

# User Guide

## N-FXE-xx-02

### 100Base-FX Fiber Adaptor NIC Cards

- PCI-Express x1 Interface
- Available with ST, SC, and LC multimode fiber connections
- Wake-on-LAN (WoL)
- Supports 802.1q VLAN tagging



## Contents

Contents .....	1
Introduction .....	1
Ordering Information .....	2
Features .....	2
Installation .....	3
Checklist.....	3
Description.....	3
Installation Procedure .....	4
Network Remote Boot Configuration.....	4
Wake on LAN (WoL).....	4
Cable Specifications .....	5
Fiber cable .....	5
Technical Specifications .....	6
Troubleshooting.....	7
Diagnostics LEDs and Boot ROM .....	7
Contact Us .....	7
Compliance Information .....	8
CE Mark.....	8
Declaration of Conformity .....	9
Record of Revisions.....	9

## Introduction

The N-FXE-xx-02 Series is a Fiber Fast Ethernet to PCI-Express (PCIe) 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 systems. In addition, with advanced functions like VLAN filtering packet processing, the adapter provides added performance, flexible configuration and secure networking to users in a standards-based environment.

The PCI-Express (PCIe) design gives you the maximum possible bandwidth and bus efficiency, along with low power consumption. For users equipped with PCI-Express systems, N-FXE-xx-02 Series provides the ability to easily build or connect to Fast Ethernet fiber networks.

Two LED indicators (LINK/ACT and FDX) on the bracket display NIC link activities and full-duplex status.

The N-FXE-xx-02 support Preboot Execution Environment (PXE). The Multi-Boot Agent (MBA) software module lets your networked system boot with the images provided by remote systems across the network.

## Ordering Information

Part Number	Fiber Port
N-FXE-ST-02	100Base-FX 1300nm multimode (ST); [2 km/1.2 mi.*] Link Budget: 12.0 dB. Standard & LP brackets; PXE boot included.
N-FXE-SC-02	100Base-FX 1300nm multimode (SC); [2 km/1.2 mi.*] Link Budget: 12.0 dB. Standard & LP brackets; PXE boot included.
N-FXE-LC-02	100Base-FX 1300nm multimode (LC); [2 km/1.2 mi.*] Link Budget: 13.0 dB. Standard & LP brackets; PXE boot included.
N-FXE-MT-02	100Base-FX 1300nm multimode (MT-RJ); [2 km/1.2 mi.*] Link Budget: 12.0 dB. Standard & LP brackets; PXE boot included.

\* Typical max. cable distance. Actual distance depends on installed network physical characteristics.

## Features

- PCI-Express x1 Interface
- IEEE 802.3x Full-Duplex Flow Control
- Supports Multicast Frame Filtering
- Supports Asymmetric/Symmetric Flow control
- Supports IEEE 802.1Q VLAN tagging
- IPv6 Capable
- Wake-on-LAN (WoL) power management
- Microsoft certified drivers
- PXE remote boot support
- RoHS Compliance
- UEFI (PC platform BIOS must support)
- Message Signaled Interrupts (MSI)
- Extended Message Signaled Interrupts (MSI-X)
- TCP Segmentation Offload (large send v1 and large send v2 support)
- Available with SC, LC, and MT-RJ multimode fiber connectors
- Standard bracket attached; low-profile bracket included
- Compliant with PCIe Rev 1.1 interface
- Supports Jumbo Frame
- Supports ASF 2.0
- ACPI Supported

## Installation

### ***Checklist***

Before installing the N-FXE Series NIC, verify that the package contains the following items:

- Fast Ethernet N-FXE Series 100Base-FX Fiber NIC
- Product Post Card

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

### ***Description***

The two LED indicators, LINK/ACT and FDX located on the bracket, show network/NIC link activities, collision, and full-duplex statuses. See Figure 1 below.

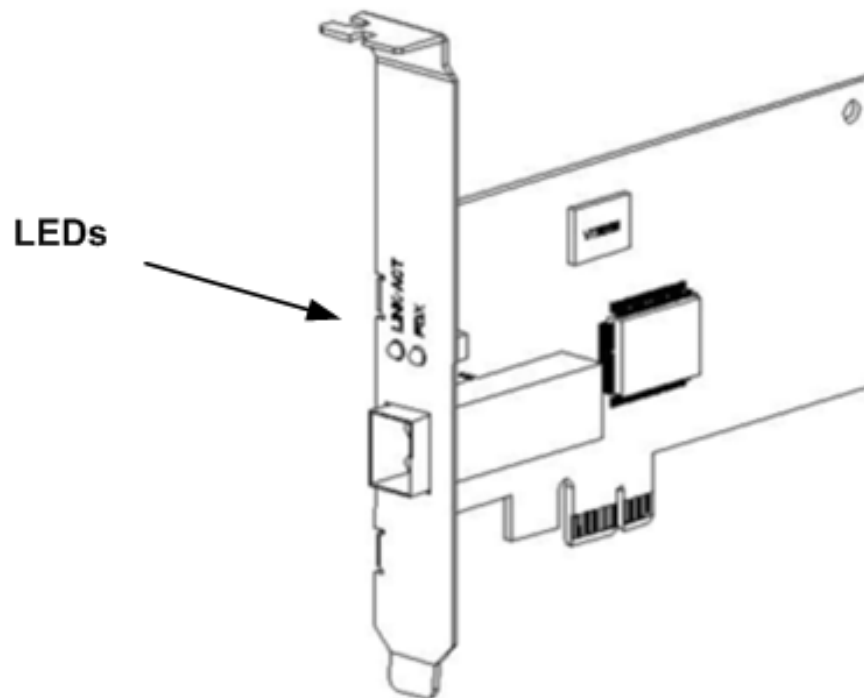


Figure 1. N-FXE-xx-02

## Installation Procedure

**CAUTION:** Wear a grounding strap and observe electrostatic discharge precautions when installing the N-FXE. Failure to observe this caution could result in failure or damage of the N-FXE.

**WARNING:** Turn power OFF before installing the N-FXE.

To install the N-FXE:

1. Turn OFF power to the PC or file server and unplug the power cord.
2. Remove the cover from the PC or file server and keep the retaining screws.
3. Select an empty PCI-e slot (see system documentation if unsure where PCI-e slots are located) and remove the faceplate. Keep the faceplate.
4. Remove the network N-FXE from the shipping package and store the packaging material in a safe place.
5. Apply even pressure on the corners of the N-FXE, pushing down until it seats firmly into the PCI-e slot.
6. Replace the PC or file server cover and secure it with the screws removed in Step 2.
7. Power up the PC or file server.

## Network Remote Boot Configuration

### Select remote boot type

To enter the MBA configuration menu to select remote boot type (PXE), press SHIFT-F10 keys within 3 seconds after powering up the PC, otherwise the computer will load the OS.

### Set network remote reboot

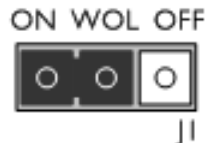
To set the network remote boot, enter PC BIOS first and then select the Boot tab, after that choose MBA as the priority.

### Cancel network remote boot

To cancel network remote boot, change the PC BIOS setting for MBA to Hard Drive or devices.

## Wake on LAN (WoL)

The WoL function on this NIC can recognize a wake-up frame and signal the PC to power up. The default state of the WoL function is enabled (ON), which means pin 2 and pin 3 on J1 (*3-pin header*) are connected via a jumper, as shown below.



Wake on LAN select Jumper (J1)

## Cable Specifications

### ***Fiber cable***

Bit error rate:	<10 <sup>-9</sup>
Single mode fiber ( <i>recommended</i> ):	9 μm
Multimode fiber ( <i>recommended</i> ):	62.5/125 μm
Multimode fiber ( <i>optional</i> ):	100/140, 85/140, 50/125 μm
N-FXE-ST-02	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -xx.0 dBm
Link budget:	12.0 dB
N-FXE-SC-02	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -14.0 dBm
Link budget:	12.0 dB
N-FXE-LC-02	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -32.0 dBm max: -14.0 dBm
Link budget:	13.0 dB
N-FXE-MT-02	1300nm multimode (MT-RJ)
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -14.0 dBm
Link Budget:	12.0 dB

The fiber optic transmitters on the device meet Class I Laser safety requirements per IEC-825/CDRH standard and comply with 21CRF1040.10 and 21CRF1040.11.

## Technical Specifications

For models N-FXE-xx-02

Standards:	IEEE 802.3u, IEEE 802.3x, IEEE 802.1q
Bus Slot	PCIe 1.1
Data rate:	100Mbps fiber media
Status LEDs:	LINK/ACT (Link/Activity): ON = communication link; FLASHING = activity on link FDX (Full-duplex): ON = Full-duplex link
Software support:	Windows 2003, 10, NT 4.0, Windows 2008 Server, Vista, Novell NetWare 5.x, 6.x, Linux
Boot Server Support	PXE Boot ROM
Dimensions:	Depth: 4.25" [108 mm], Height: 2.70" [68.5 mm]
Power Consumption	1.2 Watts (max), +3.3 VDC @ 0.7A
Weight	1 lb. [0.45 kg]
Environment	Operating Temp: 0°C to 50°C Storage Temp: -15°C to 65°C Humidity: 5% to 95% (non-condensing) Altitude: 0 – 10,000 ft.
Certifications	EMI Standard, FCC Class B, CE Mark
Warranty:	Lifetime

**WARNING:** Visible and invisible laser radiation when open: DO NOT stare into the beam or view directly with optical instruments. Failure to observe this warning could result in damage to your vision or blindness.

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

### Electronic emission notices

This equipment has been tested and found to comply with the limits for a class B computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN61000-3 and the Generic European Immunity Standard EN55024.

The information in this manual is subject to change without further notice.

# Troubleshooting

## *Diagnostics LEDs and Boot ROM*

### LEDs

LED	Color	Function
LINK/ACT	Green	Lit when cable connection is good and speed is at 100 Mbps. Blinks when any traffic is present.
FDX	Green	Lit when full-duplex <b>mode is active</b> .

### **Contact Us**

**Technical Support** is available 24-hours a day. US and Canada: 1-800-260-1312. International: 00-1-952-941-7600.

#### **Main Office**

tel: +1.952.941.7600 | toll free: 1.800.526.9267 | fax: 952.941.2322

[sales@transition.com](mailto:sales@transition.com) | [techsupport@transition.com](mailto:techsupport@transition.com) | [customerservice@transition.com](mailto:customerservice@transition.com)

#### **Address**

Transition Networks | 10900 Red Circle Drive | Minnetonka, MN 55343, U.S.A.

**Web:** <https://www.transition.com>

## Compliance Information

### ***CE Mark***

### **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 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 EGMitgliedstaaten 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.



## Declaration of Conformity

		<h3>Declaration of Conformity</h3>	
<b>Name of Mfg:</b>	Transition Networks, 10900 Red Circle Drive, Minnetonka, MN 55343 U.S.A.		
<b>Model:</b>	N-FXE-xxx-02 Network Interface Cards		
<b>Part Number:</b>	N-FXE-ST-02, N-FXE-SC-02, N-FXE-LC-02, N-FXE-SC5-02		
<b>Purpose:</b>	To declare that the N-FXE-xxx-02, to which this declaration refers, is in conformity with the following standards:		
	CISPR22-2(2002) Class B, EN55022/EN61000, CE Mark, IEC61000-4-2(2001), IEC61000-4-3 (2002), IEC61000-4-4 (2001)		
	I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).		
	 Stephen Anderson, Vice-President of Engineering		November, 2011 Date

## Record of Revisions

Rev	Date	Notes
A	11/30/11	Initial release.
B	5/1/15	Updated Technical Specifications and changed format/layout.
C	9/1/20	Updated features, specifications and contact information.

**Trademarks:** All trademarks and registered trademarks are the property of their respective owners.

**Copyright restrictions:** © 2011-2020 Transition Networks. All rights reserved. No part of this work may be reproduced or used in any form or by any means - graphic, electronic or mechanical - without written permission from Transition Networks.