

# **WIZ-201/202**

A Media Wizard Module

10/100BaseT/TX to 100BaseFX  
Enhanced Converters

**User Manual**

Ver. 2.0

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# 1. General Description

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The WIZ-201/2 are dual speed fiber optic Ethernet enhanced converters providing conversion from 10/100BaseT/TX copper media to 100BaseFX fiber media in compliance with IEEE 802.3 Ethernet standards.

WIZ-201 - single port enhanced converter

WIZ-202 – dual port enhanced converter

The WIZ-201/2 provides ideal solution for heterogeneous networks with the ability for smooth migration from 10M to 100M links/networks.

Each converter includes two ports: a twisted pair (TP) port and a fiberoptic (duplex) port with a variety of SC, ST, MT-RJ, VF-45, LC or FJ connectors. The WIZ-201 is also available in a single fiber version for singlemode fiber. Signals received on the twisted pair port are switched to the optical port, and vice versa. The WIZ-201/202 is manageable through the Media Wizard management system.

The twisted pair port(s) are auto-negotiating and supports both UTP and STP cabling. They support both 100BaseT/TX and 10BaseT/TX links and may operate in either full duplex (FDX) or half duplex (HDX) modes. Manual selection of both speed (10M or 100M) and the mode (half or full duplex) are configured via jumpers located on the board.

The fiber optic port(s) support 100BaseFX in either FDX or HDX modes, and are available with singlemode or multimode interfaces. The WIZ-201 is also available in a single fiber version for singlemode fiber. Manual selection of full or half-duplex operation on the fiber optic port(s) is configured via jumpers located on the board.

The WIZ-201/2 can also be used as a half to full duplex converter by setting the HDX/FDX mode of the TP and F/O accordingly.

The TP port is equipped with an MDI-II / MDI-X button to allow direct connection of a switch, hub or a station, avoiding the need for crossover connecting cables.

The modules operate independently and provide extensive diagnostics and status display consisting of 7/14 high visibility LEDs. The LED indicators provide all the information required for setup, operation and module/segment diagnostics.

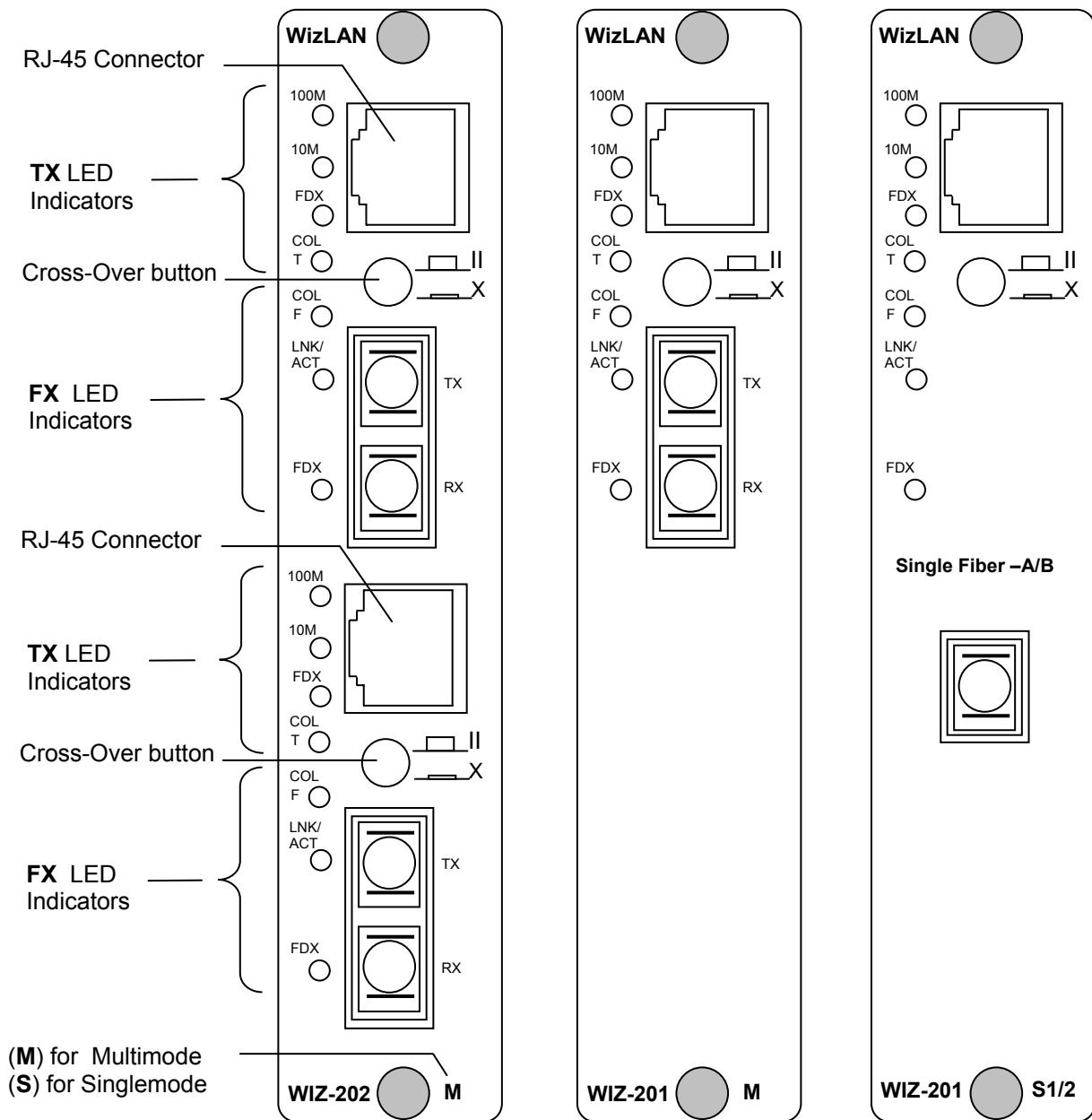
## 2. Features of the WIZ-201/202 modules

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- Dual speed enhanced converter
- A/N or manual 10/100M speed and HDX/FDX selection
- Long frames transparent support, up-to 1536 bytes
- STP/UTP cabling support
- MDI-II / MDI-X pushbutton selection
- Multimode and singlemode F/O options
- Far-end-fault detection
- Available with variety of F/O connectors
- Segment extension up to 6Km (MM) and 100Km (SM)
- Single Fiber version, dual wavelength up to 70Km over single SM fiber
- Enhanced LED indications
- Manageable
- Plug & play, hot swappable, slot independent module
- Fits in all Media Wizard chassis, 19" racks and stand-alone

### 3. Front Panel Diagrams of the WIZ-201/202

The following is the drawing of typical WIZ-201/202 modules with SC F/O connectors.



#### Laser Warning

Part of the WIZ-20x modules includes 1300/1550nm laser products transmitting invisible laser radiation.

**DO NOT** stare into the beam or view directly with optical instruments.

**Avoid direct exposure to beam.**

## 4. Configuration and Indications

### 4.1 Setup Jumpers

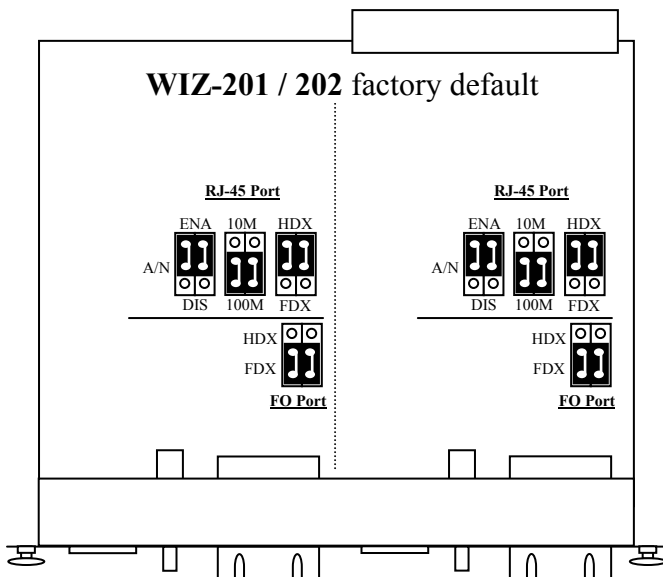
The WIZ-201/2 are equipped with 4/8 setup jumpers located on the board, four dual jumpers per converter. The jumpers enable the proper setting of the module for optimal operation.

A wrong setting will not always result in a malfunction of the converter. Most likely it will result in non-optimal operation (for instance, HD operation instead of FD).

The **factory default** setting is shown in the drawing below, configuring to A/N Enable on the TX port and FDX (Full Duplex) operation on the FX port (Recommended).

**Note:** When configuring A/N Enable, the HDX/FDX jumper has to be in HDX position, the 100M/10M jumper position doesn't matter.

When A/N Disable mode is selected, the HDX/FDX and 100M/10M jumper setting configure the operation mode of the TX port accordingly.



### WIZ-201 / 202 Jumper settings

10/100BaseT/TX RJ-45 port(s)	
A/N	Enable – Operates in A/N mode
	Disable – Operates in Force mode
Speed	Not applicable if A/N Enable
	100M – Operates in 100M (Force)
	10M – Operates in 10M (Force)
Duplex	When A/N Enable, should be in HDX position
	HDX – Operates in Half Duplex mode, when in Force mode
	FDX – Operates in Half Duplex mode, when in Force mode
100BaseFX Port(s)	
Duplex	FDX - Operates in Full Duplex mode
	HDX - Operates in Half Duplex mode

### 4.2 Led indicators

The WIZ-201/2 have 7/14 LED indicators respectively: four per twisted pair port and three per fiber optic port. Their functions are explained in the table below. Upon power-up all the LEDs blink sequentially for testing.

LED	When lit Indicates	When blinks or off* indicates
Twisted Pair Port	100M	100M link established with the link partner.
	10M	10M link established with the link partner.
	FDX	Port is operating in full duplex mode.
	T-COL	Collisions detected on the TX port (only applicable in HDX operation)
Fiber Optic Port	F-COL	Collisions detected on the FX port (only applicable in HDX operation)
	LNK/ACT	LINK established with the link partner.
	FDX	Port is operating in full duplex mode.

## 5. Functions

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### 5.1 MDI-II/MDI-X Button

The WIZ-201/2 provides one RJ-45 connector to interface to its twisted pair link. An MDI-II/MDI-X button is linked to it to avoid the need of cross-over connecting cables.

The WIZ-201/2 support shielded/unshielded cable, Cat. 5 or higher grade, up to 100 meters (330 feet) long.

**Practical Hint:** Push/release the MDI-X/MDI-II button until you see the 100M or 10M Link LED light. Then proper link is established.

### 5.2 Fiber Optic Port(s) and Single Fiber (SF)

The WIZ-201/2 is equipped with one/two F/O transceivers.

The WIZ-201/2 F/O ports are available with SC, ST, VF-45, MT-RJ or LC connectors for MM fiber supporting distances up-to 6Km, and with SC, ST, MT-RJ or LC connectors for SM fiber supporting distances up-to 100Km.

The WIZ-201 is also available in a single fiber (/SF-A and B) versions for singlemode fiber up to 70Km using dual wavelength WDM technology, with SC or FC connectors. Dual wavelength technology requires fiber connection in pairs, SF type-A (TX-1550nm, RX-1300nm) connected to SF type-B (TX-1300nm, RX-1550nm). The dual wavelength technology assures better link performance and separation and doesn't require APC polishing.

**Caution:** Do not remove the protective covers on the fiber optic connectors until you are ready to connect the fiber optic cables. When dealing with fiber optic cables, it is essential to ensure that the TX at one end of the link is connected to the RX at the other end of the link.

#### Far End Fault Detection

The WIZ-201/2 supports Far End Fault on their 100BaseFX ports.

The Far End Fault Indication function (FEFI) provides some degree of communication between link partners in support of 100BasFX operation.

Far End Fault provides mechanism for transmitting information from the local station to the link partner that a remote fault has occurred.

If both F/O link partners support FEF, the F/O link indications, on both the link partners, will have parallel indication of the round trip link integrity. The F/O Link will be "on" only if the round trip F/O link is correctly established.

### 5.3 Conversion Method

The WIZ-201/2 incorporates switching technology, which provides network segmentation and isolation between their two ports. The switching technology enhances the converter's capabilities to allow Ethernet speed conversion as well as extending the network span and improving the network performance. The converter supports long frames up-to 1536 bytes.

### 5.4 Power Consumption

The amount of power that a module consumes from the available power of a chassis is measured in Power Units (PU).

The power consumption of the WIZ-201 is 0.8 power units (PU).

The power consumption of the WIZ-202 is 1.4 power units (PU).

The electrical characteristics (PU) for the chassis units are available in the chassis data sheets/manual. You should calculate the TOTAL power consumption of all the modules being used in a chassis and ensure that the chassis has enough available power.

## 6. Technical Specifications

### WIZ-201/202 – 10/100BaseT/TX to 100BaseFX Enhanced Converter Modules

#### 10/100BaseT/TX Port(s)

10/100BaseT/TX RJ-45.
10/100 auto-negotiation or manual setting (speed and HDX/FDX).
100 meter (330 ft) distance over UTP/STP cable.

#### LED Indicators (per port)

10/100BaseT/TX Port(s)	100M – 100M Link / Activity
	10M – 10M Link / Activity
	FDX – port operates in FDX mode
	T-COL – collisions detected on TX port
100BaseFX Port(s)	F-COL – collisions detected on FX port
	LNK/ACT – Link / Activity
	FDX – port operates in FDX mode

#### Special Features

Dual speed converter
Far-End-Fault detection, on FX port(s)
Long frame transparent support up-to 1536 bytes

#### Standard Compliance

IEEE802.3	10Base Ethernet
IEEE802.3u	100Base Fast Ethernet
IEEE802.3	Auto-negotiation

#### Technology

Fast Switching Technology
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#### Dimensions (Module)

Height	Width	Depth
130mm (5.1")	25.4mm (1")	140mm (5.5")

#### Ordering Information

WIZ-201M/[x]	10/100BaseT/TX to 100BaseFX (MM, 1300nm, 0-6Km,[x]) Enhanced Converter, inc. status mgmt.
WIZ-201[Sn]/[x]	10/100BaseT/TX to 100BaseFX (SM, [Sn],[x]) Enhanced Converter, inc. status mgmt.
WIZ-201/SF/[Sn]/[x] †	10/100BaseT/TX to 100BaseFX (SM, Single Fiber,[Sn],[x]) Enhanced Converter, inc. status mgmt.
WIZ-202M/[x]	Dual port 10/100BaseT/TX to 100BaseFX (MM, 1300nm, 0-6Km,[x]) Enhanced Converter, inc. status mgmt.
WIZ-202[Sn]/[x]	Dual port 10/100BaseT/TX to 100BaseFX (SM, [Sn],[x]) Enhanced Converter, inc. status mgmt.

M	Multimode 1300nm 0-6Km	[x]= Type of F/O connector: ST, SC, VF-45, MT-RJ, LC or FJ
[Sn]=S	Singlemode 1300nm 0-20Km	[x]= Type of F/O connector: SC, ST, MT-RJ, LC
[Sn]=S1	Singlemode 1300nm 10-40Km	[x]= Type of F/O connector: SC, ST
[Sn]=S2	Singlemode 1300nm 30-60Km	[x]= Type of F/O connector: SC, ST
[Sn]=S3	Singlemode 1550nm 50-100Km	[x]= Type of F/O connector: SC
†Single Fiber (dual wavelength, works in pairs). type A: TX-1550nm and RX-1300nm, type-B: TX-1300nm and RX-1550nm		
SF-A/[Sn]=S1	Single Fiber SM A-1550/1300nm 0-35Km	[x]= Type of F/O connector: SC of FC
SF-B/[Sn]=S1	Single Fiber SM A-1550/1300nm 0-35Km	[x]= Type of F/O connector: SC of FC
SF-A/[Sn]=S2	Single Fiber SM B-1300/1550nm 20-70Km	[x]= Type of F/O connector: SC of FC
SF-B/[Sn]=S2	Single Fiber SM B-1300/1550nm 20-70Km	[x]= Type of F/O connector: SC of FC

All specifications are subject to change without notice. Neither manufacturer nor seller shall be liable for any loss, damage, or injury, direct or consequential, arising from the inability to use the product.

#### 100BaseFX Port(s)

Inter face		
Multimode	1300nm	SC, ST, MT-RJ, VF-45, LC, FJ
Singlemode	1300nm	SC, ST, MT-RJ, LC
	1550nm	SC
Distance / Power Budget		
Multimode	62.5/125μ	6Km / 11dB
Singlemode	9/125μ	20Km 40Km 60Km 100Km
		11dB 21dB 31dB 32dB
Single Fiber Distance / Power Budget		
Singlemode	9/125μ	35Km 70Km
min power budget:		18dB 33dB

#### Electrical Characteristics

(installed in WIZ-2016/2004/2001 Chassis)

Chassis main input voltage	90-240VAC or -48VDC
Frequency	47-440Hz
DC Power Consumption (PU)	WIZ-201 – 0.8 PU
(Power Units per module)	WIZ-202 – 1.4 PU

#### Safety & Emissions

CE, FCC Part 15, EN60950
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#### Environment

	°C	°F
Operating Temp.	0 to 45	32 to 113
Storage Temp.	-30 to 65	-22 to 149
Humidity	10% to 90% non-condensing	