

## Metrobility® 10/100Mbps Ethernet

Flexible 10Mbps and 100Mbps media, speed, and distance solutions



The Metrobility® 10/100Mbps Ethernet units provide versatile connectivity for evolving network infrastructures being upgraded from existing 10Mbps copper-based networks to 100Mbps fiber networks. These products provide media conversion and 10/100 rate adaption in a single unit, extending copper-based networks up to 100km over singlemode fiber.

This Telco Systems' family of media converters incorporates all the features of 100Mbps fiber, such as distance and security, while minimizing costs in a mixed media environment.

### Speed Flexibility

As a rate adapter, the card auto-negotiates from 10Mbps to 100Mbps, allowing existing 10Mbps devices to communicate over a 100Mbps backbone. This allows network administrators to retain existing 10Mbps devices while upgrading segments of the network as needed. As a media converter, the card also supports mixed media networks by enabling copper-to-fiber media conversion.

### Remote Troubleshooting

All models incorporate Link Loss Return (LLR) and selected models also offer Metrobility's Auto-Recovery and Link Loss Carry Forward (LLCF) features to enable troubleshooting remote locations. LLR stops sending link pulses from the transmit port when link pulses are not being received. Auto-Recovery, used in conjunction with LLR, enables the card to restart the fiber link after a link loss event without a costly troubleshooting trip.

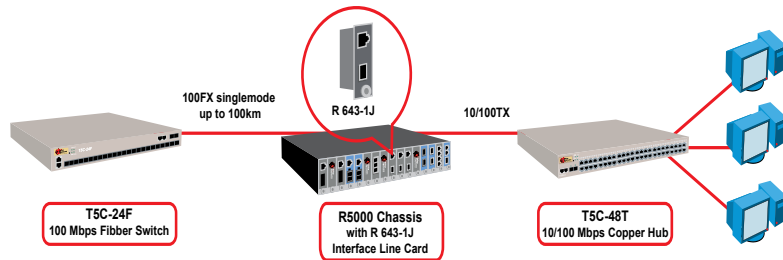
Additional features include shared network segment isolation, and auto-negotiation of full and half duplex configurations. Bi-directional Wavelength Division Multiplexing (BWDM) is also available to utilize a single strand of fiber to send and receive two different wavelengths, doubling the capacity of the fiber.

These media converters are available as line cards for the Metrobility chassis and as standalone units. Standards-based design provides seamless connectivity with all major switch and router manufacturers. It offers a cost-effective solution for fiber connectivity in copper switches to lower the cost per port without sacrificing function.

- 10/100Mbps auto-negotiation on all twisted-pair interfaces
- Signal retiming and regeneration to support maximum transmission quality up to 100km
- Link Loss Carry Forward (LLCF), Link Loss Return (LLR) aids in troubleshooting a remote network connection for all fiber optic ports
- Link Loss Return (LLR) with Auto-Recovery on fiber optic port for troubleshooting and restoring a remote network connection
- Single-strand, bi-directional wavelength multiplexing (BWDM) models
- Managed option - WebBeacon and NetBeacon® ESP - when configured with a management card in a Metrobility platform
- Full and half duplex flow control for flexible networkin
- Store-and-forward switching improves overall network performance by buffering packets during times of heavy congestion and prevents the forwarding of corrupted packets
- Provides low bit delay which ensures accurate data flow across the network
- MDI-II to MDI-X switch eliminates the need for crossover cables on twisted-pair ports
- NEBS Level 3 Certified (R643)

# Metrobility 10/100Mbps Ethernet

Media conversion and rate adaption with Auto-Recovery



## Key Applications

- Supports copper-to-fiber and fiber-to-fiber media conversion
- Provides a seamless path to connect Ethernet and Fast Ethernet networks

## Specifications

### Interfaces

#### Data Rate

- Fast Ethernet
  - 100Mbps half duplex
  - 200Mbps full duplex
- Ethernet
  - 10Mbps half duplex
  - 20Mbps full duplex\*

#### Network Connections

- Connector: Shielded RJ-45, 8-pin jack
- Impedance: 100 ohms nominal
- Supported Link Length: 100 m
- Signal Level Output (peak differential)
  - 2.2 to 2.8 V (10Mbps)
  - 0.95 to 1.05 V (100Mbps)
- Signal Level Input
  - 585 mV minimum (10 Mbps)
  - 200 mV minimum (100 Mbps)
- Cable Type: CAT 3, 4, 5 UTP/STP (10Mbps)  
CAT 5 or 5E UTP/STP (100Mbps)

#### Standards Compliance

- IEEE 802.3
- IEEE 802.3u
- IEEE 802.3X
- NEBS Level 3 certification (R643 only)

#### Safety and EMC Compliance

- UL, CSA, CE, CB
- EN60950 (safety)
- EN55024:1998 (immunity)
- IEC 825-1 Classification (eye safety)
- Class 1 Laser Product (eye safety)

#### 2643

- FCC Part 15 Class B
- ICES-003 Class B (emissions)
- EN55022 Class B (emissions)

#### R643 and M643

- EN55022 Class A (emissions)
- FCC Part 15 Class A
- DOC Class A (emissions)

#### General

#### Environmental

- Operating Temp: 0°C to 55°C (2643)  
0°C to 50°C (R643 and M643)
- Operating Humidity: 5% - 95% non-condensing
- Storage Temp: -30°C to 70°C (2643)  
-25°C to 70°C (R643 and M643)

#### Physical Specifications

#### R643

- Power - Input: +5V @ 0.725A, 3.7W

#### 2643

- Power: Input 90~260V 50/60Hz  
Output +5V @ 1Amp, 5W
- Dimensions: 4.83" L x 3.26" W x 1.71" H  
12.3 cm x 3.26 cm x 4.3 cm
- Weight: 3 lbs (1.36kg)

#### M643

- Power: Rev A and B  
AC Input: 90-260V AC 50/60 Hz  
DC Output: +5V @ 2A, 10W  
Power Consumption: +5V @ 1A, 5W
- Rev C or higher  
AC Input: 90-260V AC 50/60 Hz  
DC Output: +3.3V @ 2A, 7W
- Physical Case: Impact-resistant plastic construction
- Dimensions: 7" L x 3.75" W x 1.5" H  
17.8 cm x 9.5 cm x 3.8 cm
- Weight (including power supply): 1.2 lbs, 0.55 kg

## Ordering Information

Part Number		Description	Connector	Distance
Line Card	Standalone			
R621-11	2621-11-01	10/100BASE-T to 10/100BASE-T	RJ-45	100m
R643-13	2643-13-01 M643-13	10/100BASE-T to 100BASE-FX (MM)	SC	2km
R643-14	2643-14-01 M643-14	10/100BASE-T to 100BASE-FX (SM)	SC	20km
R643-15	2643-15-01 M643-15	10/100BASE-T to 100BASE-FX (MM)	ST	2km
R643-16	2643-16-01 M643-16	10/100BASE-T to 100BASE-FX (SM)	ST	20km
R643-17	2643-17-01 M643-17	10/100BASE-T to 100BASE-FX (SM)	SC	40km
R643-1E	2643-1E-01 M643-1E	10/100BASE-T to 100BASE-FX (MM)	MT-RJ	2km
R643-1G	2643-1G-01 M643-1G	10/100BASE-T to 100BASE-FX (MM)	VF-45	2km
R643-1J	2643-1J-01 M643-1J	10/100BASE-T to 100BASE-FX (SM)	SC	100km
R643-1K	2643-1K-01 M643-1K	10/100BASE-T to 100BASE-FX (MM)	LC	2km
R643-1M	2643-1M-01 M643-1M	10/100BASE-T to 100BASE-FX (SM)	LC	15km
R643-1X *	2643-1X-01 M643-1X	10/100BASE-T to 100BASE-FX (SM - BWDM) 1550nm/1310nm	SC	20km
R643-1Y *	2643-1Y-01 M643-1Y	10/100BASE-T to 100BASE-FX (SM - BWDM) 1310nm/1550nm	SC	20km

#### Accessories

2100-WM Wall mount bracket for 2643 series

\* Must be ordered in pairs (-1X and -1Y). Each end of the link must be configured with a different receive and transmit wavelength.

Additional specifications for the BWDM models, including copper port and fiber port specifications, may be found in the BWDM User Manual.



The Delta Class 10/100Mbps standalone device incorporates a lightweight, impact resistant enclosure that is made of high durability, fade resistant engineered plastic. The unit is wall mountable and provides channels for cable and power cord management and cable protection. Link and activity LEDs are easily viewed on the top cover. The unit meets all domestic and international EMI and EMC (static electricity) requirements.



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