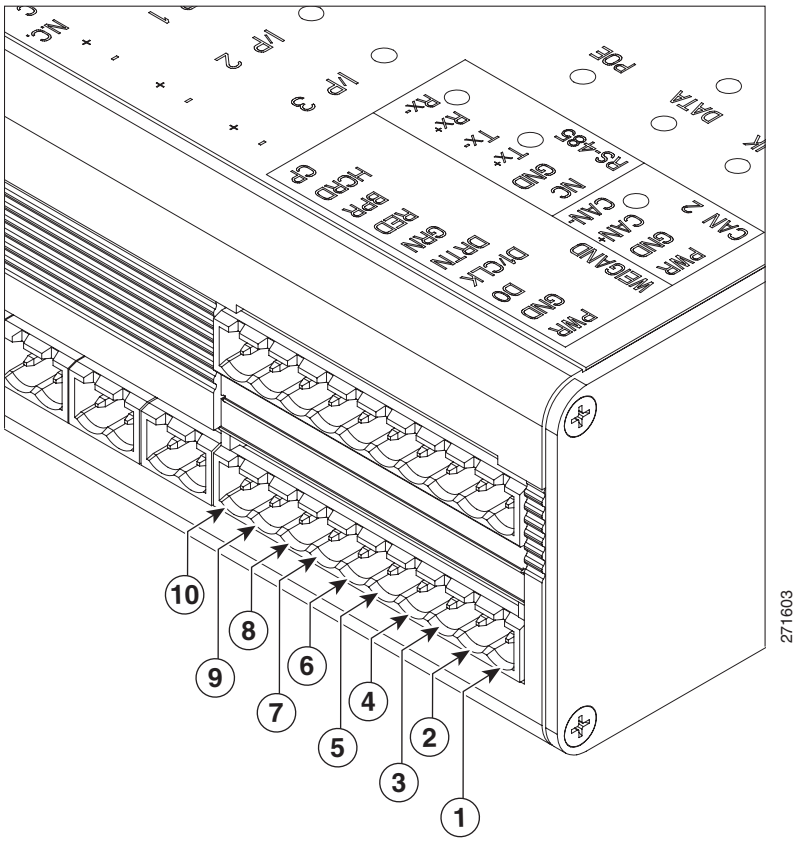


Step 4 Connect one or two door reader devices to the Wiegand interface using one of the following configurations:

- Connect a single door reader using all 10 Wiegand interface pins.
- Connect one or two door readers using 5-pin Wiegand interface connections (for installations where a 5-pin interface is sufficient).

Figure 3-8 shows the location of the Wiegand interface connections. The table describes the connections for 10-pin and 5-pin reader interface connections. The wire connectors from the reader device are shown in parentheses. If attaching a second reader, use the alternative connections shown in the column on the far right.

Figure 3-8 Wiegand Interface on the Gateway and Reader Modules



Chassis Label	Description	One Reader 10 Wire Connection	First Reader in a 5 Wire Connection	Second Reader in a 5 Wire Connection
PWR	+12v	PWR (red) [1]	PWR (red)	PWR (red)
GND	Ground	GND (black)	GND (black)	GND (black)
D0	Data 0	D0 (green)	D0 (green)	----------
D1/CLCK	Data 1	D1/CLCK (white)	D1/CLCK (white)	----------
DRTN	Shield	DRTN (shield)	DRTN (shield)	DRTN (shield)
GRN	Output [2]	GRN (orange)	GRN (orange)	----------

Chassis Label	Description	One Reader 10 Wire Connection	First Reader in a 5 Wire Connection	Second Reader in a 5 Wire Connection
RED	Output	RED (brown)	---------- [3]	GRN (orange)
BPR	Output (Beeper)	BPR (yellow)	----------	----------
HCRD	Hold Control	HCRD (blue)	----------	D1/CLCK (white)
CP	Card Present	CP (purple)	----------	D0 (green)

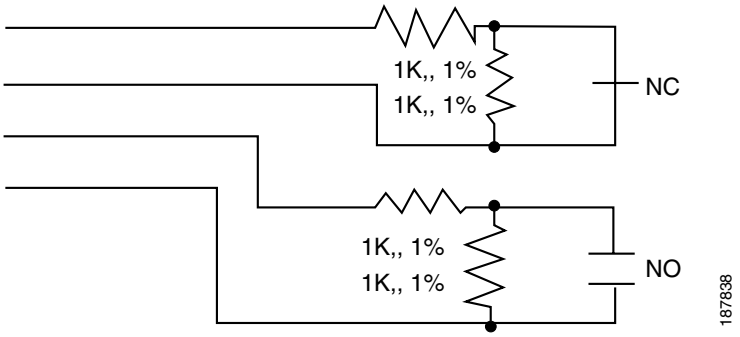
1. Wire colors are shown in parentheses.
2. Outputs show the LED color and reader wire color (in parentheses). For example, "GRN (orange)" supports a green LED. Attach the orange wire from the reader device.
3. ---------- means the wire slot is not used.

Step 5 Connect input devices to the module:

a. Insert two-pin connector plugs into the input ports (Figure 3-10).

b. (Optional, for supervised input connections only). Install two End-Of-Line (EOL) 1K termination resistors in each supervised input interface (one terminator in each connector). Figure 3-9 shows the terminator installation for a Normally Closed (NC) and Normally Open (NO) input connection.

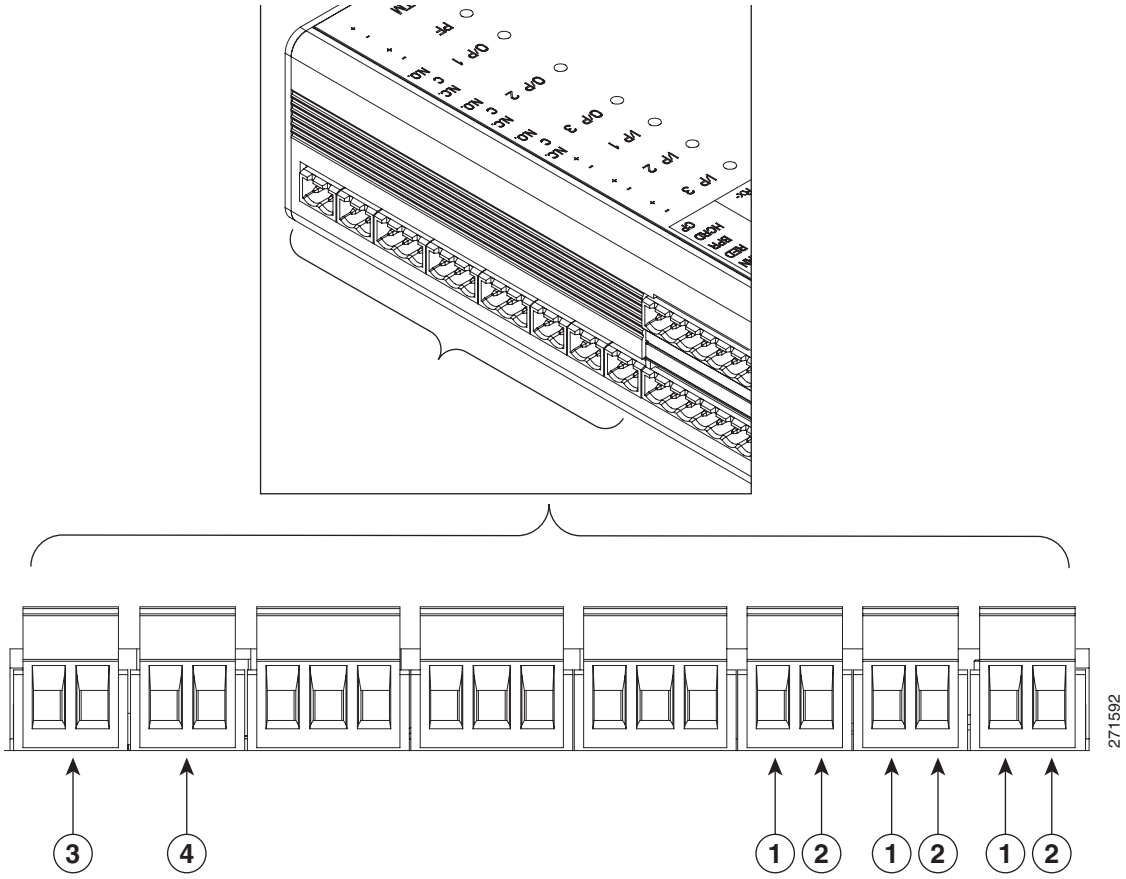
Figure 3-9 Input Connections: Cisco Physical Access Gateway and Reader Module



c. Connect the wires from the input devices (Figure 3-10).

Note Each of the input connections can be configured as supervised or unsupervised. The tamper and power fail inputs can be configured as additional unsupervised ports. A supervised input supports four states: normal, alarm, open and short. An unsupervised input indicates only normal or alarm.

Figure 3-10 Input Connections: Cisco Physical Access Gateway and Reader Module



1	Positive Input Connections Positive connection to an Input device.
2	Ground Input Connections Ground connection to an Input device.
3	TM Tamper input: an unsupervised input that raises a “tamper” alarm when the circuit is open. Can be configured as a general input device using the Cisco Physical Access Manager. The corresponding LED is red when circuit is open (when no input is connected).
4	PF Power fail input: an unsupervised input that raises a “power fail” alarm when the circuit is open. Can be configured as an additional unsupervised port. The corresponding LED is red when circuit is open (when no input is connected).

Step 6 Connect output devices to the module:

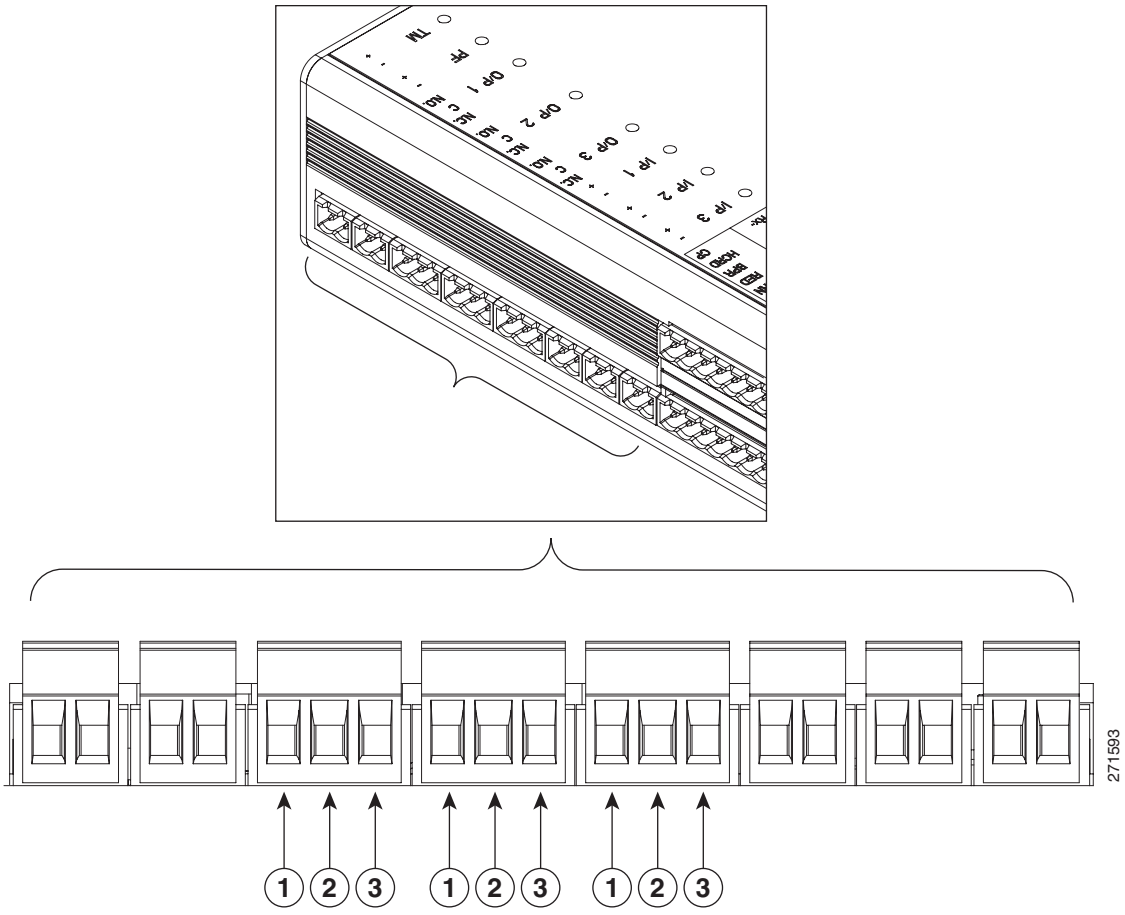
a. Insert three-pin connector plugs into the output ports (Figure 3-11).

b. Connect the wires from the output devices.

- Common (C) is always used, and either NC or NO is used to complete the connection.

- If the relay is normally open, use the C & NO connections. The circuit is closed when triggered.
- If the relay is normally closed, use the C & NC connections. The circuit is opened when triggered.

Figure 3-11 Output Connections: Cisco Physical Access Gateway and Reader Module



1	Normally Open (N.O.) connection	**3**	Normally Closed (N.O.) connection
2	C (Common)		

Step 7 See the Cisco Physical Access Manager User Guide for information to configure the module ports.

CHAPTER 4

Connecting a Cisco Input Module

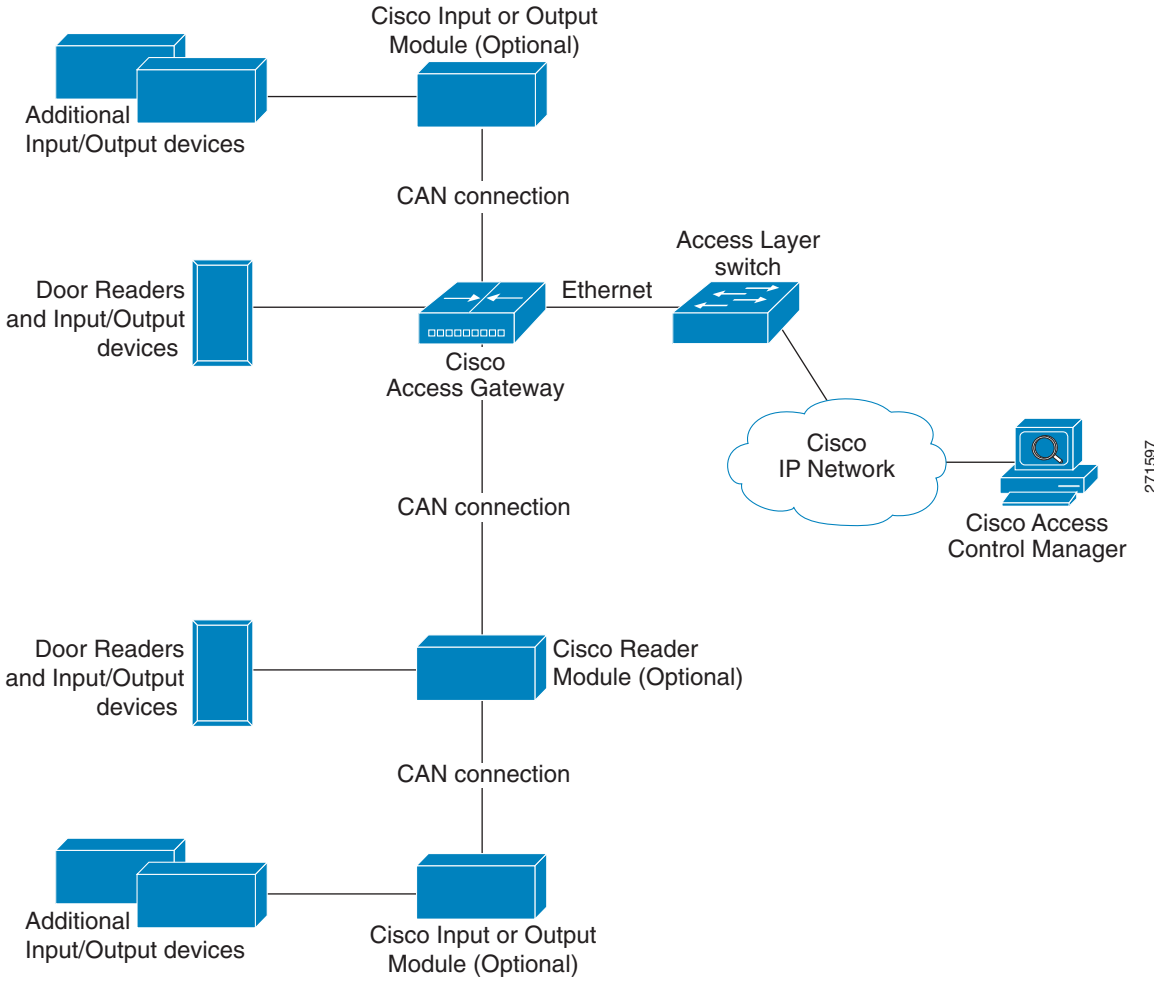
Overview

The optional Cisco Input Module (Figure 4-1) is attached to a Cisco Physical Access Gateway or Cisco Reader Module to provide additional connections for up to ten input devices. Each connection can be configured as supervised or unsupervised. A supervised connection is a four- state connection to determine if the connection is (1) short (2) is open (3)normal state or (4) alarm state. An unsupervised input indicates only normal or alarm.

Figure 4-1 Cisco Input Module

The optional Cisco Input Module is connected to a Cisco Physical Access Gateway or Cisco Reader Module using a CAN connection to provide connections for additional input devices, as, as shown in Figure 4-2.

Figure 4-2 Cisco Reader Module connected to the Cisco Physical Access Gateway



Package Contents

Each Cisco Input Module includes the following:

- 20 resistors (1K) for input supervision
- 2 mounting brackets, with 4 screws for each bracket
- Regulatory compliance and safety information
- Quick start guide

- Connector plugs:

Type	Quantity
3 Pin	1
2 Pin	13

Physical Overview and Port Description

Each Cisco Input Module includes 10 ports for connecting additional input devices. as shown in Figure 4-3.

Figure 4-3 Cisco Input Module Ports and Connectors

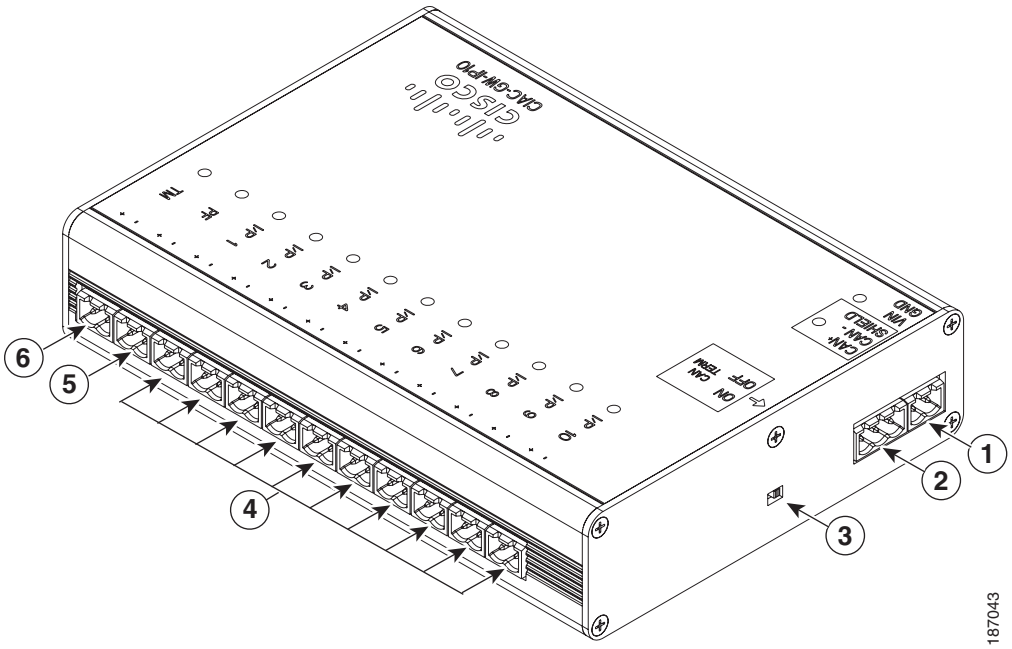
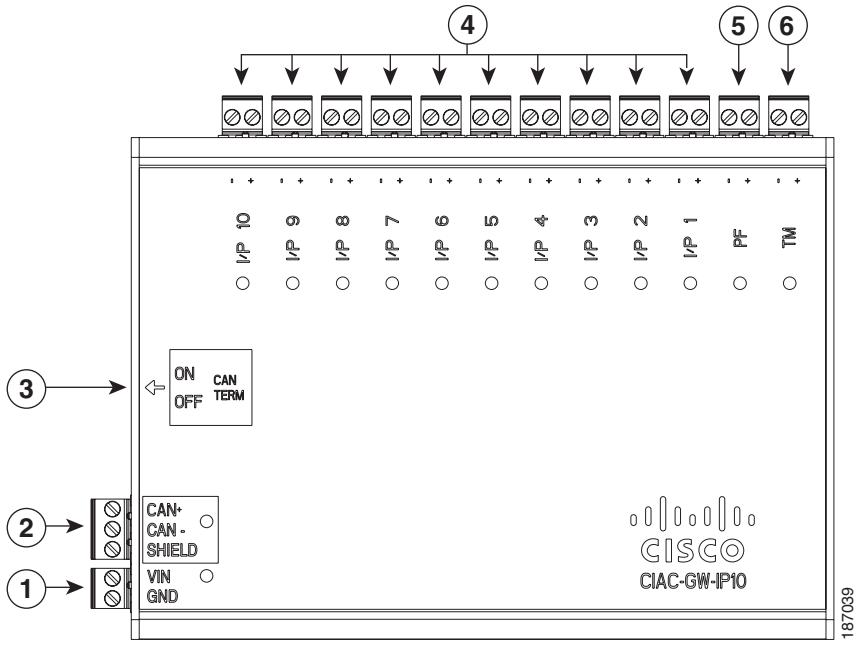


Figure 4-4 Cisco Input Module Ports and Connectors: Top View



1	Power Two-pin connector for Voltage In (VIN) and Ground (GND) to connect a 12 to 24 VDC external power source.
2	CAN interface A 3-wire CAN bus is used to connect additional modules. **Note** Modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.
3	CAN Terminator The CAN terminator switch is set to ON for the last device in a CAN wiring bus. This switch is set to set to OFF for all other devices in the CAN bus.
4	Input connections Ten input interfaces used to sense the contact closure. Each input can be configured as supervised or unsupervised and can be configured to sense a Normally Open (NO) or Normally Closed (NC) contact. • An unsupervised input senses a simple contact closure state, including Normal or Alarm. When connected to open contacts, the terminal voltage range is 4V to 5V. For closed contacts, the voltage range is 0V to 0.7V. • A supervised input senses four contact states, including Normal, Alarm, Open and Short. These inputs require 1K End-Of-Line (EOL) termination resistors installed at the contacts (two resistors are included in the accessory kits for each Input port).

8	PF Power fail input: an unsupervised input that raises a “power fail” alarm when the circuit is open. Can be configured as an additional unsupervised port. The corresponding LED is red when circuit is open (when no input is connected).
9	TM Tamper input: an unsupervised input that raises a “tamper” alarm when the circuit is open. Can be configured as an additional unsupervised port. The corresponding LED is red when circuit is open (when no input is connected).

Status LEDs

Each input port includes a status LED that indicates the following information:

Table 4-1 Input Module LEDs

Status	Description
OFF	Input is not configured
GREEN	Input is configured and in normal state
BLINKING GREEN	Input is configured, and is receiving and alarm or other data.
BLINKING RED	Input is configured, short
RED	Input is configured, open

Installing the Cisco Input Module

Install a Cisco Input Module is provide additional input connections for a Cisco Reader Module or Gateway

Before You Begin

Verify the following:

- Verify that the module has access to a power source. See the “Power Options and Requirements” section on page 1-12 for more information.
- Verify that you have the necessary mounting brackets or other hardware. See the “Mounting a Gateway or Optional Module” section on page 1-14.

Procedure

To install the module, complete the following procedure:

Step 1 Mount the module to a wall. See the “Mounting a Gateway or Optional Module” section on page 1-14 for more information.

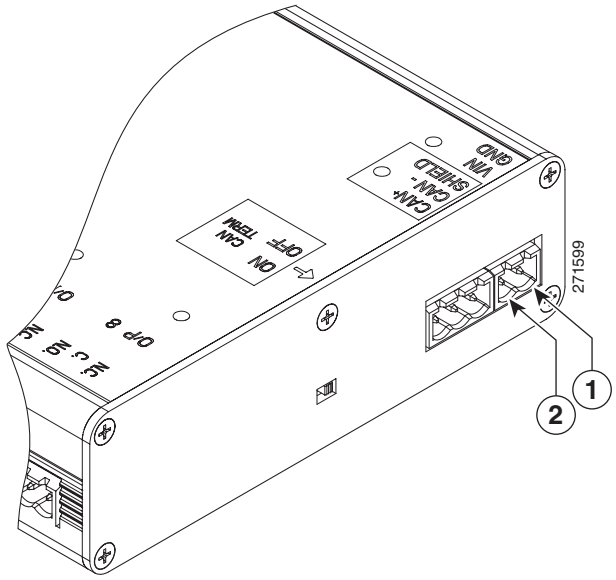
Step 2 Connect the module to the DC power source:

a. Insert a two-pin connector plug into the DC power port (Figure 4-5)

b. Connect the Voltage In (VIN) and ground (GND) wires.

See the “Power Options and Requirements” section on page 1-12 for more information.

Figure 4-5 Power Connections for the Input and Output Modules



1	DC power GND (ground) Connects the DC ground wire to the module.
2	DC power Voltage In (VIN) Connects the DC Voltage In (VIN) wire to the module.

Step 3 Connect the module to the CAN bus:

a. Insert a three-pin connector plug into the CAN1 port, as shown in Figure 4-6.

b. Connect the CAN wires to the CAN bus, as shown in Figure 4-7

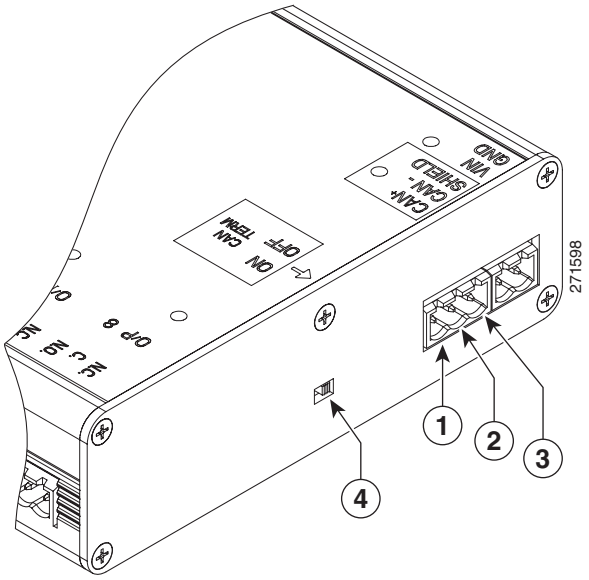
c. Turn the CAN terminator ON if the device is the last device in a CAN wiring bus.

Note The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus). Set the terminator switch to OFF for all other modules in the CAN bus.

Note The CAN2 interface is not supported in this release.

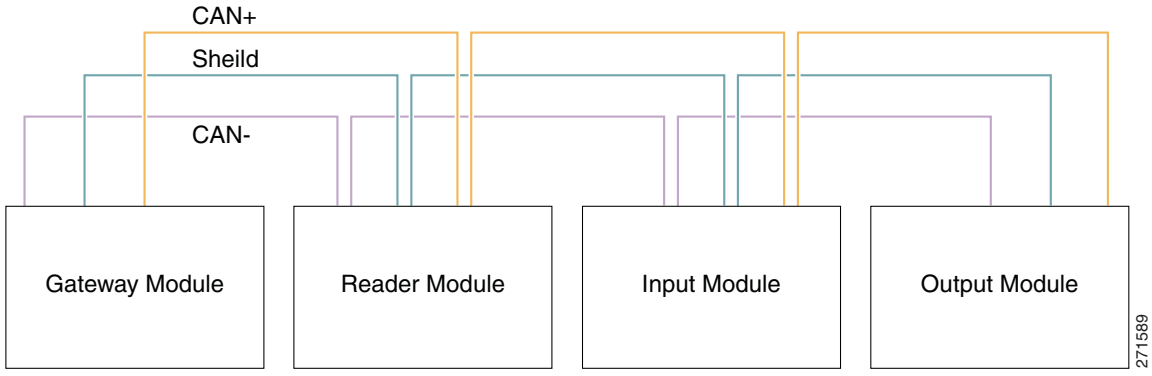
See the "Optional Expansion Modules" section on page 1-5 for more information.

Figure 4-6 CAN Connections: Input and Output Modules



1	CAN+ Connects to the positive terminal of the CAN bus.
2	CAN- Connects to the negative terminal of the CAN bus.
3	Shield Connects to GND and/or Shield.
3	CAN Terminator Turn the terminator ON if the device is the last device in a CAN wiring bus.

Figure 4-7 CAN Bus Wiring

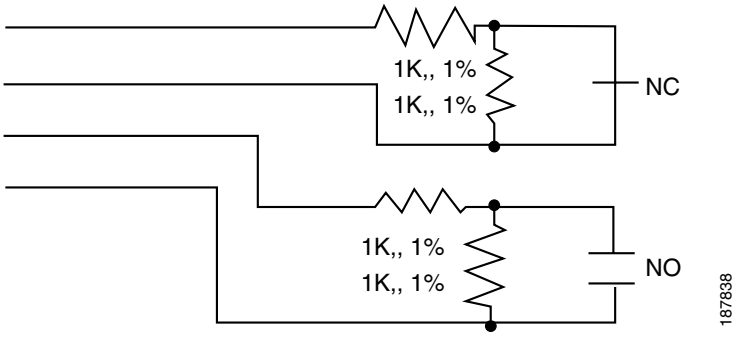


Step 4 Connect input devices to the module:

a. Insert two-pin connector plugs into the input ports.

b. (Optional, for supervised input connections only). Install two End-Of-Line (EOL) 1K termination resistors in each supervised input interface (one terminator in each connector). Figure 4-8 shows the terminator installation for a Normally Closed (NC) and Normally Open (NO) input connection.

Figure 4-8 Input Connections: Cisco Physical Access Gateway and Reader Module



c. Connect the wires from the input devices.

Note Each of the input connections can be configured as supervised or unsupervised. The tamper (TM) and power fail (PF) inputs can be configured as additional unsupervised ports. A supervised input supports four states: normal, alarm, open and short. An unsupervised input indicates only normal or alarm.

Step 5 See the Cisco Physical Access Manager User Guide for information to configure the module ports.

CHAPTER 5

Connecting a Cisco Output Module

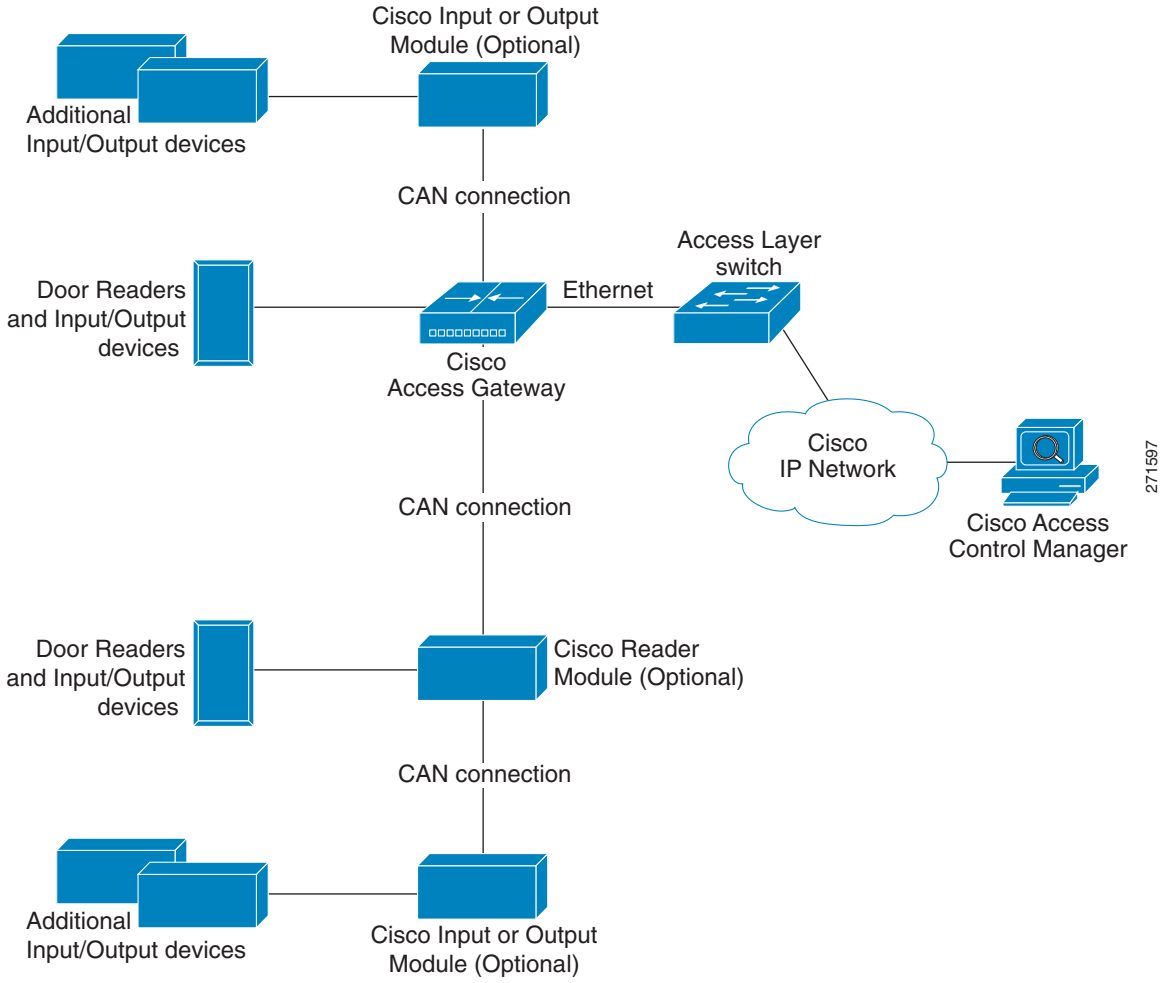
Overview

The optional Cisco Output Module (Figure 5-1) is attached to a Cisco Physical Access Gateway or Cisco Reader Module to provide additional connections for up to 8 outputs, each of which can be configured as Normally Open (NO) or Normally Closed (NC).

Figure 5-1 Cisco Output Module

The Cisco Output Module is connected to a Cisco Physical Access Gateway or Cisco Reader Module using a CAN connection to provide connections for additional output devices, as, as shown in Figure 5-2.

Figure 5-2 Cisco Reader Module connected to the Cisco Physical Access Gateway



Package Contents

Each Cisco Output Module includes the following:

- 2 mounting brackets, with 4 screws for each bracket
- Regulatory compliance and safety information
- Quick start guide
- Connector plugs:

Type	Quantity
3 Pin	9
2 Pin	3

Physical Overview and Port Description

Each Cisco Output Module includes 10 ports for connecting additional output devices. as shown in Figure 5-3 and Figure 5-4.

Figure 5-3 Cisco Output Module Ports and Connectors

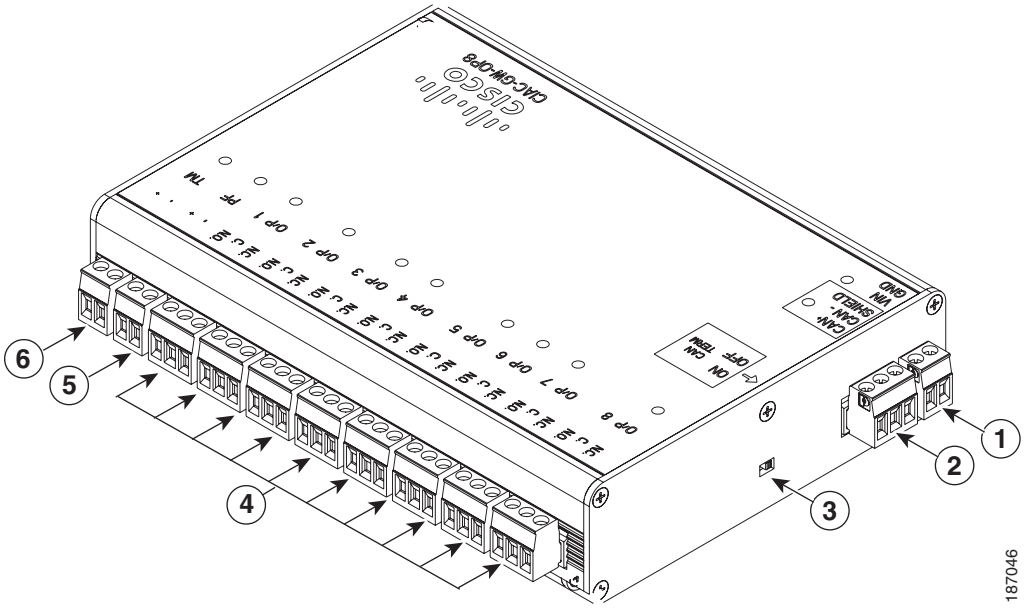
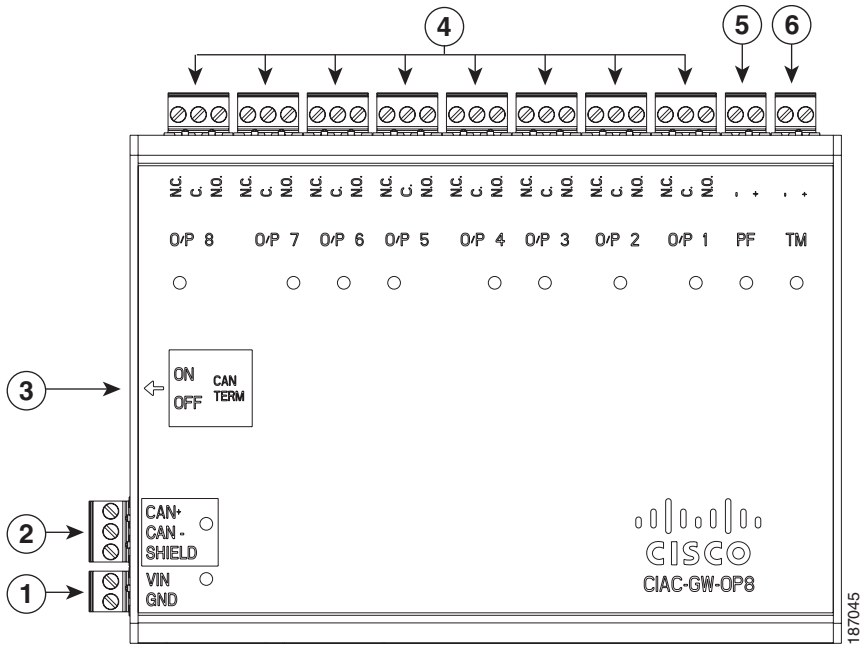


Figure 5-4 Cisco Output Module Ports and Connectors: Top View



1	Power Two-pin connector for Voltage In (VIN) and Ground (GND) to connect a 12 to 24 VDC external power source.
2	CAN interface A 3-wire CAN bus is used to connect additional modules. **Note** Modules are connected using the CAN1 interface. The CAN2 interface is not supported in this release.
3	CAN terminator The CAN terminator switch is set to ON for the last device in a CAN wiring bus. This switch is set to set to OFF for all other devices in the CAN bus.

4	Output Interfaces Eight Form C (5A @ 30V) relay outputs. Each output can be configured as either Normally Closed (NC) or Normally Open (NO). • C & NO connection: The relay is normally open. The circuit is closed when triggered. • C & NC connection: The relay is normally closed. The circuit is opened when triggered. **Notes:** • Install surge protection between the output device and the Cisco PAM module, as described in the "Installing Surge Suppressors on Output Device Connections" section on page 1-13. • Common (C) is always used, and either NC or NO is used to complete the connection. • All Generic Output devices installed in Cisco PAM systems prior to release 1.1.0, were connected to the Gateway, Reader, or Output modules with the wiring reversed. If upgrading to Cisco PAM release 1.1.0 from an earlier release, disconnect all Generic Output devices and do the following: – Connect Normally Open devices to the N.O. and C connectors on the Gateway, Reader, or Output module. – Connect Normally Closed devices to the N.C. and C connectors on the Gateway, Reader, or Output module.
8	PF Power fail input: an unsupervised input that raises a "power fail" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).
9	TM Tamper input: an unsupervised input that raises a "tamper" alarm when the circuit is open. Can be configured as an additional unsupervised port. An unsupervised input indicates only normal or alarm. The corresponding LED is red when circuit is open (when no input is connected).

Status LEDs

Each output port includes a status LED that indicates the following information:

Table 5-1 Output Module LEDs

Status	Description
Off	Output not configured
Solid Green	Output configured and in default state
Blinking Green	Output configured and active

Installing the Cisco Output Module

Install a Cisco Output Module is provide additional output connections for a Cisco Reader Module or Gateway

Before You Begin

Verify the following:

- Verify that the module has access to a power source. See the "Power Options and Requirements" section on page 1-12 for more information.
- Verify that you have the necessary mounting brackets or other hardware. See the "Mounting a Gateway or Optional Module" section on page 1-14.

Procedure

To install the module, perform the following procedure:

Step 1 Mount the module to a wall. See the "Mounting a Gateway or Optional Module" section on page 1-14 for more information.

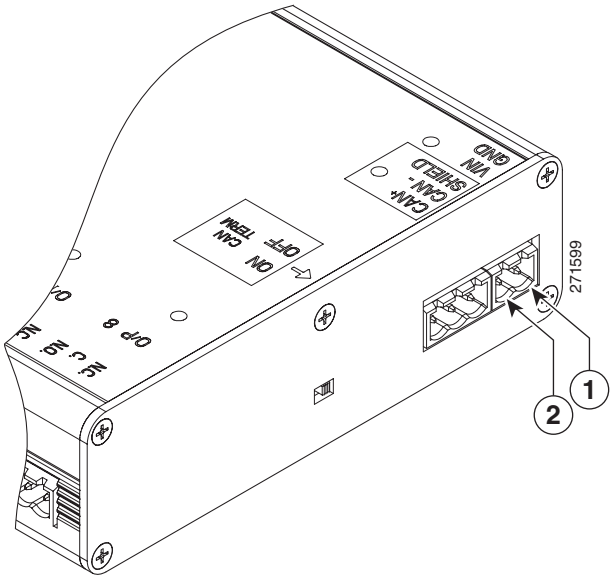
Step 2 Connect the module to the DC power source:

a. Insert a two-pin connector plug into the DC power port (Figure 5-5)

b. Connect the Voltage In (VIN) and ground (GND) wires.

See the "Power Options and Requirements" section on page 1-12 for more information.

Figure 5-5 Power Connections for the Cisco Output Module



1	DC power GND (ground) Connects the DC ground wire to the module.
2	DC power Voltage In (VIN) Connects the DC Voltage In (VIN) wire to the module.

Step 3 Connect the module to the CAN bus:

a. Insert a three-pin connector plug into the CAN1 port, as shown in Figure 5-6.

b. Connect the CAN wires to the CAN bus, as shown in Figure 5-7

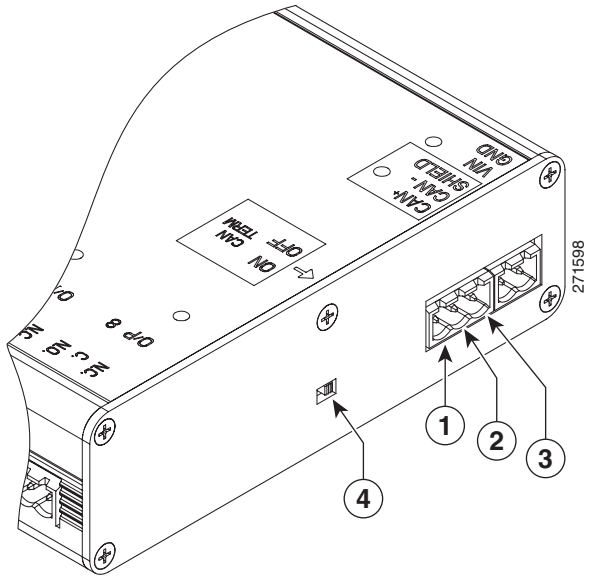
c. Turn the CAN terminator ON if the device is the last device in a CAN wiring bus.

Note The CAN terminator switch in included on the Reader, Input and Output modules only (the Gateway is always the first device in the CAN bus). Set the terminator switch to OFF for all other modules in the CAN bus.

Note The CAN2 interface is not supported in this release.

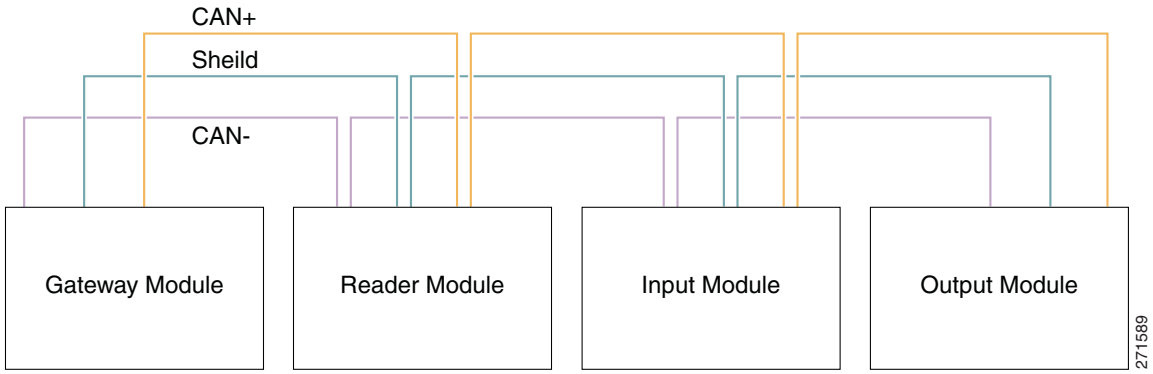
See the "Optional Expansion Modules" section on page 1-5 for more information.

Figure 5-6 CAN Connections: Input and Output Modules



1	CAN+ Connects to the positive terminal of the CAN bus.
2	CAN- Connects to the negative terminal of the CAN bus.
3	Shield Connects to GND and/or Shield.
3	CAN Terminator Turn the terminator ON if the device is the last device in a CAN wiring bus.

Figure 5-7 CAN Bus Wiring



Step 4 Connect output devices to the module:

a. Insert three-pin connector plugs into the output ports.

b. Connect the wires from the output devices:

– Common (C) is always used, and either NC or NO is used to complete the connection.

- If the relay is normally open, use the C & NO connections. The circuit is closed when triggered.
- If the relay is normally closed, use the C & NC connections. The circuit is opened when triggered.

Step 5 See the Cisco Physical Access Manager User Guide for information to configure the module ports.

APPENDIX 6

Safety Warnings

Before you install the device, observe the safety warnings in this section.

- Statement 1071—Warning Definition, page 6-1
- Statement 369—Power over Ethernet (PoE) IEEE 802.3af, page 6-6
- Statement 353—This Product Must be Connected, page 6-7
- Statement 1040—Product Disposal, page 6-9
- Statement 1004—Installation Instructions, page 6-10

Statement 1071—Warning Definition

Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus **TÄRKEITÄ TURVALLISUUSOHJEITA**

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention **IMPORTANTES INFORMATIONS DE SÉCURITÉ**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung **WICHTIGE SICHERHEITSHINWEISE**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza **IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel **VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso

INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia!

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning!

VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

Figyelem

FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmezeto jel veszélyre utal. Sérülésveszélyt rejto helyzetben van. Mielott bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplo figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján keresheto meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение

ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel **VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemesbeskadigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير **إرشادات الأمان الهامة**

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في أخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز.

قم بحفظ هذه الإرشادات

Upozorenje

VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění

DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση

ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה

הוראות בטיחות חשובות

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כד לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena

ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОВИЕ НАПАТСТВИЈА

Ostrzeżenie **WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA**

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornenie **DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY**

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Opozorilo **POMEMBNI VARNOSTNI NAPOTKI**

Ta opozorilni simbol pomeni nevarnost. Nahajate se v situaciji, kjer lahko pride do telesnih poškodb. Preden pričnete z delom na napravi, se morate zavedati nevarnosti udara električnega toka, ter tudi poznati preventivne ukrepe za preprečevanje takšnih nevarnosti. Uporabite obrazložitveno številko na koncu posameznega opozorila, da najdete opis nevarnosti v priloženem varnostnem priročniku.

SHRANITE TE NAPOTKE!

警告 重要安全性指示
此警告符號代表危險，表示可能造成人身傷害。使用任何設備前，請留心電路相關危險，並熟悉避免意外的標準作法。您可以使用每項警告後的聲明編號，查詢本裝置隨附之安全性警告譯文中的翻譯。
請妥善保留此指示

Statement 369—Power over Ethernet (PoE) IEEE 802.3af

Warning **This product must be connected to a Power over Ethernet (PoE) IEEE 802.3af compliant power source.** Statement 369

Waarschuwing **Dit product moet worden verbonden met een stroomvoorziening die compatibel is met PoE (power-over-ethernet) IEEE 802.3af.**

Varoitus **Tämä tuote on liitettävä PoE (power-over-ethernet) IEEE 802.3af -yhteensopivaan virtalähteeseen.**

Attention **Ce produit doit être connecté à une source d'alimentation électrique par câble Ethernet (PoE) conforme à la norme IEEE 802.3af.**

Warnung **Dieses Produkt muss an eine Stromquelle angeschlossen sein, die mit dem IEEE 802.3af-Standard Power-over-Ethernet (PoE) kompatibel ist.**

Avvertenza **Questo prodotto deve essere connesso a una fonte di alimentazione di tipo PoE (power-over-ethernet) conforme a IEEE 802.3af.**

Advarsel **Dette produktet må være koblet til en Power-over-Ethernet (PoE) IEEE 802.3af-kompatibel strømkilde.**

Aviso **Este produto tem de estar ligado a uma fonte de alimentação compatível com a norma IEEE 802.3af, também conhecida pela sigla Power over Ethernet (PoE).**

¡Advertencia! **Debe conectar este producto a una fuente de alimentación en Ethernet (PoE) conforme con el estándar IEEE 802.3af.**

Varning! **Denna produkt måste vara ansluten till en PoE IEEE 802.3af-kompatibel strömkälla.**

Figyelem **Ezt a készüléket az IEEE 802.3af szabványnak megfelelő, a tápellátást Etherneten keresztül kapó (power-over-ethernet, PoE) tápforráshoz kell csatlakoztatni.**

Предупреждение **Это устройство может быть подключено к источнику питания для подачи питания по сети Ethernet (PoE), удовлетворяющему требованиям стандарта IEEE 802.3af.**

警告 本产品必须连接到以太网供电型（Power-Over-Ethernet，简称 PoE）IEEE802.3af 限制型电源。

警告 この製品はPoE方式のIEEE 802.3af対応の電源に接続してください。

Statement 353—This Product Must be Connected

Warning **This product must be connected to a power-over-ethernet (PoE) IEEE 802.3af compliant power source or an IEC60950 compliant limited power source.** Statement 353

Waarschuwing **Dit product moet worden verbonden met een stroomvoorziening die compatibel is met PoE (power-over-ethernet) IEEE 802.3af of een beperkte stroomvoorziening die compatibel is met IEC60950.**

Varoitus **Tämä tuote on liitettävä PoE (power-over-ethernet) IEEE 802.3af -yhteensopivaan virtalähteeseen tai IEC60950-yhteensopivaan rajoitettuun virtalähteeseen.**

Attention **Ce produit doit être connecté à une source d'alimentation électrique par câble Ethernet (PoE) conforme à la norme IEEE 802.3af ou à une source d'alimentation limitée conforme à la norme IEC60950.**

Warnung **Dieses Produkt muss entweder an eine Stromquelle angeschlossen sein, die mit dem IEEE 802.3af-Standard Power-over-Ethernet (PoE) kompatibel ist oder an eine Stromquelle für geringe Leistungen, die IEC60950-kompatibel ist.**

Avvertenza **Questo prodotto deve essere connesso a una fonte di alimentazione di tipo PoE (power-over-ethernet) conforme a IEEE 802.3af o a una fonte di alimentazione conforme a IEC60950.**

Advarsel **Dette produktet må være koblet til en Power-over-Ethernet (PoE) IEEE 802.3af-kompatibel strømkilde eller en IEC60950-kompatibel begrenset strømkilde.**

Aviso **Este produto tem de estar ligado a uma fonte de alimentação compatível com a norma IEEE 802.3af, também conhecida pela sigla Power over Ethernet (PoE), ou a uma fonte de alimentação limitada compatível com a norma IEC60950.**

¡Advertencia! **Debe conectar este producto a una fuente de alimentación en Ethernet (PoE) conforme con el estándar IEEE 802.3af, o a una fuente limitada conforme con el estándar IEC60950.**

Varning! **Denna produkt måste vara ansluten till en PoE IEEE 802.3af-kompatibel strömkälla eller en IEC60950-kompatibel begränsad strömkälla.**

Figyelem **Ezt a készüléket vagy az IEEE 802.3af szabványnak megfelelő, a tápellátást Etherneten keresztül kapó (power-over-ethernet, PoE) tápforráshoz, vagy az IEC60950 szabványnak megfelelő, korlátozott tápforráshoz kell csatlakoztatni.**

Предупреждение **Это устройство может быть подключено к источнику питания для подачи питания по сети Ethernet (PoE), удовлетворяющему требованиям стандарта IEEE 802.3af, или источнику питания ограниченного применения, удовлетворяющему требованиям стандарта IEC60950.**

警告 本产品必须连接到以太网供电型（Power-Over-Ethernet，简称PoE）IEEE802.3af 电源或 IEC60950 限制型电源。

警告 この製品はPoE方式のIEEE 802.3af対応の電源またはIEC60950対応の制限電源に接続してください。

Statement 1040—Product Disposal

Warning **Ultimate disposal of this product should be handled according to all national laws and regulations.**
Statement 1040

Waarschuwing **Het uiteindelijke wegruimen van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.**

Varoitus **Tämä tuote on hävitettävä kansallisten lakien ja määräysten mukaisesti.**

Attention **La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.**

Warnung **Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.**

Avvertenza **Lo smaltimento di questo prodotto deve essere eseguito secondo le leggi e regolazioni locali.**

Advarsel **Endelig kassering av dette produktet skal være i henhold til alle relevante nasjonale lover og bestemmelser.**

Aviso **Deitar fora este produto em conformidade com todas as leis e regulamentos nacionais.**

¡Advertencia! **Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.**

Varning! **Vid deponering hanteras produkten enligt gällande lagar och bestämmelser.**

Figyelem **A készülék végső elhelyezéséről az adott országban érvényes törvények és előírások szerint kell intézkedni.**

Предупреждение Окончательная установка данного изделия должна выполняться в соответствии со всеми региональными и местными правилами и нормами.

警告 本产品的废弃处理应根据所有国家的法律和规章进行。

警告 この製品を廃棄処分する際は、各国の法律および規制に従って取り扱ってください。

주의 해당 국가의 관련 법규 및 규정에 따라 이 장치를 폐기해야 합니다.

Aviso **O descarte definitivo deste produto deve estar de acordo com todas as leis e regulamentações nacionais.**

Advarsel **Endelig bortskaffelse af dette produkt skal ske i henhold til gældende love og regler.**

تحذير عند التخلص من المنتج يجب اتباع القوانين والتشريعات المحلية.

Upozorenje **Zbrinjavanje ovoga proizvoda u otpad treba provesti u skladu s važećim zakonima i odredbama.**

Upozornění **Upozornění: Likvidace tohoto výrobku musí být provedena podle platných zákonů a předpisů.**

Προειδοποίηση Η τελική απόρριψη αυτού του προϊόντος πρέπει να γίνεται σύμφωνα με όλους τους εθνικούς νόμους και κανονισμούς.

אזהרה סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות ולחוקי המדינה.

Opomena Крајното фрлање на овој производ треба да се изврши во согласност со сите национални закони и прописи.

Ostrzeżenie **Ostateczna likwidacja tego urządzenia po jego wycofaniu z eksploatacji powinna odbywać się zgodnie z przepisami krajowymi.**

Upozornenie **Upozornenie Likvidácia tohto výrobku musí byť vykonaná podľa platných zákonov a predpisov.**

Opozorilo **Uničenje izdelka, ki ni več uporaben, mora potekati po državnih zakonih in predpisih.**

警告 本產品的最終處理必須遵照國家/地區的所有法律與法規。

Statement 1004—Installation Instructions

Warning **Read the installation instructions before connecting the system to the power source.** Statement 1004

Waarschuwing **Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.**

Varoitus **Lue asennusohjeet ennen järjestelmän yhdistämistä virtalähteeseen.**

Attention **Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.**

Warnung **Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.**

Avvertenza **Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore.**

Advarsel	**Les installasjonsinstruksjonene før systemet kobles til strømkilden.**
Aviso	**Leia as instruções de instalação antes de ligar o sistema à fonte de energia.**
¡Advertencia!	**Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.**
Varning!	**Läs installationsanvisningarna innan du kopplar systemet till strömförsörjningsenheten.**
Figyelem	**Mielőtt áramforráshoz csatlakoztatná a rendszert, olvassa el az üzembe helyezési útmutatót!**
Предупреждение	Перед подключением устройства к источнику электропитания ознакомьтесь с данной инструкцией по установке.
警告	在将系统与电源连接之前，请仔细阅读安装说明。
警告	必ず設置手順を読んでから、システムを電源に接続してください。
주의	시스템을 전원에 연결하기 전에 설치 지침을 읽으십시오.
Aviso	**Leia as instruções de instalação antes de conectar o sistema à fonte de energia.**
Upozornění	**Před připojením systému k elektrické síti si prostudujte pokyny k instalaci.**
אזהרה	.יש לקרוא את הוראות ההתקנה לפני חיבור המערכת למקור המתח
Ostrzeżenie	**Przed podłączeniem systemu do źródła zasilania należy przeczytać instrukcje dotyczące instalacji.**
Upozornenie	**Pred pripojením systému k napájaciemu zdroju si prečítajte inštalačné pokyny.**
Opozorilo	**Preden sistem priključite, preberite navodila za priključitev.**
警告	將系統連接供電系統前，請先閱讀安裝指南。

APPENDIX A

Environmental Specifications

This appendix contains the following:

- Environmental Specifications for the Cisco Physical Access Gateway, page A-1
- Environmental Specifications for the Cisco Reader Module, page A-2
- Environmental Specifications for the Cisco Input Module, page A-2
- Environmental Specifications for the Cisco Output Module, page A-3

Environmental Specifications for the Cisco Physical Access Gateway

Table A-1 describes the environmental specifications for the Cisco Physical Access Gateway.

Table A-1 Specifications for the Cisco Physical Access Gateway

Item	Description
Housing	Aluminum
Dimensions (LxWxH)	5 x 7 x 2.14 in. 127 x 178 x 54.6 mm
Weight	Without Plugs & Brackets: 1.65 lb (749 g) With Plugs: 1.8 lb (817 g) With Brackets: 1.81 lb (823 g) With Plugs & Brackets: 1.97 lb (891 g)
Certifications	FCC CSA CE
Operating Temperature	Indoors only 32 to 122°F (0 to 50°C)

Table A-1 Specifications for the Cisco Physical Access Gateway

Humidity	5 to 95% relative, non-condensing
Power	There are two options to power the device: • 12 to 24 VDC (+/- 10%) through an external power supply • 802.3AF-compliant Power over Ethernet (PoE) connected to the Ethernet 0 connector

Environmental Specifications for the Cisco Reader Module

Table A-2 describes the environmental specifications for the Cisco Reader Module.

Table A-2 Specifications for the Cisco Reader Module

Item	Description
Housing	Aluminum
Dimensions (LxWxH)	5 x 7 x 2.14 in. 127 x 178 x 54.6 mm
Weight	Without Plugs & Brackets: 1.52 lb (688 g) With Plugs: 1.67 lb (756 g) With Brackets: 1.69 lb (761 g) With Plugs & Brackets: 1.84 lb (830 g)
Certifications	FCC CSA CE
Operating temperature	Indoors only 32 to 122°F (0 to 50°C)
Humidity	5 to 95% relative, non-condensing
Power	12 to 24 VDC (+/- 10%) through an external power supply

Environmental Specifications for the Cisco Input Module

Table A-3 describes the environmental specifications for the Cisco Input Module.

Table A-3 Specifications for the Cisco Input Module.

Item	Description
Housing	Aluminum
Dimensions (LxWxH)	5 x 7 x 1.46 in. 127 x 178 x 37 mm

Table A-3 Specifications for the Cisco Input Module.

Weight	Without Plugs & Brackets: 1.24 lb (562 g) With Plugs: 1.34 lb (630 g) With Brackets: 1.4 lb (636 g) With Plugs & Brackets: 1.5 lb (704 g)
Certifications	FCC CSA CE
Operating temperature	Indoors only 32 to 122°F (0 to 50°C)
Humidity	5 to 95% relative, non-condensing
Power	12 to 24 VDC (+/- 10%) through an external power supply

Environmental Specifications for the Cisco Output Module

Table A-4 describes the environmental specifications for the Cisco Output Module.

Table A-4 Specifications for the Cisco Output Module

Item	Description
Housing	Aluminum
Dimensions (LxWxH)	5 x 7 x 1.46 in. 127 x 178 x 37 mm
Weight	Without Plugs & Brackets: 1.43 lb (648 g) With Plugs: 1.53 lb (716 g) With Brackets: 1.59 lb (722 g) With Plugs & Brackets: 1.69 lb (790 g)
Certifications	FCC CSA CE
Operating temperature	Indoors only 32 to 122°F (0 to 50°C)
Humidity	5 to 95% relative, non-condensing
Power	12 to 24 VDC (+/- 10%) through an external power supply