![Metrodata — communicating solutions logo]

MetroWAVE CWDM
REFERENCE GUIDE

INTRODUCTION

WAVELENGTH DIVISION MULTIPLEXING

Wavelength Division Multiplexing (WDM) is an optical network technology in which different service interfaces are allocated different wavelengths of light. These are multiplexed together and transported over a single fibre pair, then de-multiplexed back into their original wavelengths, enabling many different services to be run across a single fibre link.

Variations of this approach include both 'Dense' (DWDM) and 'Coarse' (CWDM) wavelength multiplexing. DWDM offers up to ~160 wavelengths over the 1310nm & 1550nm bands and is extensively used in Telecoms Carrier networks. CWDM offers up to just 18 wavelengths in the 1310nm & 1550nm bands, but requires lower manufacturing tolerances for both multiplexers and interfacing optical Transceivers, resulting in considerably lower costs Vs. DWDM.

MetroWAVE

The MetroWAVE product family comprises a range of CWDM multiplexers and ancillary / interface equipment, which is highly suitable for both Carrier Access and Enterprise network applications. The MetroWAVE product range performs the CWDM multiplexing and de-multiplexing functions passively, i.e. optically, without using any conversions to electrical and then back to optical. This means that MetroWAVE products are completely unpowered (or 'passive') devices, leading to much greater robustness and reliability than active devices performing similar functions. MetroWAVE multiplexers are also highly effective, supporting the transmission of multiple high bandwidth services over distances of up to 50-100km.

The diagram below illustrates one application of MetroWAVE devices. Many different interface types and speeds are supported, including 1Gbps or 10Gbps Ethernet and Fibre-Channel (SAN). 'Dual-homing' capable input devices are used in this example, combining the transmission of several different services across dual-redundant backbone links. in fact, highly resilient Ring topologies are also possible using dual-homed interfaces.
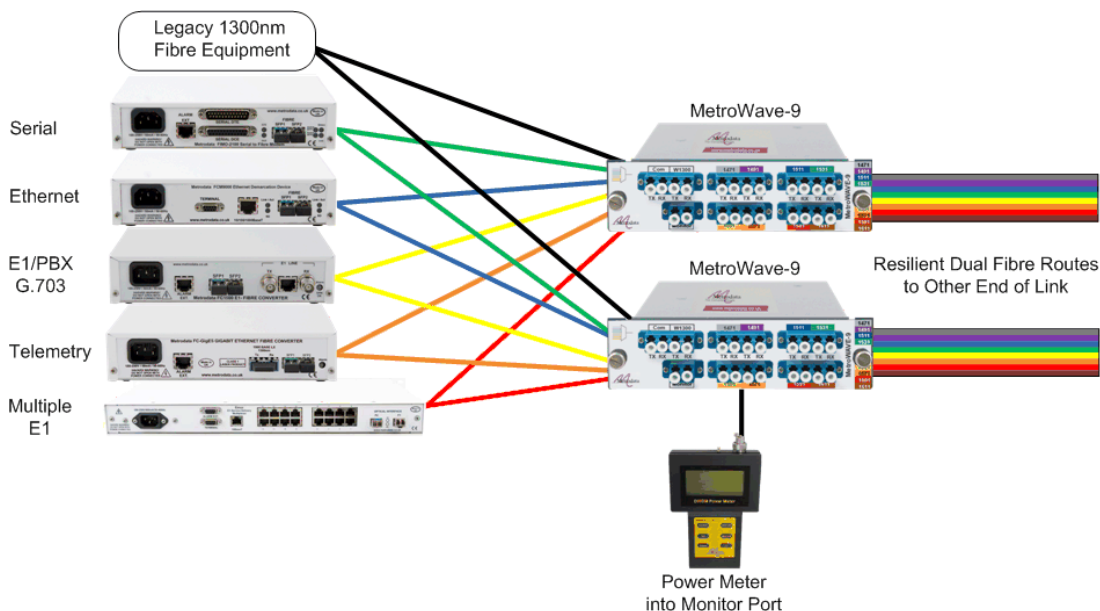
MetroWAVE Multiplexers

MetroWAVE-5:
4-port passive CWDM mux/demux

- 4 x CWDM channels in 'high-band' range 1471nm - 1571nm
- Additional port for connection to standard (1310nm) equipment or to 'low-band' CWDM expansion mux, i.e MetroWAVE-8A
- Expansion port to connect MetroWAVE-4A unit
- Tx/Rx optical Power monitoring port for ease of installation

MetroWAVE-4A:
4-port passive CWDM mux/demux or expansion unit

- 4 x CWDM channels in 'high-band' range 1551nm - 1611nm

MetroWAVE-9:
8-port passive CWDM mux/demux

- 8 x CWDM channels in 'high-band' range 1471nm - 1611nm
- Additional port for connection to standard (1310nm) equipment or to 'low-band' CWDM expansion mux, i.e MetroWAVE-8A
- Tx/Rx optical Power monitoring port for ease of installation

MetroWAVE-8A:
8-port passive CWDM mux/demux or expansion unit

- 8 x CWDM channels in 'high-band' range 1271nm - 1411nm

MetroWAVE Rack Mount:
- Supports up to 3 units in 1U of standard 19" rack

EXTENDED FAMILY

SFP CWDM TRANCEIVERS

- CWDM and standard wavelength SFP range up to 80km transmission
- 1271 - 1611nm wavelengths
- Standard wavelength 'non-CWDM' and bi-directional SFPs also available for 100/155Mbps and 1Gbps operation
- Enquire also for availability of additional Transceiver formats including SFP+, XFP, X2 and XENPAK and for extended distance options.

OPTICAL POWER METER

- Hand-held 18 channel CWDM/DWDM Optical Power Meter

OPTICAL INTERFACE CONVERTERS & OPTICAL EXTENDERS

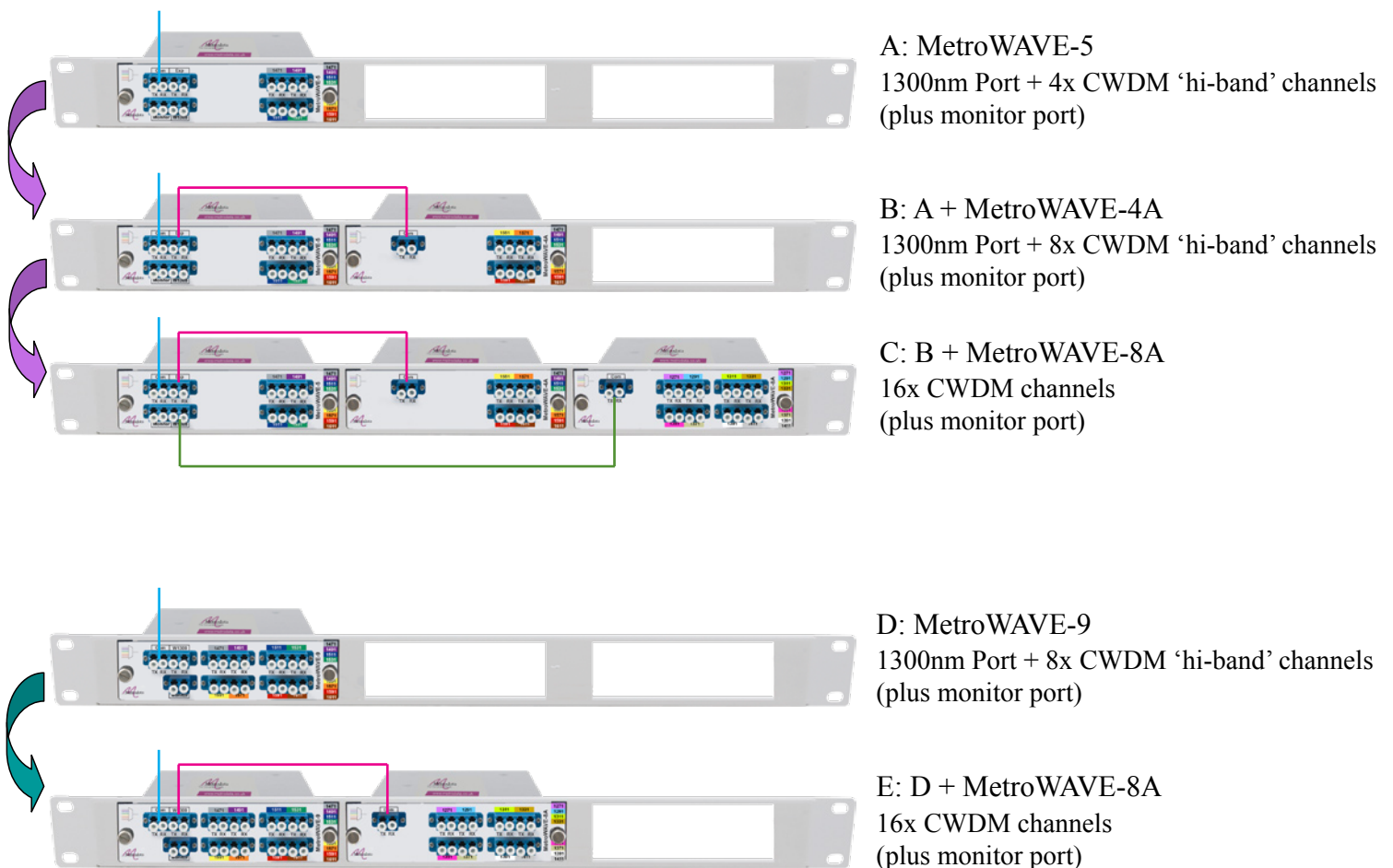- Optical converters for ISDN-30 / E1, PDH/SDH, Serial and Ethernet applications

EXPANSION OPTIONS

The MetroWAVE family offers not only a low cost-of-entry to optical multiplexing for service expansion or convergence applications, but also cost-effective incremental growth options.

Within a simple 1U 19" rack mounting frame, a typical starting point might be the MetroWAVE-5 unit, delivering 4 CWDM wavelengths in the 'upper' band range, plus a conventional 'wideband' 1310nm port, typically used by non-WDM optical interfaces such as those used for standard Ethernet switches. The Metrowave-5 also offers an expansion port (which can alternatively be used for an additional CWDM connection) and a low-power monitor port for installation and/or in-service link verification.

From this starting point, a cost-effective growth path is offered by the addition of the MetroWAVE-4A expansion unit, delivering a further 4 CWDM wavelengths and/or by the addition of the MetroWAVE-8A expansion unit, providing a further 8 CWDM wavelengths in the 'lower' band range.

Typical starting-point and expansion options are illustrated below:

A: MetroWAVE-5
1300nm Port + 4x CWDM 'hi-band' channels
(plus monitor port)

B: A + MetroWAVE-4A
1300nm Port + 8x CWDM 'hi-band' channels
(plus monitor port)

C: B + MetroWAVE-8A
16x CWDM channels
(plus monitor port)

D: MetroWAVE-9
1300nm Port + 8x CWDM 'hi-band' channels
(plus monitor port)

E: D + MetroWAVE-8A
16x CWDM channels
(plus monitor port)

About Us

Who Are We?

Founded in 1989, Metrodata Ltd. specialises in Network Transport and Interface Conversion products and technologies. Based near London's Heathrow Airport, Metrodata designs and manufactures solutions for customers Worldwide, with some 40% of production destined for markets outside the U.K.

What Do We Do?

Metrodata offers a wide range of connectivity solutions for the LAN and WAN arena. Network Interfaces and Transports supported include those for Serial, SDH/PDH, ATM, Ethernet and Fibre applications. Our portfolio today extends from simple connectivity products through to Multiplexing and Managed Service Delivery Solutions for the Telecoms Carrier market.

The company offers Network Design and Integration services and in this area has a particular expertise in Fibre technologies, enabling clients to maximise the effectiveness of their Fibre infrastructure investments.

Our Customers and Markets

Metrodata Ltd's customers worldwide include Telecoms Service Providers, Corporate Enterprises of all sizes and Governmental organisations. Our multi-service convergence and satellite communications 'backhaul' capabilities, allied with extensive expertise in interfacing military serial Cryptos, has given us a strong position with Defence organisations.

Metrodata supplies both directly and via Integration Partners, primarily in Europe, the USA, LATAM and the Middle East.

Why Metrodata?

Metrodata's product quality and design expertise make us the 'gold standard' for many of the world's Telecoms Service Providers for interface conversion and service demarcation applications.

Metrodata is a highly expert Company, but one small enough to be responsive to our customers. Our willingness to meet customers' precise requirements through close consultation and bespoke development, differentiates Metrodata from larger, less agile equipment manufacturers.

More Information

For more in-depth information regarding metrodata Products and Solutions, follow the links to our Web Site or contact us by phone or e-mail as below..

MetroWAVE CWDM Networking Solutions:

http://www.metrodata.co.uk/PassiveCWDM

METROCONNECT MC12000 Fibre Ethernet Service Delivery System:

http://www.metrodata.co.uk/MC12000

MetroCONNECT FCM9000 Fibre ETHERNET Demarcation Device:

http://www.metrodata.co.uk/FCM9000

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