Cisco IC3000 Industrial Compute Gateway Hardware Installation Guide

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Preface

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Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

It contains the following sections:

Objective

This guide provides an overview and explains how to install, connect, and perform initial configuration for the device.

Audience

This guide is intended for people who have a high level of technical ability, although they may not have experience with Cisco software.

Conventions

This section describes the conventions used in this guide.

NOTE: Means reader take note. Notes contain helpful suggestions or references to additional information and material.

CAUTION: This symbol means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

TIP: Means *the following information will help you solve a problem* . The tip information might not be troubleshooting or even an action, but could be useful information.

WARNING: IMPORTANT SAFETY INSTRUCTIONSMeans 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.

Safety Warnings

Note: If installing this product in a hazardous location, please refer to the Product Documentation and Compliance Information guide provided with each unit for additional instructions.

Danger	IMPORTANT SAFETY INSTRUCTIONS
	This warning symbol means danger. You are in a situation that could cause bodily injury. Before you w on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with stand practices for preventing accidents. Use the statement number provided at the end of each warning to lo 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 veroorza Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakeli betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkor Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschu 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 käsitt laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyj 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 entraîne blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dang liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes d sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin chaque avertissement.
	CONSERVEZ CES INFORMATIONS

Warnung	WICHTIGE SICHERHEITSHINWEISE
	Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führe Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üb Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung ange, Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zu 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 pers Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di is presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in 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 b å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, o 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 les corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos en no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acide Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avis 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 cu equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estánc prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a enco 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. I utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till v förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för a 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	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	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。警告の各国語版に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 legemesbeskadigo du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektr kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnu 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 آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات
Upozorenje	U električnoj mreži mora biti ugrađen lako dostupan dvopolni uređaj za isključivanje kruga.
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 úrazů 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 το κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχετα τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.
	ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ
אזהרה	בטיחות חשובות
	הרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כד לאתר את התרגום הבטיחות המתורגמות שמצורפות להתקן. וראות 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 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	Ta naprava mora biti ozemljena. Nikoli ne odklapljajte ozemljitve oz. upravljajte naprave, ki primerno ozemljena. V primeru, da niste sigurni, ali imate primerno ozemljitev, nemudoma pokličite pooblaščeni električni servis ali električarja.
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

WARNING: When installing the product, please use the provided or designated connection cables/power cables/AC adapters. Using any other cables/adapters could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" shown on the code) for any other electrical devices than products designated by CISCO. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have "PSE" shown on the code) is not limited to CISCO-designated products. Statement 371

WARNING: Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system. Statement 378

WARNING: To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables. Statement 1021

WARNING: T his equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available . Statement 1024

WARNING: If the symbol of suitability with an overlaid cross appears above a port, you must not connect the port to a public network that follows the European Union standards. Connecting the port to this type of public network can cause severe personal injury or can damage the unit. Statement 1031

WARNING: Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. Statement 1033

WARNING: For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection: 10/100/1000 Ethernet. Statement 1044

WARNING: When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

WARNING: Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (for example, U.S.:NFPA 70, National Electrical Code, Article 810, Canada: Canadian Electrical Code, Section 54). Statement 1052

WARNING: No user-serviceable parts inside. Do not open. Statement 1073

WARNING: Installation of the equipment must comply with local and national electrical codes. Statement 1074

WARNING: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

WARNING: Read the installation instructions before connecting the system to the power source. Statement 1004

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

WARNING: The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed. Statement 1077

WARNING: Hot surface. Statement 1079

Related Documentation

- IC3000 product page

https://www.cisco.com/c/en/us/support/routers/3000-series-industrial-compute-gateways/tsd-products-support-series-home.html

- Warranty and EULA Information: https://www.cisco.com/c/en/us/products/warranty-listing.html
- Cisco Marketplace: www.cisco.com/pcgi-bin/marketplace/welcome.pl
- Cisco Support: www.cisco.com/cisco/web/support/index.html

Searching Cisco Documents

To search an HTML document using a web browser, press **Ctrl-F** (Windows) or **Cmd-F** (Apple). In most browsers, the option to search whole words only, invoke case sensitivity, or search forward and backward is also available.

To search a PDF document in Adobe Reader, use the basic Find toolbar (**Ctrl-F**) or the Full Reader Search window (**Shift-Ctrl-F**). Use the Find toolbar to find words or phrases within a specific document. Use the Full Reader Search window to search multiple PDF files simultaneously and to change case sensitivity and other options. Adobe Reader's online help has more information about how to search PDF documents.

Product Overview

This chapter provides an overview of the features available for the Cisco IC3000

Product Overview

This chapter provides an overview of the features available for the device and contains the following sections:

General Description

The Cisco IC3000 is a DIN Rail mounted ruggedized compute gateway targeted primarily for connected roadways use-cases but applicable to other installations. It is designed to meet ever-increasing demand for computing resources for applications on the network edge. It comes preloaded with Cisco IOx and FND software. The term DIN Rail describes a metal rail of a standard type widely used for mounting circuit breakers and industrial control equipment inside equipment racks. The term derives from the original specifications published by Deutsches Institut für Normung (DIN) in Germany.

The Cisco IC3000 is low-power, fan-less, with Gigabit Ethernet and a dedicated management port. The SKU is IC3000-2C2F-K9.

shows the Cisco IC3000.

Figure 1: Cisco IC3000 SKU

Figure 2: Cisco IC3000 Front Panel, on page 11 shows the front panel details of the Cisco IC3000.

Figure 2: Cisco IC3000 Front Panel
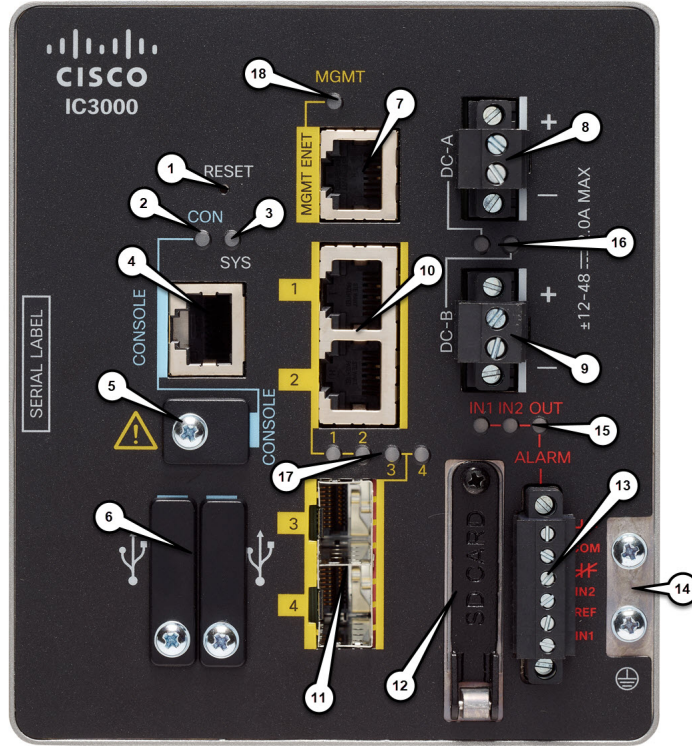
1	Reset Pinhole Access	10	RJ45 10/100/100 BaseT Connectors 1&2
2	Console LED	11	SFP sockets 3&4
3	System LED	12	Removable SD flash memory card slot
4	Console connector (RJ-45)	13	Alarm Connector (not supported)
5	Console connector (mini-USB)	14	Grounding Point
6	USB connectors	15	Alarm LEDs
7	Management Interface	16	DC Power LEDs
8	DC power connection A	17	Gigabit Ethernet LEDs
9	DC power connection B	18	Management LED

LEDs

The following table describes the LEDs for the Cisco IC3000.

Table 1: LED Descriptions

LED	Activity	Description
System	Power Status	Off — No powerGreen Steady on — Normal operation
MGMT	Management Port Status	Off — No link (default)Green Steady on — Port link is upGreen Flashing — Port is active
DC_A DC_B	DC Power Status	Off — Power is not present on the circuit, or the system is powered off.Green Steady on — Power is present on the associated circuit. (Hardware controlled)
Ethernet Ports	Link Status	Off — No linkGreen Steady on — Link is upGreen Flashing — Port is active
Console	Console connection Status	Off — RJ-45 is being used for consoleGreen — Mini USB is being used for console

Memory and Storage

The Cisco IC3000 has the following:

- 8-GB DRAM (soldered down).
- 16-GB onboard flash memory
- 100 GB mSATA solid state drive (SSD)

USB Ports

The Cisco IC3000 has two externally accessible Type-A USB (4-pin) connectors. Each USB port will support output powering of 5 volts and up to a maximum of 500 mA.

Note: If you are connecting to the USB ports:

- A connection (to the USB ports) can only be made in a non-hazardous environment
- The USB port covers must be reinstalled before the IC3000 can be deployed in a hazardous environment

Console Port

The Cisco IC3000 can be configured through a web interface, or through the console port. The console port is either a RJ45 or a Mini USB connector. A standard management cable (Part number 72-3383-01) can be used to convert the RJ45 to DB9 connector.

The default configuration settings for the RJ45 console port are:

9600 baud, 8 data bits, no parity, 1 stop bit, no flow control.

If the USB Console Port is active (cable inserted and remote PC drivers are enabled) by default the console will switch from RJ45 to USB when the USB cable is detected. If both ports are connected, the Mini USB console port is used.

If your laptop or PC warns you that you do not have the proper drivers to communicate with the device, you can obtain them from your computers manufacturer, or go here:

https://software.cisco.com/download/home/282774227/type/282855122/release/3.1

The following table shows the pin-outs for the CON/AUX RJ-45 connector:

Table 2: RJ-45 Pinouts

Pin	Signal	Direction
1	DTR	Output
2	3.3	Output
3	TXD	Output
4	GND	-
5	GND	-
6	RXD	Input
7	-	NC
8	-	NC

Note: The console port will not support a remote dial-in modem.

Hardware Features

This section provides an overview of the following hardware features for the Cisco IC3000.

Platform Features for the Cisco IC3000

The following lists the hardware platform features.

- CPU Intel 4 Core 1.25Ghz
- 8 GB of 1333MHz DDR3 Memory
- Dedicated management Gigabit Ethernet port
- Mini-USB and RJ45 Console port
- Two RJ45 copper ports and 2 fiber ports
- +/- 12 to 48VDC Rated (9.6 to 60VDC Maximum) redundant power connectors with 24-12 AWG screw cage terminals
- Two external USB-A ports for connecting to usb-to-serial devices.
- DIN Rail mount incorporated into the chassis
- Fan-less design
- Redundant power inputs
- Removable SD flash memory card - Industrial temperature SDHC card support (optional, does not come with the device and must be ordered).

Reset Button

The Reset button resets the device configuration to the default configuration set by the factory. To restore the configuration to the default configuration set by the factory, use a standard size #1 paper clip with wire gauge 0.033 inch or smaller and press the reset button for 5 seconds.

Power Supply

The Cisco IC3000 comes with redundant external power connector. the connector supports 12 - 48 VDC. The connectors are Molex 5.00mm Pitch Eurostyle™ Horizontal Plug, with Retention Screws.

The power supply does not support reverse polarity, but does have reverse polarity protection. This means if you reverse + & - connections, the system will not power on but there will be no damage.

The + terminal always has to be greater than the - terminal for the system to operate. The difference is in the system grounding scheme used.

The IC3000 supports 3 basic schemes:

- Isolated DC in, neither + nor - terminal is tied to chassis GND
- Positive DC in, negative (-) terminal is tied to chassis GND
- Negative DC in, positive (+) terminal is tied to chassis GND

Note: To ensure uninterrupted operation the redundant power connections must be connected to independently separated power sources.

SFP Support

The Cisco IC3000 has 2 1GbE ports which support the following SFPs:

- GLC-SX-MM-RGD
- GLC-LX-SM-RGD
- GLC-FE-100LX-RGD
- GLC-FE-100FX-RGD

Removable SD Flash Memory Card (optional)

The Cisco IC3000 has an optional removable SD flash memory slot (referred to as SD). This is primarily to allow easy updates, copying of logs and crash-dumps. Contact your Cisco Marketing Representative for ordering information.

Installing or Removing the SD Card (Optional)

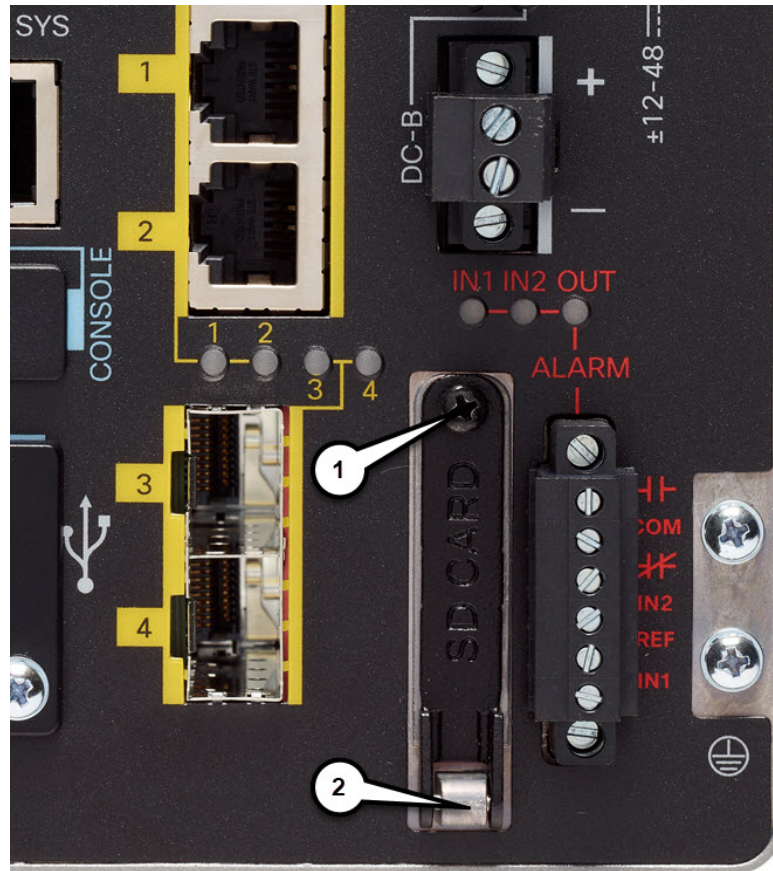The SD card is hidden under a protective cover:

Table 3:

1	Phillips screw
2	Door pivot point

For hazardous locations environments, if you are installing or removing the flash card or alarm wiring, follow these warnings:

Warning: When you connect or disconnect the power and/or alarm connector with power applied, an electrical arc can occur. This could cause an explosion in hazardous area installations. Be sure that all power is removed from the device and any other circuits. Be sure that power cannot be accidentally turned on or verify that the area is nonhazardous before proceeding. **Statement 1058**

Warning: Do not insert or remove the flash card while power is on; an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. **Statement 379**

Caution: Use a ratcheting torque flathead screwdriver to torque the power connector captive screws to 5 in-lb (0.6 N-m), the maximum recommended torque.

To install or replace the SD card, follow these steps:

1. On the front of the device, locate the door that protects the SD card slot. Loosen the captive screw at the top of the door using a Phillips screwdriver to open the door.

- To install a card, slide it into the slot, and press it in until it clicks in place. The card is keyed so that you cannot insert it the wrong way.
- To remove the card, push it in until it releases for it to pop out. Place it in an antistatic bag to protect it from static discharge.

2. After the card is installed, close the guard door and fasten the captive screw using a Phillips screwdriver to keep the door in place.

CHAPTER 3

Installing the Cisco IC3000 Industrial Compute Gateway

This chapter describes the equipment and the procedures for successfully installing the Cisco IC3000

Installing the Cisco IC3000 Industrial Compute Gateway

This chapter describes the equipment and the procedures for successfully installing the Cisco IC3000 and contains the following sections:

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

WARNING: This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. **Statement 1024**

WARNING: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. **Statement 1030**

WARNING: Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. **Statement 1033**

WARNING: The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed. **Statement 1077**

Note: When cleaning external surfaces, use a dry, non-static cloth.

Equipment, Tools, and Connections

This section describes the equipment, tools, and connections necessary for installing your device. It contains the following topics:

Items Shipped with your Cisco IC3000

Unpack the box and verify that all items listed on the invoice were shipped with the Cisco IC3000.

The following items are shipped with your device:

> • Getting Started Guide Part Number 78-101320-01
> • Two Power Connectors

Additional Items

The following items are not shipped with the router but are required for installation:

- Screws for mounting the router on a wall.
- Wire crimper for chassis grounding.
- Wire for connecting the chassis to an earth ground.
- Ethernet cables for connecting devices to the Ethernet ports.
- Ratcheting torque flathead screwdriver that exerts up to 15 in-lb (1.69 N-m) of pressure.
- A number-2 Phillips screwdriver.

Ethernet Devices

Identify the Ethernet devices that you will connect to the router: hub, servers, and workstations or PCs. Ensure that each device has a network interface card (NIC) for connecting to Ethernet ports.

Installing the Cisco IC3000

This section describes how to install the Cisco IC3000. This device is designed to be mounted only from a Din Rail.

Caution: Airflow around the device must be unrestricted.

- Temperature surrounding the unit does not exceed 140°F (60°C), which is the maximum ambient temperature of the device.

Note: When the device is installed in an industrial enclosure, the temperature within the enclosure is greater than normal room temperature outside the enclosure.

- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.
- Contact your Cisco TAC if tighter spacings are required.

This section contains the following topics:

Installing a DIN Rail

You can use either the 7.5-mm or the 15-mm thick DIN rail for the Cisco IC3000. Secure the DIN rail to the mounting surface approximately every 7.8 inches (200 mm) and use end-anchors appropriately.

The device ships with a spring-loaded latch on the rear panel for a mounting on a DIN rail. See .

Caution: Do not stack any equipment on the device.

Figure 3: IC3000 Rear Din Mount
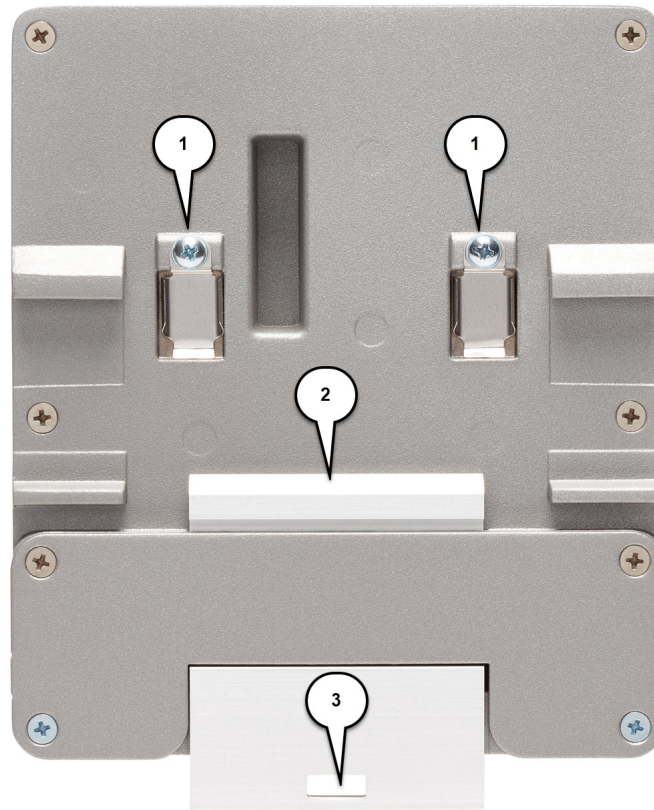
To attach the Cisco IC3000 to a DIN rail, follow these steps.

1. Position the rear panel of the device directly in front of the DIN rail, making sure that the DIN rail fits in the space between the two hooks near the top of the device and the spring-loaded latch near the bottom.
2. Holding the bottom of the device away from the DIN rail, place the two hooks (**1**) on the back of the device over the top of the DIN rail.
3. Push the device toward the DIN rail to cause the spring-loaded latch (**2**) at the bottom rear of the device to move down, and snap into place.

Removing the Device from a DIN Rail

To remove the device from a DIN rail, follow these steps:

1. Ensure that power is removed from the device, and disconnect all cables and connectors from the front panel of the device.
2. Insert a tool such as a flathead screwdriver in the slot at the bottom of the spring-loaded latch (**3**) and use it to release the latch from the DIN rail.
3. Pull the bottom of the device away from the DIN rail, and lift the hooks off the top of the DIN rail.

4. Remove the device from the DIN rail.

Mounting the IC3000 in a Rack

The IC3000 can be mounted in a 19" cabinet/rack with the optional kit part number STK-RACK-DINRAIL=. This kit includes a bracket and mounting screws.

Figure 4: Mounting Bracket
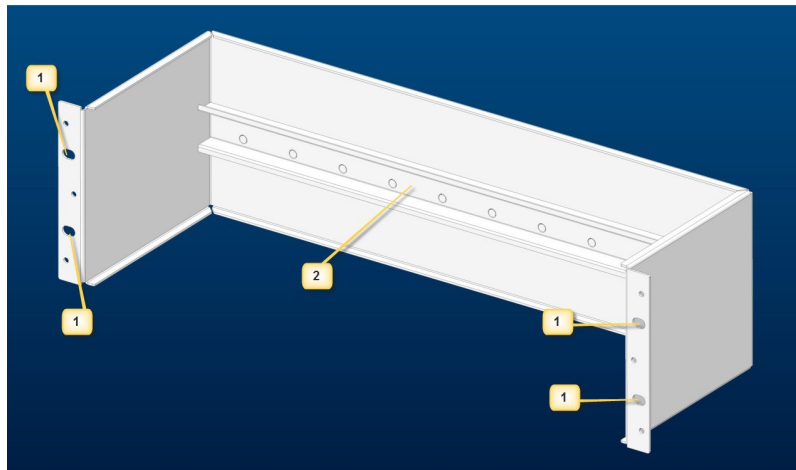
To install the IC3000 in a cabinet or rack, perform the following steps:

1. Install the bracket in the cabinet or rack using the 4 front screws included in the kit. Place the screws through the mounting holes (#1).
2. Attach The device to the DIN rail built into the mounting bracket (#2) in the same manner as described in Installing a DIN Rail, on page 18.

Installing the Cisco IC3000 Ground Connection

The device must be connected to a reliable earth ground. Install the ground wire in accordance with local electrical safety standards.

- For NEC-compliant grounding, use size 16 AWG (1.5mm2) or larger copper wire and a ring terminal with an inner diameter of 1/4 in. (5 to 6 mm).
- The ground lug is not supplied with the device. You can use either a single ring terminal or two single ring terminals.

WARNING: This equipment needs to be grounded. Use a green and yellow 16 AWG (1.5mm2) ground wire to connect the host to earth ground during normal use. **Statement242**

WARNING: This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. **Statement1024**

WARNING: When installing or replacing the unit, the ground connection must always be made first and disconnected last. **Statement1046**

WARNING: This equipment is intended to be grounded to comply with emission and immunity requirements. Ensure that the device functional ground lug is connected to earth ground during normal use. **Statement 1064**

To install the ground connection, follow these steps:

Step 1   Use a standard Phillips screwdriver or a ratcheting torque screwdriver with a Phillips head to remove the ground screw from the front panel of the device. Store the ground screw for later use.

Step 2   Use a wire stripping tool to strip the 16 AWG (1.5mm2) grounding wire to 0.22 in. (5.56 mm).

Step 3   Crimp the ground wire to the ring terminal using the wire crimper. See the following figure.

Figure 5: Crimping the Ring Terminal
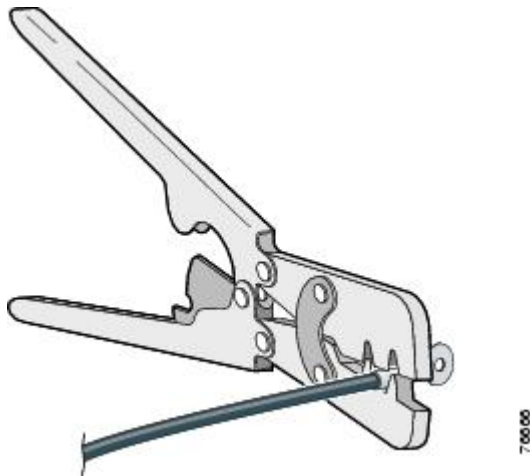
Step 4   Slide the ground screw through the terminal.

Step 5   Insert the ground screw into the functional ground screw opening on the front panel.

Step 6   Attach the ring terminal to the chassis using the screw set aside in step 1. Use a ratcheting torque screwdriver to tighten the ground screws and ring terminal to the device front panel to 3.5 in-lb (0.4 N-m). See item (**1**) in the following figure.

Figure 6: Grounding Location
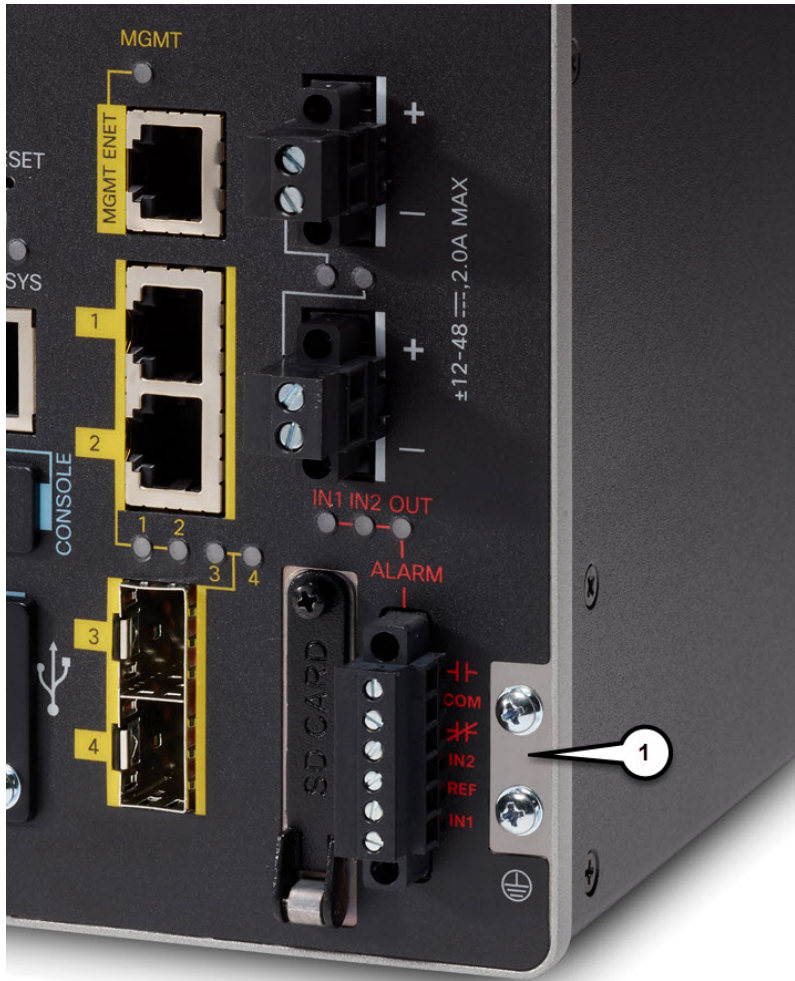
Step 7   Connect the other end of the ground wire to a known reliable earth ground point at your site.

Connecting the Cisco IC3000

This chapter describes how to connect the Cisco IC3000 to Ethernet devices and a network.

Connecting the Cisco IC3000 Industrial Compute Gateway

This chapter describes how to connect the Cisco IC3000 to Ethernet devices and a network. The chapter contains the following sections:

Preparing to Connect the Cisco IC3000

Before you connect the Cisco IC3000 to the devices, install the IC3000 according to the instructions in Installing the Cisco IC3000 Industrial Compute Gateway, on page 17.

Caution: If this product will be installed in a hazardous location, read the Getting Started/Product Document of Compliance included in the package.

WARNING: To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables. **Statement 1021**

Preventing Damage to the Cisco IC3000

Before installation, observe these general guidelines:

• Proper ESD protection should be observed
• Ensure the device is properly grounded
• Ensure there is proper airflow around the device

Connecting a PC to the Cisco IC3000 For Configuration

There are two methods of connecting to the Cisco IC3000 in case of troubleshooting:

Connect a PC to the console connector of the Cisco IC3000 and launch a console terminal to use the CLI. Connect the PC to the Cisco IC3000 management sub-network which will then receive an IP address.

Step 1   Choose which console connection will be used. In Figure 7: Console Connection Ports, on page 24, Item **1** is the RJ-45 console connector, and item **2** is the mini-USB connector.

Figure 7: Console Connection Ports
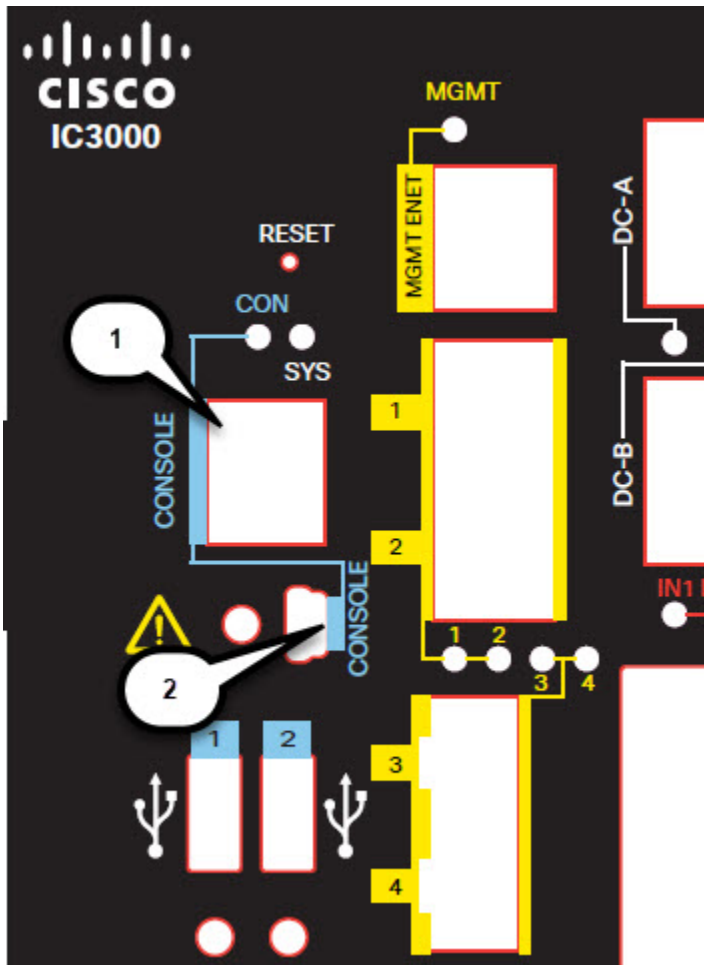
Step 2   If the mini-USB connector is being used, the protective cover will need to be removed first. Item (**1**) in the following graphic shows the location of the cover. Remove the cover with a Phillips screw driver and set it aside to be reinstalled after completing the configuration.

Figure 8: mini-USB Cover
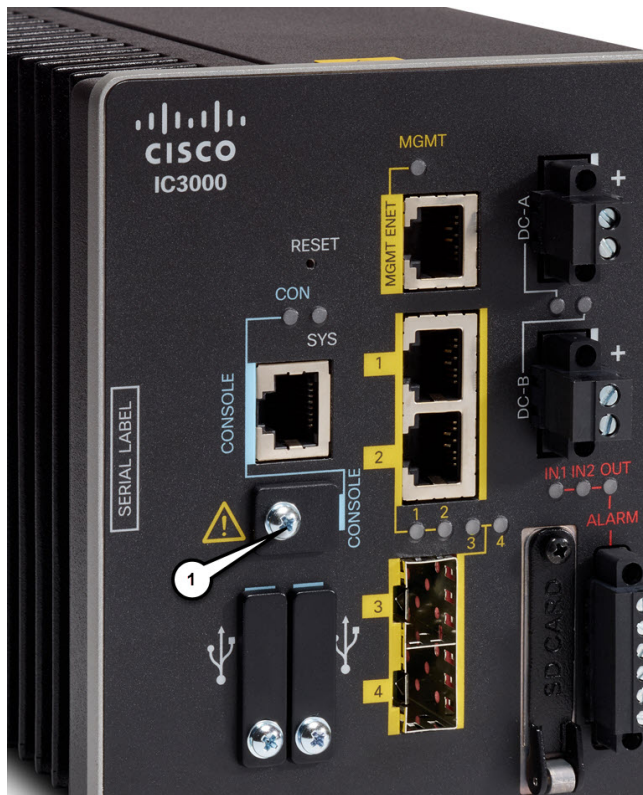
Step 3   Connect the mini-USB side of a cable to the USB Console port on the Cisco IC3000.

Step 4   Connect the opposite end of the mini-USB cable to the USB port on your PC. If your PC warns you that you do not have the proper drivers to communicate with the device, you can obtain them from your computers manufacturer, or go here: https://software.cisco.com/download/home/282774227/type/282855122/release/3.1

Step 5   Start up a console terminal.

Connecting to DC Power

Before you begin

WARNING: Before performing any of the following procedures, ensure that power is removed from the DC circuit. **Statement 1003**

WARNING: This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 60 VDC minimum, 5A maximum. **Statement 1005**

WARNING: A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. **Statement 1022**

WARNING: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. **Statement 1030**

WARNING: In device installations in a hazardous location, the DC power source could be located away from the vicinity of the device. Before performing any of the following procedures, locate the DC circuit to ensure that the power is removed and cannot be turned on accidentally, or verify that the area is nonhazardous before proceeding. **Statement 1059**

WARNING: Installation of the equipment must comply with local and national electrical codes. **Statement 1074**

WARNING: Explosion Hazard—Substitution of components may impair suitability for Class I, Division 2/Zone 2. **Statement 1083**

You connect DC power to the device through the front panel connectors. The device has a dual-feed DC power supply; two connectors provide primary and secondary DC power (DC-A and DC-B).

Each power connector has an LED status indicator. The device power connectors are attached to the device chassis. Each power connector has screw terminals for terminating the DC power. All connectors are attached to the device front panel with the provided captive screws.

The power connector labeling is on the panel. The positive DC power connection is labeled "+", and the return connection is labeled "–".

The device can operate with a single power source or with dual power sources. When both power sources are operational, the device draws power from the DC source with the higher voltage. If one of the two power sources fail, the other continues to power the device.

To connect DC power to your Cisco IC3000, follow these steps:

Step 1 Locate the two power connectors on the device front panel labeled DC-A and DC-B.
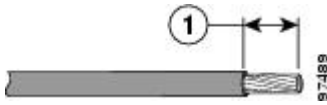
Figure 9: Power Connector
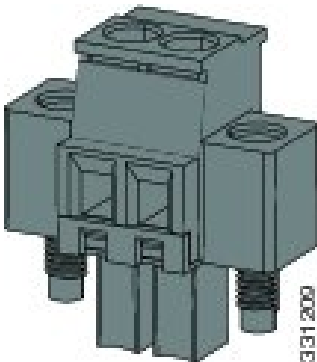
Step 2 Identify the connector positive and return DC power connections. The "+" is the Positive DC power connection, and the "-" is the Return DC power connection.

Step 3 Measure two strands of twisted-pair copper wire long enough to connect the power converter to the DC power source. For DC connections from the power converter to the DC source, use 18 to 20 AWG (2.6mm) twisted-pair copper wire.

**Step 4** Using a 18-gauge (1.02mm) wire-stripping tool, strip the ground wire and both ends of the twisted pair wires to 0.25 inch (6.3 mm) ± 0.02 inch (0.5 mm). See Figure 10: Stripping the Power Connection Wire, on page 27, number 1. Do not strip more than 0.27 inch (6.8 mm) of insulation from the wires. Stripping more than the recommended amount of wire can leave exposed wire from the power and relay connector after installation.

Figure 10: Stripping the Power Connection Wire

Step 5   Remove the two captive screws that attach the power connector to the device, and remove the power connector. Remove both connectors if you are connecting to two power sources.

Step 6   On the power connector, insert the exposed part of the positive wire into the connection labeled "+" and the exposed part of the return wire into the connection labeled "–". The "+" is the Power source positive connection, and the "-" is the Power source return connection. See Figure 11: Inserting Wires into the Power Connector, on page 27.

Figure 11: Inserting Wires into the Power Connector
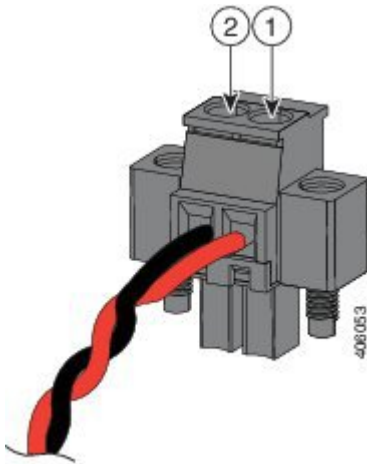
Note   Ensure that you cannot see any wire lead. Only wire with insulation should extend from the connector.

Step 7   Use a ratcheting torque flathead screwdriver to torque the power connector captive screws (above the installed wire leads) to 2 in-lb (0.23 N-m). See #1 in Figure 12: Torquing the Power Connector Captive Screws, on page 28.

Note   Do not over-torque the power connector's captive screws. The torque should not exceed 2 inch-lbs (0.23 N-m).

Figure 12: Torquing the Power Connector Captive Screws
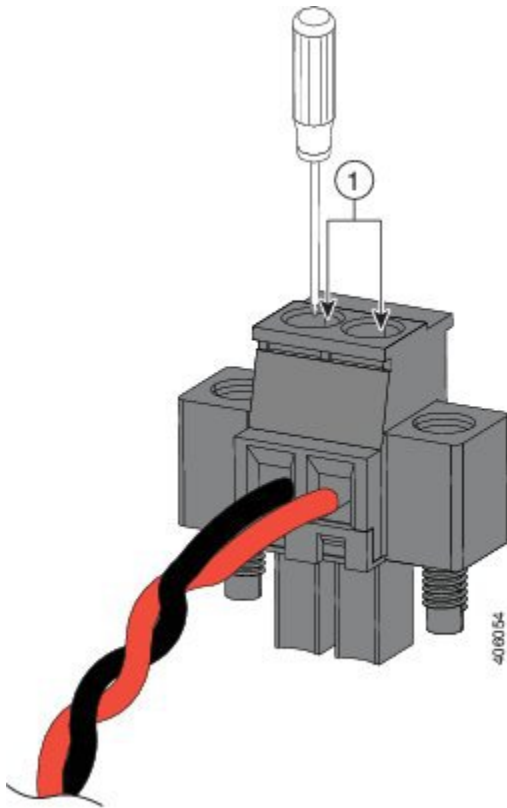
WARNING: An exposed wire lead from a DC-input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC-input power source wire extends from the power and relay connector. **Statement 122**

Step 8 Connect the other end of the positive wire to the positive terminal on the DC power source, and connect the other end of the return wire to the return terminal on the DC power source.

When you are testing the device, one power connection is sufficient. If you are installing the device and are using a second power source, repeat steps 4 through 8 using the second power connector.

Attaching the DC Power Connectors to the Device

To attach the power connectors to the front panel of the device, follow these steps:

1. Insert one power connector into the DC-A receptacle on the device front panel, and the other into the DC-B receptacle.
2. Use a ratcheting torque flathead screwdriver to tighten the captive screws on the sides of the power connectors to 2 in-lb (0.23 N-m).
3. When you are testing the device, one power source is sufficient. If you are installing the device and are using a second power source, repeat this procedure for the second power connector (DC-B), which installs just below the primary power connector (DC-A).

4. When you are installing the device, secure the wires coming from the power connector so that they cannot be disturbed by casual contact. For example, use tie wraps to secure the wires to the rack.

WARNING: Failure to securely tighten the captive screws can result in an electrical arc if the connector is accidentally removed. **Statement 397**

WARNING: When you connect or disconnect the power and/or alarm connector with power applied, an electrical arc can occur. This could cause an explosion in hazardous area installations. Be sure that all power is removed from the device and any other circuits. Be sure that power cannot be accidentally turned on or verify that the area is nonhazardous before proceeding. **Statement 1058**

Initial Configuration

This chapter describes the Out-Of-Box experience (OBE) for the installer that provides the device with a basic working configuration. There is a factory default set of parameters that are available on the Cisco IC3000.

Initial Configuration

This chapter describes the Out-Of-Box experience (OBE) for the installer that provides the device with a basic working configuration. There is a factory default set of parameters that are available on the Cisco IC3000.

Factory Default Configuration

The IC3000 has a factory default configuration that includes:

- Cisco IoT Field Network Director (FND) version 4.3 installed for configuration, firmware upgrade, periodic inventory and metrics collection, and status monitoring.
- Cisco IOx applications and services.
- IoT Gateway Management Agent (IGMA) for management in conjunction with FND.
- Platform Services manage the system initialization. This includes creating a signed image, enabling Linux kernel support, enabling utilities support, and enabling diagnostics and troubleshooting.

IoT Field Network Director (FND)

IoT Field Network Director (IoT FND) is a software platform that helps to enable a clear separation between communications network management and operational applications such as distribution management systems, outage management systems, and meter data management in utilities. Use the software to manage a multi-service network of routers or a combination of routers and endpoint devices deployed with end-to-end security for your specific use case.

Connect the IC3000 to a laptop on the same network. When the IC3000 is powered up, the service bridge interface which the management port (mgmt0) is attached to sends out DHCP requests. After it obtains an IP address and FND access information (option 43) from the DHCP server, IDA (aka IGMA) will connect to FND, which will then push the device configurations.

IOx Local Manager

Cisco IOx Local Manager is a platform-specific application that is installed on a host system as part of the installation of the Cisco IOx framework on that device. It provides a web-based user interface that you can use to manage, administer, monitor, and troubleshoot apps on the host system, and to perform a variety of related activities. (To manage apps across different devices, you can use Cisco Fog Director. See the Cisco Fog Director documentation for additional information.)

Cisco IOx is an application enablement platform that provides uniform and consistent hosting capabilities for various types of apps across various Cisco platforms. This platform brings together Cisco IOS, the industry-leading networking operating system, and Linux, the leading open source platform. Linux-based applications can run on Cisco devices in the Cisco IOx framework, so using this platform, you can bring custom applications and interfaces to the network.

With Cisco IOx, developers can create a wide variety of IoT apps, such as data aggregation system and control systems.

If the IC3000 operates in standalone mode, without a connection to FND, IDA will assign a fixed link local IPv4 address, 169.254.10.1, to the service bridge interface that the management port (mgmt0) is attached to.

End users could connect a device, a laptop for example, directly to the management port of the device, launch a browser on the laptop, and access IOx local manager at https://169.254.128.2:8443 from the browser.

The Local Manager login page will appear.

Basic device configuration functions are available on the Device Config tab on local manager.

Additional Information

For information about FND, go to the following:

https://www.cisco.com/c/en/us/support/cloud-systems-management/iot-field-network-director/tsd-products-support-series-home.html

Cisco Fog Director Reference Guide:

http://www.cisco.com/c/en/us/support/cloud-systems-management/fog-director/products-technical-reference-list.html

Cisco IOx Local Manager User Guide

https://www.cisco.com/c/en/us/td/docs/routers/access/800/software/guides/iox/lm/reference-guide/1-6/iox_local_manager_ref_guide.html

For additional information about Cisco IOx, go to the following:

DevNet documentation on IOx. Provides an overview as well as details by scrolling down the left hand side:

https://developer.cisco.com/site/devnet/support/

IOx Reference Guide:

http://www.cisco.com/c/en/us/support/cloud-systems-management/iox/products-technical-reference-list.html

CHAPTER **6**

Technical Specifications

This section provides device, port, cabling specifications, and power adapters for the Cisco IC3000.

Technical Specifications

This section provides device, port, cabling specifications, and power adapters for the Cisco IC3000.

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

Table 4: Specifications

Description	Technical Specification
Dimensions (H x W x D)	(height x width x depth x) are 5.13 x 4.42 x 6.31 in. (13 cm x 11.2 x 16 cm).
Weight	4.75 lbs
Operating Temperature	-40C to 60C (0 LFM)-40C to 70C (40 LFM)-34C to 75C (200 LFM) -500 to 5,000 feet. Derate max operating temperature 1.5°C per 1000 feet. 10,000 ft maximum. **Note**: This product has been safety certified up to 60C maximum ambient.
Humidity	0 to 95% RH, non condensing
Ingress Protection Rating	IP30
Standard Safety Certifications	UL 60950-1, 2nd edition; CAN/CSA C22.2 No. 60950-1, 2nd edition, EN 60950-1, 2nd edition; CB to IEC 60950-1, 2nd edition with all group differences and national deviations.
Transportation/Storage Conditions	15K ft. altitude; -65C to 85C temperature

Description	Technical Specification
EMC Standards	• FCC 47 CFR Part 15 Subpart B • EN55022/ CISPR 22 • EN55032/ CISPR 32 • EN55024/ CISPR 24 • EN61000-6-1 • EN61000-6-4 • EN50121-4, EN 50121-3-2 • EN61131-2 • IEC61850-3, IEEE1613
Shock/Vibration	• IEC60068-2-6 and IEC60068-2-27 • MIL-STD-810, Method 514.4 • Marine EN60945 • Industrial EN61131-2/IEC61131-2 • Railway EN50155 • Smart Grid EN61850-3 • IEEE 1613
DC input voltage	• Maximum operating range: 9.6 to 60 VDC • Rated: +/- 12 to 48 VDC • The DC-input power supply is an SELV circuit, and it can only be connected to another SELV circuit.
Maximum DC input current	• 0.5A @ 48VDC • 1.0A @ 24VDC • 2.0A @ 12VDC
Power consumption	24 Watts