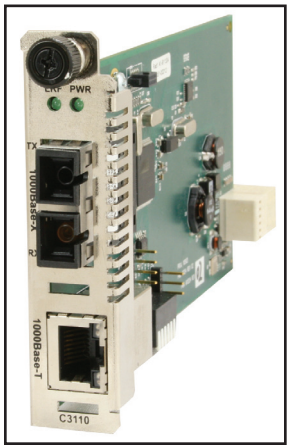
TRANSITION NETWORKS



User's Guide

C3110:

- **Gigabit Ethernet**
- **Copper & Fiber Ports**
- **1000Base-T to 1000Base-SX/LX Connectivity**

The two-port C3110 Series Gigabit Ethernet ION slide-in cards (SICs) connect 1000Base-T shielded or unshielded twisted-pair copper cable to 1000Base-SX or 1000Base-LX, fiber-optic cable. The C3110 SIC is designed to be installed in the Transition Networks ION chassis. The C3110 has one copper port and one fiber-optic port.

Part Number	Port One - Copper	Port Two - Duplex Fiber-Optic
C3110-1013	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-SX, 850 nm multimode 220 m *(721 ft)* (62.5/125 µm cable)* 550 m *(1,804 ft)* (50/125 µm cable)*
C3110-1014	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1310 nm single mode 10 km *(6.2 miles)**
C3110-1015	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1310 nm single mode 25 km (15.5 miles)*
C3110-1017	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1550 nm single mode 65 km *(40.4 miles)**
C3110-1024	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-SX, 1310 nm extended multimode, 2 km *(1.2 miles)** **Note:** 62.5/125 µm *(fiber only)*
C3110-1035	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1550 nm single mode 125 km *(77.5 miles)**

*Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

Part Number	Port One - Copper	Port Two - Single Fiber-Optic
C3110-1040	RJ-45 1000Base-T 100 m *(328 ft)**	SFP slots
C3110-1029-A1	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1310 TX/1550 RX single mode, 20 km *(12.4 miles)**
C3110-1029-A2	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1550 TX/1310 RX single mode, 20 km *(12.4 miles)**
	The C3110-1029 and the C3110-1029 are to be installed in the same network, where one is the local converter and the other is the remote converter.	
C3110-1029-B1	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1310 TX/1550 RX single mode, 40 km *(24.8 miles)**
C3110-1029-B2	RJ-45 1000Base-T 100 m *(328 ft)**	SC, 1000Base-LX, 1550 TX/1310 RX single mode, 40 km *(24.8 miles)**
	The C3110-1029-B1 and the C3110-1029-B2 are to be installed in the same network, where one is the local converter and the other is the remote converter.	

DMI Models (-1xx)

The Diagnostic Monitoring Interface (DMI) models *(listed below)* allow diagnosing problems within the network. These devices have four functions:

- Transmit power
- Receive power
- Transmit bias current
- Temperature

Within each function, the device will send a trap; i.e., error whenever a high or low warning event, or high or low alarm event occurs *(for a total of 16 traps).*

In addition, if both the local and remote devices are DMI models, the device will distinguish whether the trap event is from a local or a remote device.

Part Number	
C3110-1040	**Port One - Copper 1000-Base-TX**
RJ-45 100 m *(328 ft)*	

DMI Supported SFPs

Sold separately, the following DMI supported SFP transceiver modules for port two are compatible with the C3110-1040 devices and are available from Transition Networks.

C3110-1040	Port Two - Fiber-Optic 1000Base-SX/LX
TN-SFP-SX	LC, 1000Base-SX, 850 nm multimode, 220-550 mm *(720-1804 ft)** Without DMI
TN-SFP-SXD	LC, 1000Base-SX, 850 nm multimode, 220-550 mm *(720-1804 ft)**
TN-SFP-LX1	LC, 1000Base-LX, 1310 nm single mode, 10 km *(6.2 miles)**
TN-SFP-LX3	LC, 1000Base-LX, 1310 nm single mode, 30 km *(18.8 miles)**
TN-SFP-LX5	LC, 1000Base-LX, 1550 nm single mode, 50 km *(31.2 miles)**
TN-SFP-LX8	LC, 1000Base-LX, 1550 nm single mode, 80 km *(50.0 miles)**
TN-SFP-LX12	LC, 1000Base-LX, 1550 nm single mode, 120 km *(74.6miles)**

*Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network.

Note: Third-party Multi-Source Agreement (MSA) compliant Small Form Factor Pluggables (SFPs) can also be used in the C3110-1040.

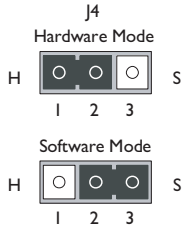
Installation

CAUTION: Wear a grounding device and observe electrostatic discharge precautions when setting the jumper, the 6-position switch, and installing the C3110 SIC into the *ION* chassis. Failure to observe this caution could result in damage to the SIC.

Set the two-position jumper

- The jumper is located on the SIC circuit board, connector J4.
- Use a small needle-nosed pliers or similar device to set the jumper.
- Refer to the illustration on the right for hardware/software jumper positioning.

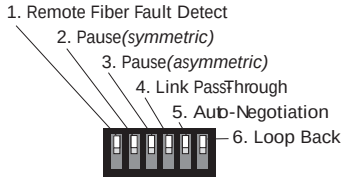
Hardware	The ION mode of operation is determined by the six-position switch settings. Default is the Hardware position.
Software	The ION mode of operation is determined by the most recently saved on-board microprocessor settings.



Set the six-position switch

- The six-position switch is located on the side of the SIC.
- Use a small flat-blade screwdriver to set the DIP switches.
- All switches are shown in the default position, UP.

Note: Switch positions 2 and 3 function together to configure the SIC for Pause conditions.



SW1 Remote Fault Detection (RFD)
- up — Disabled
- down — Enable

SW2 & SW3 work in combination

Pause

10 sw position 2 up and 3 down:	Symmetric
01 sw position 2 down and 3 up:	Asymmetric
11 sw positions 2 and 3 up:	Pause is OFF *(default position)*
00 sw positions 2 and 3 down:	Symmetric and Asymmetric

SW4 Link Pass-Through
- up — Enable Link Pass-Through
- down — Disable Link Pass-Through

Installation — Continued

Set the 6-position switch — continued

SW5 Fiber Auto-Negotiation
- up — Disable Auto-Negotiation for the fiber link (*default setting)*
- down — Enable Auto-Negotiation for the fiber link

SW6 Loop Back
- up — Disable RX/TX signal loop back *(default setting)*
- down — Enable RX/TX signal loop back

Install Mode

During installation set DIP switch 4 DOWN; leave all other switches in the UP position *(default)*. This disables Transparent Link Pass-Through and Auto-Negotiation, allowing individual copper and fiber links to be established *(both copper port LEDs will turn ON with each device-to-device connection)* independent of having a complete end-to-end connection.

Operation Mode

After installation is complete *(all copper and fiber ports connected and linked),* set all switches to the UP position *(default)*.

Remote Fault Detection

Remote fiber fault detect (RFD) monitors the status of the fiber link. Enable RFD in the remote converter only.

CAUTION: If RFD is enabled in the device at each end of the link, a link pass-through event will put the converters into an unrecoverable state *(unable to establish a link)*.

Fiber Auto-Negotiation

Fiber Auto-Negotiation allows the fiber interface to detect and then advertise the supported features of the remote device—active only when a fiber cable is connected to a device with a negotiating port. The process is as follows:

1. The fiber interface detects the supported features of the remote partner.
2. These abilities are passed to the twisted-pair interface and advertised.
3. Once the twisted-pair interface has a link at the highest common capability, it passes the result to the fiber interface.
4. The fiber interfaces then start advertising these capabilities. At this point, the link between the fiber and the negotiating port is complete.

If the C3110 is connected via fiber to another C3110, both SICs must have the Fiber Auto-Negotiation setting disabled *(switch 5 UP)*.

Note: Link Pass-Through *(switch position 4 enabled)* cannot be turned OFF *(disabled)* when Fiber Auto-Negotiation is ON *(enabled)*.

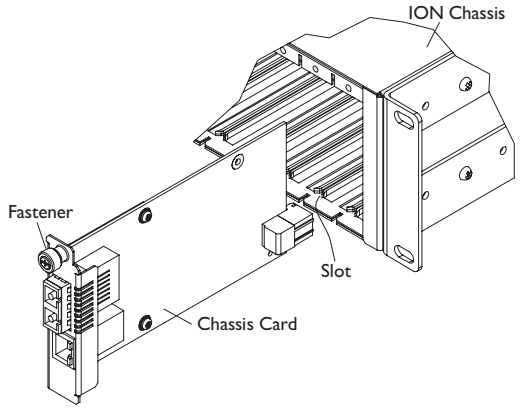
Installation — Continued

Install the slide-in-module

IMPORTANT: Slots in the ION chassis without a slide-in-module installed MUST have a protective plate covering the empty slot for Class A compliance.

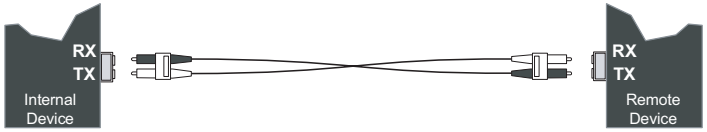
To install the C3110 SIC:

1. Locate an empty slot on the ION chassis.
2. Carefully slide the slide-in-module into the slot, aligning it with the slot guides.
3. Ensure that the slide-in-module is firmly seated inside the chassis.
4. Push in and rotate the panel fastener screw shown below clockwise to secure the module to the chassis front.



Install the fiber cable

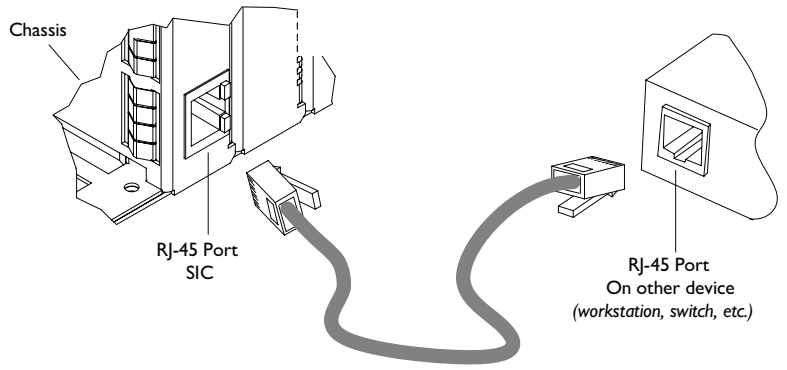
1. Locate a 1000Base-SX/LX compliant fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cable to the C3110 SIC as described:
   - Connect the male TX cable connector to the female TX port.
   - Connect the male RX cable connector to the female RX port.
3. Connect the fiber cables to the other device *(another SIC, hub, etc.)* as described:
   - Connect the male TX cable connector to the female RX port.
   - Connect the male RX cable connector to the female TX port.



Installation — Continued

Install the copper cable

1. Locate a 1000Base-T compliant copper cables with male, RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the RJ-45 port on the C3110 SIC.
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 port on the other device *(switch, workstation, etc.)*.

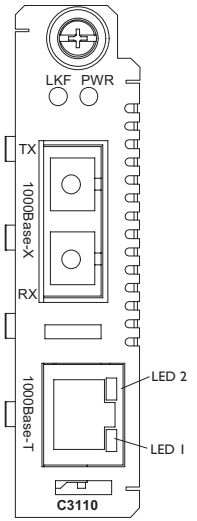


Operation

Status LEDs

Use the status LEDs to monitor the C3110 SIC operation in the network.

PWR *(Power)*	ON =	Connected to external AC power
LKF *(Fiber link)*	ON =	Fiber Connection, blinking activity
LED 1	ON Green	= Link
	Blink	= Activity
LED 2	ON Green	= Full duplex
	OFF	= Half dupled, blinking when collision



Operation — Continued

Remote-Fault Detect (RFD)

Remote-Fault Detect monitors the status of the fiber link. When enabled, remote fault detection turns off the converter's fiber transmission when the fiber receiver goes down. RFD should only be enabled in the remote converter; if enabled in both, a link pass-through event will cause an unrecoverable condition between the converters.

Pause

The pause feature can improve network performance by allowing one end of the link to signal the other to discontinue frame transmission for a set period of time to relieve buffer congestion.

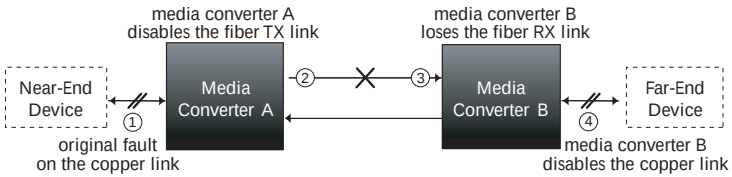
The pause feature can be set to one of four settings:

- Disable *(i.e., no pause)*
- Symmetrical pause
- Asymmetric TX (*transmit)* pause
- Asymmetric RX *(receive)* pause

Enable the pause feature if it is present on ALL network devices attached to the SIC(s); otherwise, disable this feature.

Link Pass-Through

The Link Pass-Through feature allows the SIC to monitor both the fiber and copper RX *(receive)* ports for loss of signal. Refer to the illustration below. For example, in the event of a loss of an RX signal (1), the SIC will automatically disable the fiber TX *(transmit)* signal (2), thus, "passing through" the link loss (3). The far-end device is automatically notified of the link loss (4), which prevents the loss of valuable data unknowingly transmitted over an invalid link.



AutoCross *(always on)*

The AutoCross feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting to 10Base-T, 100Base-TX, or 1000Base-T devices, such as hubs, transceivers, or network interface cards (NICs). AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up to its companion device regardless of the cable configuration.

Operation — Continued

Auto-Negotiation

Auto-Negotiation enables automatic configuration to achieve the best possible mode of operation over a link between devices. A device with this feature enabled will broadcast its speed *(10Mbs, 100Mbs, etc.)* and duplex *(half/full)* capabilities to another device with this feature, then negotiate the best mode of operation between them—no user intervention required.

Fiber Auto-Negotiation

Fiber Auto-Negotiation allows the fiber interface to detect and then advertise the support capabilities of the remote device. This only occurs when a fiber cable is connected to a device with a negotiating port.

Loop Back

This diagnostic feature enables the SIC to loop back the signal from the RX port to the TX port for testing and troubleshooting purposes. Test signals from a bit-error test unit can then be inserted into either the copper or fiber link to test a particular segment.

This type of diagnostic test can only be performed from the local to the remote device with loop back enabled on the remote device.

SNMP

Use SNMP at an attached terminal or at a remote location to monitor the SIC by monitoring:

- Copper and fiber link/receive status
- Hardware switch settings
- Receive error count

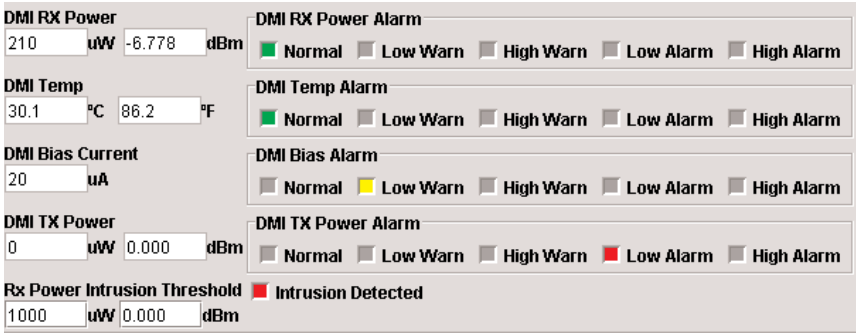
Also, use SNMP to enter network commands that:

- Enable/disable Remote Fault Fiber Detection
- Enable/disable Link Pass-Through
- Enable/disable Auto-Negotiation
- Symmetric pause
- Asymmetric TX *(transmit)* pause
- Asymmetric RX *(receive)* pause
- Disable pause

See the on-line documentation that comes with Transition Networks FocalPoint™ software for applicable commands and usage.

Diagnostic Monitoring Interface (DMI)

The following DMI port screen and explanation table contains brief definitions of the DMI support offered on Transition Networks SFP optical interfaces. For further information, please see the help option on the SNMP agent or Focal Point GUI.



Variable Name	Description
DMI Rx Power	Measured Receive optical power in microwatts and in decibels relative to 1mW.
DMI Rx Power Alarm	Alarm status of measured Receive optical power.
DMI Temp	Internally measured temperature of transceiver in degrees C and degrees F.
DMI Temp Alarm	Alarm status for internally measured temperature of transceiver.
DMI Bias Current	Measured transmit bias current in microamperes.
DMI Bias Alarm	Alarm status for measured transmit bias current for the interface.
DMI Tx Power	Measured transmit power, in microwatts and in decibels relative to 1mW..
DMI Tx Power Alarm	Alarm status of measured transmit power.
Rx Power Intrusion Threshold	Instructs the converter to stop passing traffic when the receive power drops below the new threshold. This feature is sometimes referred to as 'Intrusion Detection, since tapping into a fiber to intercept traffic leads to a reduction in receive power. This value can be entered in microwatts or in decibels relative to 1mW. **Note:** DMI is not available on all devices.

Cable Specifications

The physical characteristics must meet or exceed IEEE 802.3™ specifications.

Fiber cable

Bit Error Rate:	<10-9	
Single mode fiber *(recommended)*:	9 µm	
Multimode fiber *(recommended)*:	62.5/125 µm	
Multimode fiber *(optional)*:	100/140, 85/140, 50/125 µm	
C3110-1013-110	850 nm multimode	
Fiber Optic Transmitter Power:	min: -9.5 dBm	max: -4.0 dBm
Fiber Optic Receiver Sensitivity:	min: -17.0 dBm	max: 0.0 dBm
Link Budget:	8.5 dB	
C3110-1014-110	1310 nm single mode	
Fiber-optic Transmitter Power:	min: -9.5 dBm	max: -3.0 dBm
Fiber-optic Receiver Sensitivity:	min: -20.0 dBm	max: -3.0 dBm
Link Budget:	10.5 dB	
C3110-1015-110	1310 nm single mode	
Fiber-optic Transmitter Power:	min: -5.0 dBm	max: -0.0 dBm
Fiber-optic Receiver Sensitivity:	min: -20.0 dBm	max: -3.0 dBm
Link Budget:	15.0 dB	
C3110-1017-110	1550 nm single mode	
Fiber-optic Transmitter Power:	min: -3.0 dBm	max: 2.0 dBm
Fiber-optic Receiver Sensitivity:	min: -24.0 dBm	max: -3.0 dBm
Link Budget:	21.0 dB	
C3110-1024-110	1300 nm extended multimode	
Fiber-optic Transmitter Power:	min: -10.0 dBm	max: -3.0 dBm
Fiber-optic Receiver Sensitivity:	min: -17.0 dBm	max: -3.0 dBm
Link Budget:	7.0 dB	
C3110-1035-110	1550 nm single mode	
Fiber-optic Transmitter Power:	min: 0.0 dBm	max: 5.0 dBm
Fiber-optic Receiver Sensitivity:	min: -27.0 dBm	max: -3.0 dBm
Link Budget:	27.0 dB	
C3110-1029-A1	1310 nm TX / 1550 nm RX single mode	
C3110-1029-A2	1550 nm TX / 1310 nm RX single mode	
Fiber-optic Transmitter Power:	min: -8.0 dBm	max: -3.0 dBm
Fiber-optic Receiver Sensitivity:	min: -21.0 dBm	max: -3.0 dBm
Link Budget:	13.0 dB	

Cable Specifications — Continued

Fiber cable - Continued

C3110-1029-B1	1310 nm TX / 1550 nm RX single mode	
C3110-1029-B2	1550 nm TX / 1310 nm RX single mode	
Fiber-optic Transmitter Power:	min: -3.0 dBm	max: +2.0 dBm
Fiber-optic Receiver Sensitivity:	min: -23.0 dBm	max: -3.0 dBm
Link Budget:	20.0 dB	

Copper cable *(Category 5 -- minimum requirement)*

- Gauge = 24 to 22 AWG; Attenuation = 22.0 dB /100m @ 100 MHz
- Straight-through OR crossover cable may be used.
- Shielded twisted-pair (STP) OR unshielded twisted-pair (UTP) may be used
- All pin pairs *(1&2, 3&6, 4&5, 7&8)* are active in a gigabit network.
- Use only dedicated wire pairs for the active pins; e.g., blue/white & white/blue, orange/white & white/orange, etc.
- Do not use flat or silver satin wire.

Technical Specifications

For Transition Networks' Model C3110 or equivalent.

Data Rate / Delay:	1000 Mbps/300 nsec
Dimensions:	3.4" x 0.86" x 6.5" *(86mm x 22mm x 165mm)*
Shipping Weight:	1lb *(453.6 g)* approximately
Power Consumption:	3.6W 300mA @ 12VDC
Packet Size:	10 Kbytes *(maximum)*
MTBF*	greater than 250,000 MIL-HDBK-217F hours greater than 667,500 Bellcore hours
Environment Tmar*:	See chassis specifications
Storage Temp:	-25 to 65°C *(-13 to 149°F)*
Humidity:	10% to 90%, non-condensing
Warranty:	Lifetime

*Manufacturer's rated ambient temperature: Tmra range for the C3110 depends on the Transition Networks ION chassis in which this C3110 will be installed.

For the most up-to-date information on the C3110 SIC, view the user's guide on-line at: www.transition.com.

The fiber optic transmitters on this device meet Class I Laser safety requirements per IEC-825/CDRH standards and comply with 21 CFR1040.10 and 21CFR1040.11.

WARNING: Visible and invisible laser radiation when open. Do not stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.

WARNING: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

IMPORTANT: 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 intra-building *(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 inter-building (*outside plant)* link segments that are subject to lightening transients or power faults.

Troubleshooting

If the SIC fails, isolate and correct the fault by determining the answers to the following questions and then taking the indicated action:

1. Is the PWR *(power)* LED illuminated?
   NO
   - Is the SIC inserted properly into the chassis?
   - Is the power cord installed properly in the chassis and at the external power source and does the external power source provide power?
   - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

   YES
   - Proceed to step 2.

2. Is the RXC *(copper link)* LED illuminated?
   NO
   - Check the twisted-pair copper cables for proper connection.
   - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

   YES
   - Proceed to step 3.

3. Is the LKF *(fiber link)* LED illuminated?
   NO
   - Check the fiber cables for proper connection.
   - Verify that the TX and RX cables on the SIC are connected to the RX and TX ports, respectively, on the other device.
   - If the converter is connected to another C3110 via fiber, make sure that the Auto-Negotiation *(DIP switch 5)* is disabled (UP) in hardware mode, or disabled via software in software mode.
   - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

   YES
   - Proceed to step 4.

4. Is the RXC *(copper receive)* LED flashing?
   NO
   - If there is activity on the 1000Base-T port, disconnect and reconnect the twisted-pair copper cable to restart the initialization process.
   - Restart the workstation to restart the initialization process.
   - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

   YES
   - Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

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

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

Ask a question anytime by sending an e-mail to our technical support staff.
techsupport@transition.com

Address

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telephone: 952-941-7600
toll free: 800-526-9267
fax: 952-941-2322

TRANSITION NETWORKS

Declaration of Conformity

Name of Mfg: Transition Networks
10900 City West Parkway, Minnetonka MN 55343 U.S.A.

Model: C3110 Series SICs

Part Number(s): C3110-1013-, C3110-1014, C3110-1015, C3110-1017, C3110-1018, C3110-1024, C3110-1035-110, C3110-1040, C3110-1029-A1, C3110-1029-A2, C3110-1029-B1, C3110-1029-B2, C3110-1029-C1, C3110-1029-C2

Purpose: To declare that the C3110 to which this declaration refers are in compliance with the following directive(s) and standard(s):

EMC Directive 2004/108/EC; EN 55022:2006+A1:2007 Class A; EN55024:1998+A1:2001+A2:2003; EN6100-2-3; EN6100-3-3; CFR Title 47 Part 15 Subpart B Class A. Low Voltage Directive: 2006/95/EC; IEC 60950-1:2005; CFR Title 21 Section 1040.10 Class I.

I, the undersigned, hereby declare that the model number(s) listed in this declaration of conformity are in compliance with the directive(s) and standard(s) herein.

Stephen Anderson, Vice-President of Engineering

March 2010
Date

Compliance Information

FCC regulations

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 the user's own expense.

Canadian regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.
Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European regulations

Warning

This is a Class A product. In a domestic environment this product may 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 Fäll is der Benutzer für Gegenmaßnahmen verantwortlich.

Attention !

Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures 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 öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

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