NEC-FXE-xx-02
Express Card 100Base-FX Fiber Card

User Guide

33611 Rev. A

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 a 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 discarge). Always observe appropriate precuations when handling.

Warning: Potential for damage to equipment or personal injury.

Warning: Risk of Electrical Shock

Warning: Hot surfface!

NEC-FXE-xx-02 Express Card 100Base-FX Fiber Card User Guide

Record of Revisions

Rev	Date	Description of Changes
A	5/22/15	Initial release for release 1.0.

Caution: Circuit devices are sensitive to static electricity, which can damage their delicate electronics.
Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your device, always:
- Touch the metal chassis of your computer to ground the static electrical charge before you pick up the circuit device.
- Pick up the device by holding it on the left and right edges only.

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Address comments on this product or manual to:
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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

Contents

1. Introduction

1.1 Overview

The NEC-FXE-xx-02 is a Fiber Fast Ethernet to ExpressCard bus adapter that fully complies with all IEEE 802.3u and 100Base-FX standards. It provides up to 200Mbps full-duplex bandwidth capacity to support high-end servers. With advanced functions like VLAN filtering packet processing, the adapter provides enhanced performance, flexible configuration, and secure networking for users in a standards-based environment.
The LINK/ACT LED indicator on the bracket lets you monitor the board link, activities, and full-duplex status.

The NEC-FXE-xx-02 supports Preboot Execution Environment (PXE) and Bootstrap Protocol (BOOTP). Multi-Boot Agent (MBA) is a software module that allows your networked system to boot with the images provided by remote systems across the network.

1.2 Key Features

- High bandwidth 100Mbps Network Speed
- Supports Full-Duplex Mode
- Supports IEEE 802.3x Full-Duplex Flow Control
- Supports Mini ExpressCard x 1
- Compliant with ExpressCard Rev.1.1 Interface
- Supports Jumbo Frames
- Supports High Level VLAN Filtering function
- Supports IP headers and TCP / UDP checksums offload
- Supports on-board screening of VLAN tagged Ethernet frames
- Supports ASF 2.0 (Optional for limited BIOS versions and PC models)
- RoHS Compliance

1.3 Technical Specifications

Standards: IEEE 802.3u Fast Ethernet 100Base-FX
                          IEEE 802.3x Full-Duplex Flow Control
                           IEEE 802.1Q VLANs
Connectors: SC, ST, LC
Fiber Optic Cable:
    □ 62.5/125, 50/125um multi-mode
    □ 9/125μm single-mode
Data Transfer Mode/Speed:
    □ Full duplex (Default)
    □ 100Mbps speed
Diagnostics LED on the top plastic cover:
    □ LINK/ACT
Bus Slot   : Express Card 1.1 Compliant
Power Requirement   : Max. 2.5W
Ambient Temperature   : 0○ to 50○C
Humidity   : 5% to 90%
Dimensions   : 19(H) x 34(W) x 128(D) mm
Weight   : 0.04Kg
Emission   : Complies with EMI Standard
                                  FCC Class B
                                  CE Mark

1.4 Software Support

Microsoft Windows 8 and 8.1 x86 Edition	Microsoft Windows Vista x64 Edition
Microsoft Windows 8 and 8.1 x64 Edition	Microsoft Windows Server 2008 x86 Edition
Microsoft Windows 7 x86 Edition	Microsoft Windows Server 2008 x64 Edition
Microsoft Windows 7 x64 Edition	Linux for kernel 2.4.x and 2.6.x (Support x86 & x64)
Microsoft Windows XP/Server 2003 x86 Edition	Novell NetWare 5.X and 6.X Servers
Microsoft Windows XP/Server 2003 x64 Edition	Novell NetWare DOS Client for ODI 16-bit
Microsoft Windows Vista x86 Edition	

1.5 Checklist

Before you start installing the NEC-FXE-xx-02 verify that the package contains the following items:

- □ NEC-FXE-xx-02 Card
- □ Documentation Postcard

Please notify your sales representative immediately if any of the above items is missing or damaged.

2. Model Descriptions

Part Number	Description
NEC-FXE-SC-02	100Base-FX ExpressCard NIC, MM SC 2km
NEC-FXE-ST-02	100Base-FX ExpressCard NIC, MM ST 2km
NEC-FXE-LC-02	100Base-FX ExpressCard NIC, MM LC 2km
NEC-FXE-SC20-02	100Base-FX ExpressCard NIC, SM SC 20km

3. Installation

3.1 Installing the NEC-FXE-xx-02

The following instructions apply to installing the NEC-FXE-xx-02 in most systems. Refer to the manuals that were supplied with your system for details about performing these tasks on your particular system.

To install the NEC-FXE-xx-02, perform the following procedure:

1. Insert the NEC-FXE-xx-02 into the ExpressCard slot of the Notebook computer (see figure below).
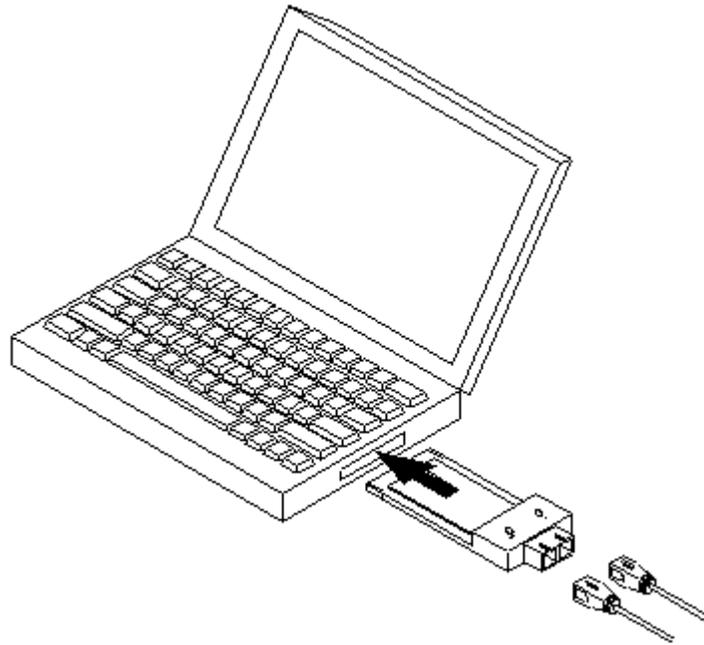

Figure 1. Installation

2. Connect the NEC-FXE-xx-02 to the network by using Fiber wires. Ensure that the Tx/Rx of cables are paired at both ends.

Note: If you cannot locate or do not know how to find an Express Card slot, refer to the documentation that came with your system.

3.2 LAN Driver Installation

Please refer to the READ.ME file provided with the downloadable drivers on the Transition Networks website (login required).

4. Network Remote Boot Configuration

4.1 Select Remote Boot Type

For entering "MBA Configuration Menu" to select Remote Boot Type (PXE), press Shift-F10 within 3 seconds after you power on your Notebook computer; otherwise, the system will go to the Windows OS.

4.2 Set Network Remote Boot

For setting network remote boot, enter the Notebook computer's BIOS, select the "Boot" tab, then choose "MBA" as the priority first boot device.

4.3 Cancel Network Remote Boot

To cancel network remote boot, change the "Boot" setting in the Notebook computer's BIOS from "MBA" to "Hard Drive" or other devices.

5. LED Indicator Description

LED	Color	Function
LINK/ACT	Green	Lit when Fiber cable connection is good. Blinks when any traffic is present.

6. Fiber Cable Specifications

Model	Media	Speed	Connector	Max Distance (Km)	Wave-length (nm)	Min Tx Output (dBm)	Max Tx Output (dBm)	Sensitivity (dBm)	Power Budget (dBm)
NEC-FXE-SC-02	MM Fiber	100	MM SC	2 km	1310	-19	-14	-31	12
NEC-FXE-ST-02	MM Fiber	100	MM ST	2 km	1310	-19	-14	-31	12
NEC-FXE-LC-02	MM Fiber	100	MM LC	2 km	1310	-19	-14	-32	13
FE-6510SC.S20	SM Fiber	100	SM-20 SC	20 km	1310	-15	-8	-31	16

MM = Multi-Mode | **SM** = Single-Mode | **SC** = Duplex SC Connector | **ST** = Duplex ST Connector | **LC** = Duplex LC Connector

Network Parameters

Multi-mode Fiber 62.5/125um, 50/125um	
Full Duplex	2000m
Half Duplex	412m
Single-mode Fiber 9/125 um	
Full Duplex	1310nm 5, 20, 40, 60, 80Km

7. Driver Installation

The LAN drivers support these Network Operating Systems:

- Microsoft Windows 8 and 8.1 x86 Edition
- Microsoft Windows 8 and 8.1 x64 Edition
- Microsoft Windows 7 x86 Edition
- Microsoft Windows 7 x64 Edition
- Microsoft Windows XP/Server 2003 x86 Edition
- Microsoft Windows XP/Server 2003 x64 Edition
- Microsoft Windows Vista x86 Edition
- Microsoft Windows Vista x64 Edition
- Microsoft Windows Server 2008 x86 Edition
- Microsoft Windows Server 2008 x64 Edition
- Linux for kernel 2.4.x and 2.6.x (Support x86 and x64)
- Novell NetWare 5.X and 6.X Servers
- Novell NetWare DOS Client for ODI 16-bit

The file and directory tree structure of the downloadable drivers file are listed below:

README.TXT   Brief description of the contents of the CD (this file)
RELEASE.TXT   Release notes about this LAN drivers CD
\NETWARE\NWSERVER   Directory for NetWare Server for ODI 32-bit drivers
\NETWARE\DOSODI   Directory for NetWare DOS Client for 16 Bit ODI driver
\WINXP&Server2003   Directory for Windows XP/Server 2003 x86 and x64 Edition drivers
\VISTA&Server2008\32 Directory for Windows Vista/Server 2008 x86 Edition for 32-bit driver
\VISTA&Server2008\64 Directory for Windows Vista/Server 2008 x64 Edition for 64-bit driver
\WINDOWS7\32   Directory for Windows 7 x86 Edition for 32-bit driver
\WINDOWS7\64   Directory for Windows 7 x64 Edition for 64-bit driver
\WINDOWS8&8.1\Auto   Directory for Windows 8 and 8.1 x86 and x64 Edition for 32/64-bit Auto Installation
\Linux   Directory for Linux driver for kernel 2.6.x and 2.4.x (Support x86 and x64)

8. Troubleshooting and Support

Basic Troubleshooting

1. Verify the Product Description, Models, Applications, Features, and Specifications in the "Introduction" section starting on page 4 of this manual.

2. Verify the procedures in section 3. Installation starting on page 6 of this manual.

3. Make sure your particular model supports the function attempted. See section 1. Introduction on page 4.

4. Record the error condition. See "Recording Model and System Information" below.

5. Contact TN Tech Support. See section"Service, Warranty and Tech Support" on page 11.

Specific Problem Solving

Problem: Intermittent operation when restarting the laptop with N-FXE-SC-02 installed.

Meaning: Sometimes when rebooting with the N-FXE-SC-02 installed, the NIC will show up and work, other times it won't be re-discovered.

Recovery:

1. Try reseating the N-FXE-SC-02 once or twice to resolve the problem.
2. Go into Device Manager and scan for hardware changes to resolve the problem.
3. Make sure that your PC's version of Windows supports your hardware.
4. If you recently installed a new driver and you started having problems after you installed a new device driver, try to roll back to the previous driver version.
5. The driver for your device might be corrupted, or your driver might not be compatible with your PC's version of Windows, and you might need an updated version. There is no obvious way to tell if your driver is corrupted. Uninstall and reinstall the driver, and then try to use your device again.
6. For additional Windows resources, click Start, point to All Programs, and then click Windows Update (varies b y Windows OS).
7. Contact TN Tech Support. See section"Service, Warranty and Tech Support" on page 12.

Recording Model and System Information

After performing the troubleshooting procedures, and before calling or emailing Technical Support, please record as much information as possible in order to help the Transition Networks Tech Support Specialist.

1. **Record Model Information**:

   Serial #: _____   Product ID: _____

   Board Rev: _____   OS Version: _____

2. Record LED Status: _____

3. Provide your Transition Networks service contract number: _____

   A description of the failure: _____

   _____

   _____

   A description of any action(s) already taken to resolve the problem (e.g., changing mode, rebooting, etc.):
   _____

   _____

   _____

   Description of all other Transition Networks products in the network: _____

   _____

   Description of your environment (PC make/model, network layout, cable type, etc.): _____

   _____

   _____

   The device history (i.e., have you returned the device before, is this a recurring problem, etc.):
   _____

   Any previous Return Material Authorization (RMA) numbers: _____

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 its lifetime. 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."

9. Compliance Information

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the FCC Part 15, Subpart B, Class B.
CISPR 22:A1:2000+A2:2002;ICES-003:2004, Class B

European Community (CE) Electromagnetic Compatibility Directive
This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022 and EN55024.

EMI	EN55022:2006
	EN61000-3-2:2000
	EN61000-3-3:1995+A1/2001+A2/2005
	EN61000-6-3:2001
EMS	EN55024/1998+A1:2001+A2:2003
	→EN61000-4-2:2001
	→EN61000-4-3:2002+A1:2002
	→EN61000-4-4:2004
	→EN61000-4-5:2001
	→EN61000-4-6:2003
	→EN61000-4-11:2001

Declaration of Conformity

Declaration of Conformity

Transition Networks, Inc.
Manufacture's Name

10900 Red Circle Drive, Minnetonka, Minnesota 55343 U.S.A.
Manufacture's Address

Declares that the product(s)

NEC-FXE-SC-02
NEC-FXE-ST-02
NEC-FXE-LC-02
NEC-FXE-SC20-02

Conforms to the following Product Regulations:

FCC Part 15, Subpart B, Class B.
CISPR 22:A1:2000+A2:2002;ICES-003:2004, Class B
EN55022 and EN55024

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s).

Minnetonka, Minnesota	*January 23, 2015*	
Place	Date	Signature
	Stephen Anderson	*Vice President of Engineering*
	Full Name	Position

28141B

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 Fäll ist 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.

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 15nstallers 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 15nstallers 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

Transition Networks

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Minnetonka, MN 55343 USA

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Fax: 952-941-2322

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