![METRObility optical systems — Simply Brilliant Optical Ethernet](logo)

Multi-Rate Line Card

Enabling multiple services over a single fiber pair

- *Supports data rates from 44.7 Mbps to 2.7 Gbps*
- *Signal re-amplification, reshaping and re-timing to ensure accurate transmission quality (3R)*
- *SFP optics for single channel, BWDM and CWDM*
- *SNMP manageable*
- *Auto-detection or manual frequency settings*

Metrobility's Multi-rate Line Card (MRLC) provides a transparent interface for multimode, singlemode, BWDM (single-strand bi-directional wavelength division multiplexing), and CWDM across a wide range of protocols with data rates ranging from 44.7Mbps to 2.7Gbps.

The Multi-rate Line Card supports DS3, Ethernet, SONET/SDH, fibre channel, and ESCON protocols. Data rate is determined by DIP switch setting on the card, or by software auto-detection or manual settings in Metrobility's NetBeacon® or WebBeacon™ element management software. The MRLC provides the ability to connect optical network segments operating at different wavelengths, including multimode, singlemode or CWDM lambdas.

The line card performs 3R (re-amplification, reshaping and re-timing) signal regeneration on all known data rates or 2R (re-amplification and reshaping) signal regeneration for protocol transparent data rates.

When configured with wavelength-specific CWDM optics, the MRLC enables service providers to leverage existing fiber infrastructure to provision and manage multiple services over a single fiber pair.

The MRLC utilizes small form-factor pluggable optics (SFP) for maximum flexibility. Because they are hot-swappable, SFP optics enable service providers to change optics on-the-fly for significant time savings with no effect on existing services.

SFP optics support real time digital measurements of transmitted and received optical power levels and internal temperature. These parameters can be monitored through NetBeacon Element Manager when configured with a management card.

Superior SNMP Management

All SNMP information is transmitted via a Management Card installed in the Radiance platform.

The Management Card gathers real-time data to provide critical, up-to-the-minute statistics. This information may be accessed from the management station through Metrobility's NetBeacon Element Management System or most SNMP-based management systems. Using the WebBeacon kernel embedded in the management card, all data may also be accessed via the web using a standard web browser.

The Metrobility Difference

Management capabilities when configured with a management card (R502-M) including:

Java-based NetBeacon Element Manager

Web-based WebBeacon Element Manager

SNMP-based management (in-band of a remote unit)

CLI or Telnet

Remote independent loopback on each port

Real-time line card temperature, voltage and optical power

NEBS Level 3 certified

Product Highlights

Link Loss Carry Forward

Link Loss Return

Wavelength Conversion

3R or 2R Configurable Repeater

CWDM transponder option
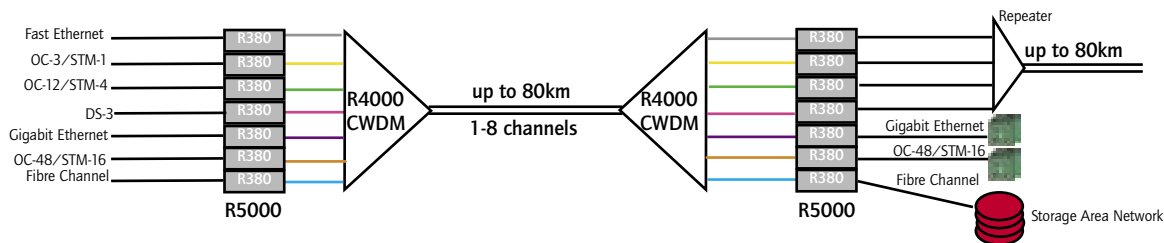
Product Options

R380-SS MultiRate Interface Line Card (requires 2 optics - see below)
Supports data rates from 44.7Mbps - 2.7Gbps

Supported Protocols and SFP Optics[1]

Protocol	Data Rate (Mbps)	Multimode			Singlemode			CWDM		
		Part #	Power Budget[2]	Supported Distance	Part #	Power Budget[2]	Supported Distance	Part #	Power Budget[2]	Supported Distance
DS3	44.73	O280-M2	17dB	2km	O283-20	20.5dB	20km	O413-40-xx	24dB	40km
								O413-80-xx	33.5dB	80km
					O383-20-31 / O383-20-55	19dB	20km	O483-80-xx	33dB	80km
OC-1	51.84	O280-M2	17dB	2km	O283-20	20.5dB	20km	O413-40-xx	24dB	40km
								O413-80-xx	33.5dB	80km
					O383-20-31 / O383-20-55	19dB	20km	O483-80-xx	33dB	80km
Fast Ethernet	125.00	O280-M2	17dB	2km	O283-20	20.5dB	20km	O413-40-xx	24dB	40km
					O281-40	33.5dB	40km			
					O281-80	33.5dB	80km			
					O293-20	19dB	20km	O413-80-xx	33.5dB	80km
					O383-20-31 / O383-20-55	19dB	20km	O483-80-xx	33dB	80km
OC-3 STM-1	155.25	O280-M2	17dB	2km	O2A3-10	16dB	10km	O413-40-xx	24dB	40km
					O283-20	20.5dB	20km			
					O293-20	19dB	20km	O413-80-xx	33.5dB	80km
					O383-20-31 / O383-20-55	19dB	20km	O483-80-xx	33dB	80km
ESCON	200.00				O2A3-10	16dB	10km	O413-40-xx	24dB	40km
					O293-20	19dB	20km	O413-80-xx	33.5dB	80km
OC-12 STM-4	622.08	O293-M5	10dB	500m	O2A3-10	16dB	10km	O413-40-xx	24dB	40km
					O293-20	19dB	20km	O413-80-xx	33.5dB	80km
								O411-80-xx	28dB	80km
Fibre Channel 1x	1062.50	O211-M5	16dB	500m	O2A3-10	16dB	10km			
					O211-10	17dB	10km			
					O211-25	22 - 25dB	25km			
					O211-40	23.5dB	40km	O413-40-xx	24dB	40km
					O211-70	25 - 28dB	70km	O413-80-xx	33.5dB	80km
					O211-1A	36dB	100km	O411-80-xx	28dB	80km
Gigabit Ethernet	1250.00	O211-M5	16dB	500m	O2A3-10	16dB	10km	O413-40-xx	24dB	40km
					O211-10	17dB	10km			
					O211-25	22 - 25dB	25km	O413-80-xx	33.5dB	80km
					O211-40	23.5dB	40km			
					O211-70	25 - 28dB	70km	O411-80-xx	28dB	80km
					O211-1A	36dB	100km			
					O311-10-31 / O311-10-49	18dB	10km			
Fibre Channel 2x	2,125.00	O211-M5	16dB	500m	O2A3-10	16dB	10km	O413-40-xx	24dB	40km
					O211-10	17dB	10km			
					O211-25	22 - 25dB	25km	O413-80-xx	33.5dB	80km
					O211-70	25 - 28dB	70km			
OC-48	2,488.32				O2A3-10	16dB	10km	O413-40-xx	24dB	40km
								O413-80-xx	33.5dB	80km

Part Number Coding

O	x	x	x	–	xx	–	xx
Optic	2=SFP	1=1G	0=no diagnostics		distance (km)		wavelength
	3=BWDM*	8=OC-3	1=with diagnostics				
	4=CWDM	9=OC-12	2=multirate; no diagnostics				
		A=OC-48	3=multirate; with diagnostics				

* single-strand fiber (use different optics for TX and RX; order in pairs)

Wavelength:
31 = 1310nm**   39 = 1390nm**   47 = 1470nm   55 = 1550nm
33 = 1330nm**   41 = 1410nm**   49 = 1490nm   57 = 1570nm
35 = 1350nm**   43 = 1430nm**   51 = 1510nm   59 = 1590nm
37 = 1370nm**   45 = 1450nm**   53 = 1530nm   61 = 1610nm

**Available for O411-80-xx only

Notes:

[1]SFP Optics: Metrobility products using SFP optics were only designed and tested with the SFP optics offered for sale by Metrobility. Metrobility can only warrant the safety, performance, and quality of our products when used with SFP optics from Metrobility. The buyer assumes the complete risk when using SFP optics not sold by Metrobility.

[2]Power Budget: The Metrobility descriptions generally indicate the typical transmit power budget for the following fiber types: 9/125μm SM; 50/125 or 62.5/125μm MM. ITU G-652.C-compliant fiber recommended for CWDM applications.
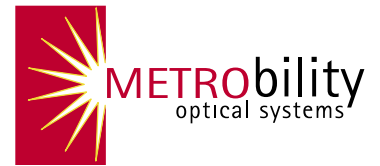
Metrobility Optical Systems is an innovative next generation optical networking company whose focus is on delivering optical access platforms and to harness the power of Ethernet and fiber optics to deliver superior network edge access, connectivity and wavelength multiplexing solutions.

Specifications

Environmental

Operating Temperature	O to 50°C
Operating Humidity	5% to 95% non-condensing
Storage Temperature	-30 to 70°C

Safety and EMC

UL, CSA, CE, CB
FCC Part 15, Class A - Radiated Emissions
DOC Class A – Radiated Emissions for Canada
EN55022 Class A - Radiated Emissions for Europe
EN55024:1998 - Immunity
EN60950 - Safety
IEC 825-1 Classification – Eye Safety
Class 1 Laser Product – Eye Safety
NEBS Level 3

MADE in USA

A6285   UL REGISTERED FIRM   ISO 9001

Metrobility Optical Systems, Inc.