

ION 2-Slot Chassis (ION002-AD) User Guide



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1. Introduction

Product Description

Transition Networks' ION002-AD is a 2-slot chassis designed for installing one or two Transition Networks ION slide-in cards. The following TN ION Slide-in cards are supported:

- C2110
- C2210
- C3100
- C3110
- C3210
- C2220
- C3220
- C3230
- C6010
- C6110
- C6120
- C6210

The ION002-AD is intended for installing any two 6W or less ION slide-in cards. The ION002-AD can house and power two ION slide-in-cards or one “double-wide” converter such as the C6120-1013. Note that the IONMM and C4120 are not supported. Power Input is via a barrel connector for 12VDC. Management is only supported if the chosen slide-in-card supports remote in-band management over the fiber, or if the card is IP-addressable.

Models

The ION002-AD models are described below. Note that the IONMM (ION Management Module) can not be used in the ION002-AD.

Model	Description
ION002-AD	2-Slot ION Chassis, desktop, with AC or DC power input.

Options

The ION002-AD options listed below are sold separately.

Model	Description
WMBP	Optional Wall Mount Bracket; 5.0 in. (127 mm)
WMBV	Optional Vertical Mount Bracket; 5.0 in. (127 mm)

Specifications

Note: The ION002-AD 2-Slot chassis is Class A compliant.

Dimensions	7.0 x 4.0 x 2.17 inches (178 x 102 x 55.11 mm)
Weight	1 lb (45 kg) approximately
MTBF	With Power Supply: MTBF to be greater than 191,800 MIL-HDBK-217F Hours at 25°C when bundled with a typical 200,000 hour power supply. MTBF to be greater than 527,500 Bellcore Hours at 25°C when bundled with a typical 200,000 hour power supply. Without Power Supply: MTBF to be greater than 4,700,000 MIL-HDBK-217F Hours at 25°C when with no power supply bundled. MTBF to be greater than 13,000,000 Bellcore Hours at 25°C when bundled with no power supply bundled.
Power Inputs	Two options: One external AC/DC power supply (provided) or an optional two-wire terminal block (21-60 VDC polarity insensitive). See selected Slide-In Card manual for power consumption data.
Environment	0° to 50°C (32 to 122° F)

Storage Temp	-20° to 85°C
Humidity	10 to 90%, non-condensing
Warranty	Lifetime

The information in this user's guide is subject to change. For the most current information on the ION002-AD, view the latest manual online at www.transition.com and click on Product/Product finder.

Package Contents

Make sure that you have received the following items.

- One ION002-AD Two-Slot ION Chassis
- Front ION Blank with #4 Screw (TN 6531)
- Four rubber feet
- One Documentation Post Card
- One PolyBag

Document Overview

The purpose of this manual is to provide the information needed to install the ION002-AD to the point of operation. Note that there are separate manuals for the ION slide-in-cards.

Related Manuals and Online Help

A printed documentation card is shipped with each x4110 device. A substantial set of technical documents, white papers, case studies, etc. are available on the Transition Networks web site at www.transition.com. Note that this manual provides links to third party web sites for which Transition Networks is not responsible. Other ION system and related device manuals are listed below.

1. Product Documentation Postcard, 33504
2. ION x4110 Install Guides, 33572 or 33573
3. ION x4110 Web User Guide, 33574, or CLI Reference, 33575
4. ION Management Module (IONMM) Install Guide, 33420 and User Guide, 33457
5. ION System NID User Guides (33432, 33457, 33472, 33493, 33494, 33495, 33496)
6. Release Notes (firmware version specific)

Note: Information in this document is subject to change without notice. All information was deemed accurate and complete at the time of publication.

Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using this product in such an application without express written consent of an officer of Transition Networks does so at their own risk, and agrees to fully indemnify Transition Networks for any damages that may result from such use or sale.



Attention: this product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.



Warning: Potential for damage to equipment or personal injury.



Warning: Risk of Electrical Shock



Functional grounding point



Protective grounding point



Special considerations

CAUTION: Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intrabuilding (inside plant) link segments that are not subject to lightening transients or power faults. Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are NOT to be connected to interbuilding (outside plant) link segments that are subject to lightening transients or power faults. Failure to observe this caution could result in damage to equipment.

2. Installation

ION002-AD installation can involve installing the SICs, powering the Chassis, and grounding the Chassis.



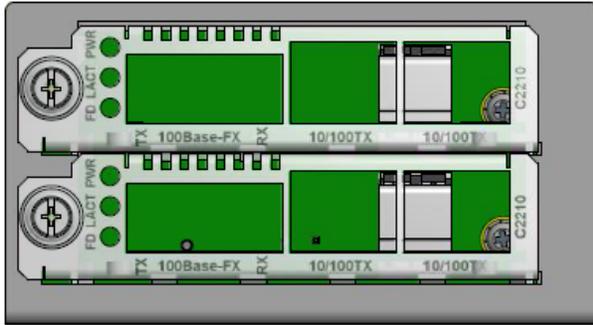
Installing Slide-In Cards

CAUTION: Wear a grounding device and observe electrostatic discharge precautions when installing slide-in cards into the dual-slot chassis. Failure to observe this caution could result in damage to the slide-in cards.

Note: The maximum power delivery capacity for the ION002-AD Dual Slot chassis is 6 Watts.

To install a slide-in-card into the ION002-AD chassis:

1. Refer to the manuals for the slide-in card to ensure that any DIP switches or jumpers on the module's circuit board are set correctly for the site installation.
2. Carefully align the slide-in card to the chassis installation guides and slide it fully into the installation slot, as shown below.
3. Ensure that the slide-in card is firmly seated inside the chassis.
4. Push in and rotate the attached panel fastener screw to secure the slide-in card to the ION002-AD chassis frame.
5. Repeat steps 1-4 to install a second card.



6. If only one card is being installed in the chassis, it is suggested that the slot Blank (provided) is used to cover up the unused slot.

Powering the Chassis

⚠ CAUTION: only one power input should be connected at any time.

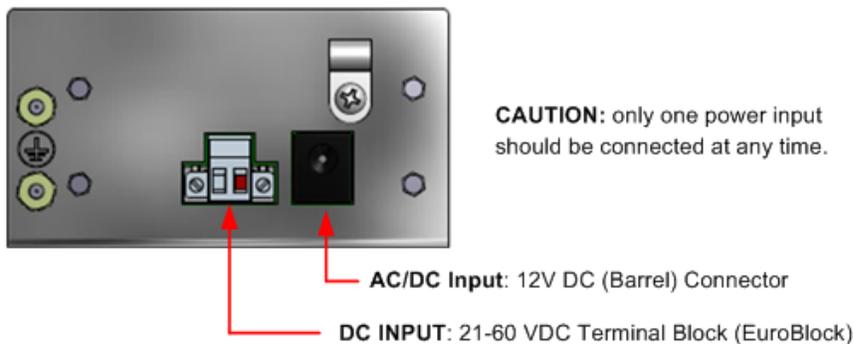
To supply power to the ION002-AD chassis with the external AC/DC power supply (provided):

1. Connect the barrel connector on the supplied power adapter to the ION002-AD chassis' power port (located on the back of the chassis).

2a. Connect the power adapter plug (supplied) to AC power. **Note:** the power inputs are not redundant; only one input can be used.

2b. For an optional DC power source, use the 2-wire terminal block. The input voltage on the 2-wire terminal block is 21-60 VDC, polarity insensitive. This terminal block can be used if your installation site offers a low voltage DC power source. See "Power via the DC INPUT (EuroBlock) Connector" below for more information.

3. Verify that the ION002-AD chassis is powered by observing the lit LED(s) on the installed slide-in card.

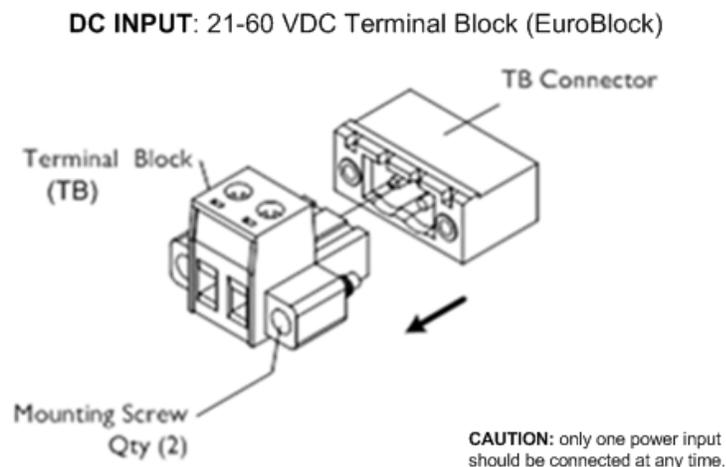


Power via the DC INPUT (EuroBlock) Connector

DC INPUT: 21-60 VDC EuroBlock (Terminal Block). The procedures below describe how to remove the terminal block, connect the Power wires to the Terminal Block, and then reinstall the terminal block and verify the Power wire connections.

Removing the Terminal Block (TB)

1. Loosen the "2" mounting screws that attach the "primary" Terminal Block (TB) to the ION002-AD chassis.
2. Pull the TB from the ION002-AD chassis connector as shown below.

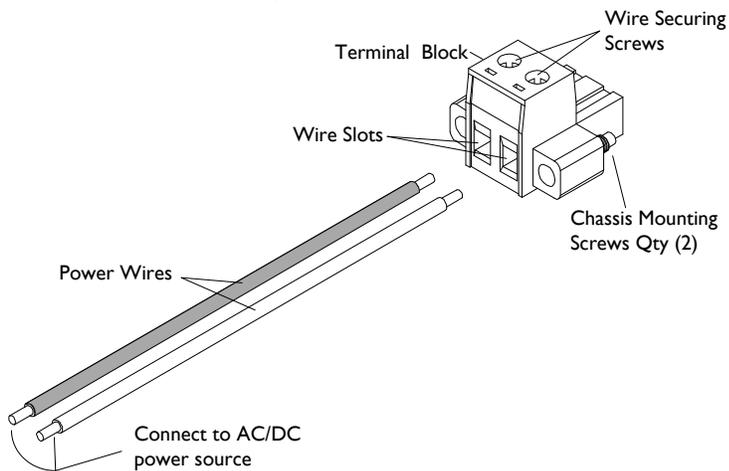


Notes: It is a good practice to turn OFF input and load power, and unplug the power Terminal Block before making wire connections. Otherwise, a metal screwdriver blade can inadvertently short the terminal connections to the grounded enclosure. However, in some instances this is not possible as this may be a bussed power rail providing power to numerous other devices. Also note:

- The range of suitable wire for the terminal block is 12 to 26 AWG.
- The power source must be safety certified.

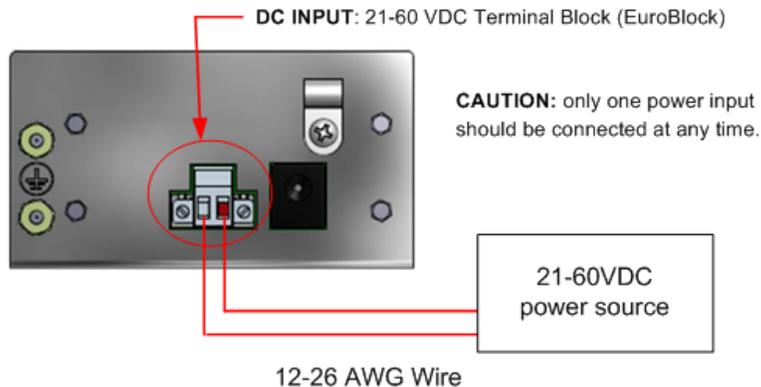
Connecting Power Wires to the Terminal Block

1. Strip the wires to the proper length.
2. Insert the positive and negative power wires into V+ and V- contacts respectively of the Terminal Block (note polarity on the ION002-AD chassis). Make sure the wires are secure. See figure below.
3. Insert the positive and negative power wires into V+ and V- contacts respectively into the power source—make sure the wires are secure. See the figures above. Insert the positive and negative power wires into V+ and V- contacts respectively into the power source—make sure the wires are secure. See the figure below.



Reinstalling the Terminal Block and verifying power wire connections

4. Reinstall the Terminal Block into the primary location on the ION002-AD.
5. Tighten the two screws to secure the Terminal Block to the ION002-AD chassis.
6. Turn the power source ON and observe that the green front panel PWR (power) LED is lit, indicating that power is applied to the ION002-AD. See the figure below.



Grounding the Chassis

The ION002-AD chassis comes equipped with grounding lugs located on its back panel. They require a grounding conductor wire terminated with a two-hole, compression-type, grounding connector (not provided). The grounding wire (must be a copper conductor) is not included with the chassis and must be provided by the customer/installer.

The electrical-conducting path from the ION002-AD chassis must:

- Flow via the grounding lugs to the common bonding network (CBN) for telecom installations, or to an alternative approved grounding system (if required) for non-telecom installations.
- Be of sufficiently low impedance to conduct fault currents likely to be imposed on the media converter.
- Enable proper operation of any over-current protection devices.

Grounding Wire Size

The wire size of the Protective Earth (ground) conductor should be greater than or equal to the wire size of the power source conductors. The power-source conductor wire size is installation dependent and sized to accommodate acceptable IR losses between the power source and the device terminal block. The device terminal block accommodates #6 wire lugs. A #6 wire lug typically terminates #16 - #20 wire; with #18 most common.

Connecting the Ground Wire

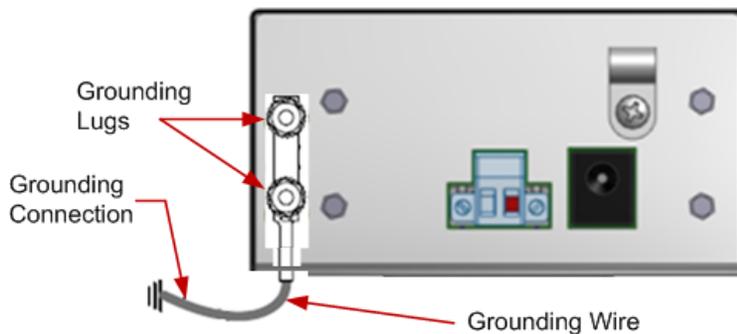
The conductor must be fastened to the grounding lugs with the enclosed antirotation star-washers and lug-nut fasteners. The torque requirement for the connector lug-nut fasteners is specified by the connector's manufacturer.

Grounding Methods

The conductor must be fastened to the grounding lugs with the enclosed antirotation star-washers and lug-nut fasteners. The torque requirement for the connector lug-nut fasteners is specified by the connector's manufacturer.

To properly ground the ION002-AD chassis:

1. Obtain one (1) a two-hole, compression-type, grounding connector.
2. Attach the grounding conductor to the chassis by placing the two-hole connector onto the grounding lugs and fasten with the enclosed lockwashers/lug-nuts at the proper torque (per the manufacturer's specification).
3. Attach the opposite end of the grounding conductor to the common-bonding network (CBN) for telecom, or to earth ground (if required) for non-telecom installations.



Mounting Options

WMBP Optional Wall Mount Bracket; 5.0 in. (127 mm)

WMBV Optional Vertical Mount Bracket; 5.0 in. (127 mm)



For More Information

See the related slide-in-card manuals for information on:

- Pre-Installation
- DIP Switch settings
- Installation and Setup
- Installing slide-in-cards and SFP/SFP+ Devices
- Cabling
- Operation (CLI and Web GUI)
- Power and Status LEDs
- Cable Specifications
- Cable Types
- Troubleshooting
- Management (CLI or web GUI)

3. Troubleshooting

1. Is a media converter installed in the ION002-AD chassis?

NO

- Install a slide-in card into the ION002-AD chassis. See the installation instructions.
- Proceed to step 2.

YES

- Proceed to step 2.

2. Is the Power LED on the slide-in card lit?

NO

- Is the slide-in-card properly seated?
- Is the power adapter the proper type and cycle frequency for the AC outlet? (*See technical specifications*)
- Is the power adapter properly installed in the ION002-AD and in the grounded AC outlet?
- Contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

YES

- Proceed to step 3.

3. Check the power requirement for the installed slide-in card.

- Power requirement must be 6 W or less.
- For more slide-in-card information, see the related manual.
- For additional assistance, contact Technical Support: US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

4. Service, Warranty and Tech Support

Contact Us

Technical Support

Technical support is available 24 hours a day.

US and Canada: 1-800-260-1312

International: 00-1-952-941-7600

Transition Now 7:00 AM to 6:00 PM CST

Voice Mail: 800-260-1312 x 579 or 952-941-7600 x 579

Chat live via the Web with Transition Networks Technical Support. Log onto www.transition.com and click the Tech Support/Transition Now link.

Web-Based Seminars

Transition Networks provides seminars via live web-based training.

Log onto www.transition.com and click the Learning Center link.

E-Mail

To ask a question anytime, send an e-mail to our technical support staff at techsupport@transition.com.

Address

Transition Networks

10900 Red Circle Drive,

Minnetonka, MN 55343, U.S.A.

Telephone: 952-941-7600

Toll free: 800-526-9267

Fax: 952-941-2322

Warranty

This warranty is your only remedy. No other warranties, such as fitness for a particular purpose, are expressed or implied. Transition Networks is not liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory. Authorized resellers are not authorized to extend any different warranty on transition networks' behalf.

Effective for products shipped May 1, 1999 and after. Every Transition Networks' labeled product purchased after May 1, 1999 will be free from defects in material and workmanship for the lifetime of the product. This warranty covers the original user only and is not transferable.

What the Warranty Does Not Cover

This warranty does not cover damage from accident, acts of God, neglect, contamination, misuse or abnormal conditions of operation or handling, including over-voltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components. If the user is unsure of the proper means of installing or using the equipment, contact Transition Networks' free technical support services.

Establishing Original Ownership

To establish original ownership and provide date of purchase, please complete and return the registration card accompanying the product or register the product on-line on our product registration page.

Transition Networks will at its option:

- Repair the defective product to functional specifications at no charge
- Replace the product with an equivalent functional product
- Refund the purchase price of a defective product

Who to Contact for Returns

To return a defective product for warranty coverage, contact Transition Networks' technical support department for a return authorization number. Transition's technical support department can be reached through any of the following means:

How and Where to Send Returns

Send the defective product postage and insurance prepaid to the following address:

Transition Networks, Inc.

10900 Red Circle Drive

Minnetonka, MN 55343 USA

Attn: RETURNS DEPT: CRA/RMA # _____

Failure to properly protect the product during shipping may void this warranty. The return authorization number must be written on the outside of the carton to ensure its acceptance. We cannot accept delivery of any equipment that is sent to us without a CRA or RMA number.

CRA's are valid for 60 days from the date of issuance. An invoice will be generated for payment on any unit(s) not returned within 60 days.

Upon completion of a demo/ evaluation test period, units must be returned or purchased within 30 days. An invoice will be generated for payment on any unit(s) not returned within 30 days after the demo/ evaluation period has expired.

The customer must pay for the non-compliant product(s) return transportation costs to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for the shipping of the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/and taxes are the customer's responsibility).

Before making any non-warranty repair, Transition Networks requires a \$200.00 charge plus actual shipping costs to and from the customer. If the repair is greater than \$200.00, an estimate is issued to the customer for authorization of repair. If no authorization is obtained, or the product is deemed 'not repairable', Transition Networks will retain the \$200.00 service charge and return the product to the customer not repaired. Non-warranted products that are repaired by Transition Networks for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document.

Transition Networks reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as "No Problem Found."

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. TRANSITION NETWORKS IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. AUTHORIZED RESELLERS ARE NOT AUTHORIZED TO EXTEND ANY DIFFERENT WARRANTY ON TRANSITION NETWORKS'S BEHALF.

Customer Pays Non-Compliant Return Costs

The customer must pay the non-compliant product(s) return transportation cost to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for shipping the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/and taxes are the customer's responsibility).

Non-Warranty Repair Costs

Before making any non-warranty repair, Transition Networks requires a \$200 charge, plus actual shipping costs to and from the customer. If the repair is greater than \$200, an estimate is issued to the customer for authorization before making the repair. If no authorization is obtained, or the product is deemed not repairable, Transition Networks will retain the \$200 service charge and return the product to the customer not repaired.

Repaired Non-Warranty Products

Non-warranted products repaired by Transition Networks for a fee will carry a 180-day limited warranty.

All warranty claims are subject to the restrictions and conventions set forth by this document.

Transition Networks reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as "No Problem Found."

Compliance Information

Standards

CISPR22/EN55022 Class A, CE Mark, and IEC 61850-3

FCC Regulations

NOTE: 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 the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE Marking

This is a Class A product. In a domestic environment, this product could cause radio interference; as a result, the customer may be required to take adequate preventative measures.

UL Listed Power Supply

The Power Supply is tested and recognized by the Underwriters Laboratories, Inc.

Declaration of Conformity

<i>Declaration of Conformity</i>			
<i>Transition Networks, Inc.</i>			
<small>Manufacturer's Name</small>			
<i>10900 Red Circle Drive, Minnetonka, Minnesota 55343 U.S.A.</i>			
<small>Manufacturer's Address</small>			
<i>Declares that the product(s)</i>			
<i>ION002-AD</i>			
<i>Conforms to the following Product Regulations:</i>			
EMC Directive 2004/108/EC; EN 55022:2006+A1:2007 Class A; EN55024:1998+A1:2001+A2:2003; EN61000-3-2; EN61000-3-3; CFR Title 47 Part 15 Subpart B Class A; Low Voltage Directive: 2006/95/EC			
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).			
<i>Minnetonka, Minnesota</i>	<i>January 14, 2015</i>	<i>Stephen Anderson</i>	
<small>Place</small>	<small>Date</small>	<small>Signature</small>	
		<i>Stephen Anderson</i>	<i>Vice President of Engineering</i>
		<small>Full Name</small>	<small>Position</small>
			<small>101415</small>

European Regulations

WARNING: This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate measures.

Achtung ! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention ! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Transition Networks will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.

CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

Electrical Safety Warnings

Electrical Safety

IMPORTANT: This equipment must be installed in accordance with safety precautions.

Elektrische Sicherheit

WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

Elektrisk sikkerhed

VIGTIGT: Dette udstyr skal installeres i overensstemmelse med sikkerhedsadvarslerne.

Elektrische veiligheid

BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

Sécurité électrique

IMPORTANT : Cet équipement doit être utilisé conformément aux instructions de sécurité.

Sähköturvallisuus

TÄRKEÄÄ : Tämä laite on asennettava turvaohjeiden mukaisesti.

Sicurezza elettrica

IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

Elektrisk sikkerhet

VIKTIG: Dette utstyret skal installeres i samsvar med sikkerhetsregler.

Segurança eléctrica

IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

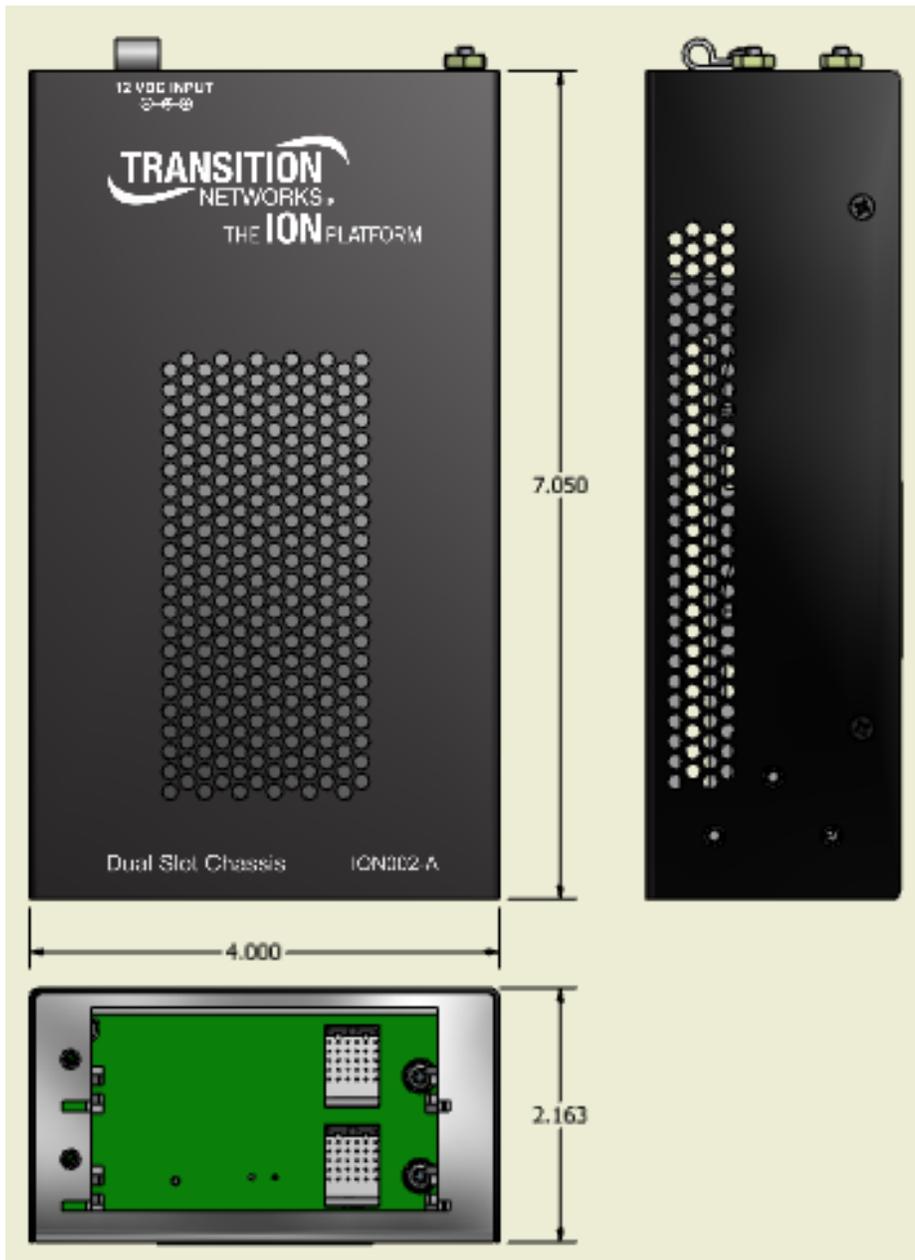
Seguridad eléctrica

IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

Elsäkerhet

OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.

Dimensions



Record of Revisions

Rev	Date	Description of Changes
A	2/20/15	Initial release for ION002-AD.

Trademark notice

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Address comments on this product or manual to:

Transition Networks Inc.

10900 Red Circle Drive

Telephone: +1-952-941-7600 / Toll Free: 800-526-9267 / Fax: 952-941-2322

E-Mail: customerservice@transition.com / techsupport@transition.com sales@transition.com / info@transition.com