SOLUTIONS CATALOGUE

Metrodata

NEW PRODUCTS!

MetroCONNECT ETHERNET SERVICE DELIVERY & MANAGED DEMARCATION DEVICES

The MetroCONNECT family encompasses a comprehensive range of solutions for Managed Ethernet Extension and Service Delivery, suitable for both Service Provider and Enterprise applications.

The MetroCONNECT Ethernet Demarcation range includes the FCM9004, featuring our custom 'MetroSAM' architecture which offers advanced Provisioning and SLA verification tools for the Ethernet Service Provider.

Contents:

ABOUT METRODATA

Founded in 1989 as a Telecoms Equipment designer and manufacturer, the initial goal of Metrodata Ltd. was to overcome incompatibilities in the connection of Data equipment to Network Services. Our early product line-up included Speed, Interface and Protocol Conversion devices.

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

Based near London's Heathrow Airport, Metrodata supplies customers worldwide, with some 40% of production destined for markets outside the U.K. Warranty and support services are available on a worldwide basis.

PASSIVE CWDM MULTIPLEXERS

The MetroWAVE family is a range of passive CWDM optical multiplexers allowing independent services to be converged over a singlemode fibre pair. Each input is assigned a different wavelength, all of which are combined for transmission over a single Fibre Transmit/Receive pair. Many different applications, including Ethernet, Serial, TDM, Fibre-Channel (SAN) and CCTV signalling can be supported.

These small cost-effective multiplexers are passive and contain no moving parts, offering excellent reliability, whilst transmission distances of typically up to 80km are supported.

METROWAVE-5:
5-CHANNEL(1471nm - 1531nm CWDM + 1300nm BAND) CWDM MULTIPLEXER WITH CWDM EXPANSION PORT AND MONITOR PORT

METROWAVE-4A:
4-CHANNEL (1551nm - 1611nm) CWDM MULTIPLEXER

METROWAVE-8A:
8-CHANNEL (1271nm - 1411nm) CWDM MULTIPLEXER

METROWAVE-9:
9-CHANNEL (1471nm - 1611nm CWDM + 1300nm BAND) CWDM MULTIPLEXER WITH MONITOR PORT

METROWAVE-POWERMETER:
MONITORS ALL 18 CWDM CHANNELS SIMULTANEOUSLY
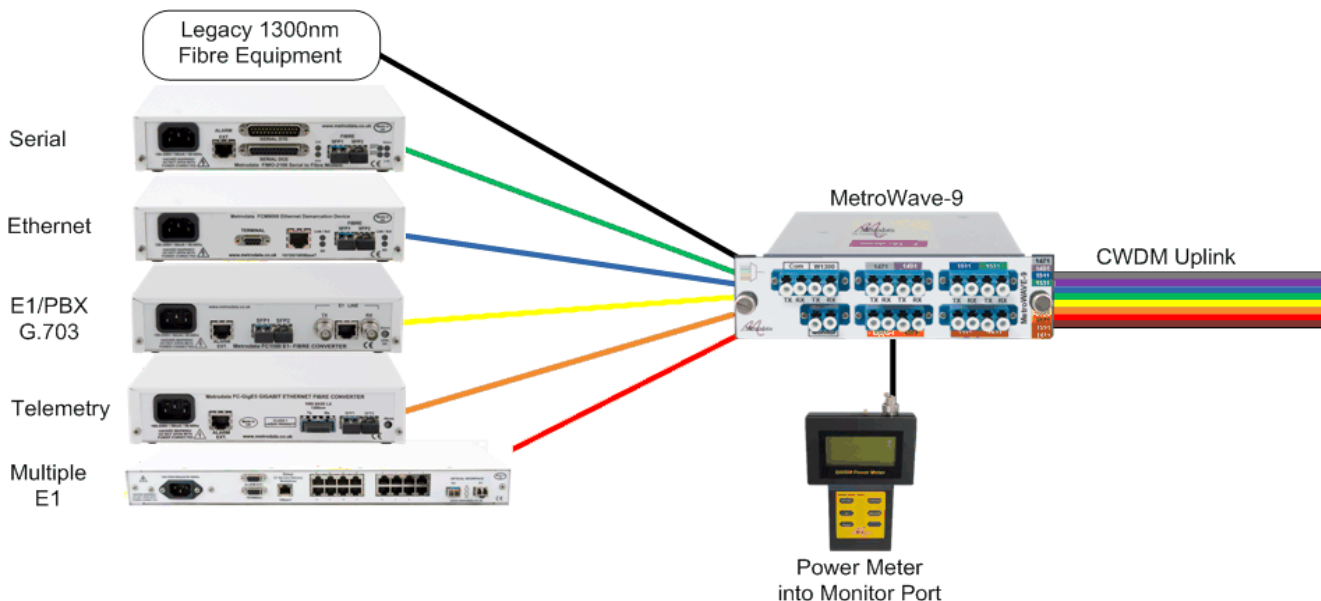PLUGS INTO THE METROWAVE MONITOR PORT FOR EASY BUT SOPHISTICATED SYSTEM LEVEL DEBUG

ORDERING INFO
PART CODES:

	Code
MetroWAVE-5	80-32-002
MetroWAVE-4A	80-32-003
MetroWAVE-9	80-32-012
MetroWAVE-powermeter	80-32-031
MetroWAVE-rack	80-32-051

Full range of vendor compatible fibre transceivers are available for either Metrodata or third party equipment including: SFP, SFP+, XFP, X2 and XENPAK, operating at a range of speeds up to 10Gbps, over 80km with CWDM or DWDM specifications.

APPLICATION DIAGRAM

Legacy 1300nm Fibre Equipment

Serial

Ethernet

E1/PBX G.703

Telemetry

Multiple E1

MetroWave-9

CWDM Uplink

Power Meter into Monitor Port

Metrodata

ETHERNET SERVICE DELIVERY

METROCONNECT MC12000

The MetroCONNECT MC12000 platform offers a high density Ethernet Service Delivery solution for fibre or copper distribution from core network to customer sites, at which MetroCONNECT stand alone CPE devices may be deployed.

The MC12000 is a 4U, 19" managed chassis system supporting resilient power supplies and high port density. All modules support hot-swap.

A variety of 'last mile' Ethernet service delivery transports and topologies are supported including:

Fibre
1,4 or 8 fractional E1 / T1
1 or 2 framed E3 / DS3
SDH STM-1 or Sonet OC-3
Serial / HSSI

ORDERING INFO
PART CODES:

	Code
Chassis and single AC PSU	80-16-011
Chassis and dual AC PSU	80-16-012
Chassis and single DC PSU	80-16-031
Chassis and dual DC PSU	80-16-032
PSU Blanking Plate	80-15-105
Interface Card Blanking Plate	80-15-107
AC PSU Module	80-15-110
DC PSU Module	80-15-115
Spare Management Module	80-16-120

Interface Cards	
FCC9000	80-16-933
WCC1100	80-16-542
WCC1400	80-16-4542
WCC1800	80-16-8542
WCC3100	80-16-543
WCC3200	80-16-2543
WCC5100	80-16-547
WCC_Serial	80-16-545
LHC1000	80-16-544

	AC PSU	DC PSU
FCM9004	80-70-941	80-71-941
FCM9000	80-70-933	80-71-933
FCM8000	80-70-936	80-71-936

INTERFACE CARDS

ETHERNET SERVICE DELIVERY/EXTENSION

FCC9000: TWIN ETHERNET MEDIA CONVERTER WITH DUAL FIBRE CONNECTION
WCC1X00: ETHERNET OVER FRACTIONAL 1/4/8 PORT E1/T1 CONVERTER,
WCC3X00: ETHERNET OVER 1 OR 2 PORT FRAMED E3/DS3 CONVERTER
WCC5100: ETHERNET OVER STM-1/OC-3 CONVERTER
WCC_SERIAL: ETHERNET OVER SERIAL CONVERTER
LHC1000: ETHERNET OVER HSSI CONVERTER

MANAGED ETHERNET DEMARCATION

FCM9000:
10/100/1000BASET TO DUAL 100/1000BASE-X SFP FIBRE PORTS
LINK STATE FORWARDING, RSTP, JUMBO FRAME SUPPORT
PASS-THROUGH & TAG SWITCHING VLAN SUPPORT
SSH & TACACS+ FOR SECURE AUTHENTICATION
CARRIER ETHERNET OAM SUPPORT: IEEE 802.3ah EFM AND IEEE 801.1ag CFM

FCM8000:
10/100/1000BASET SERVICES DELIVERED VIA COPPER OR FIBRE
LINK STATE FORWARDING, RSTP, JUMBO FRAME SUPPORT
PASS-THROUGH & TAG SWITCHING VLAN SUPPORT
SSH & TACACS+ FOR SECURE AUTHENTICATION
CARRIER ETHERNET OAM SUPPORT: IEEE 802.3ah EFM AND IEEE 801.1ag CFM

FCM9004:
4x 10/100/1000BASET OR 1x 100/1000SFP TO 100/1000BASEX OR 10/100/1000BASET
CUSTOM 'METROSAM' HARDWARE FOR PER-FLOW TRAFFIC SLA VERIFICATION
COMPREHENSIVE CIRCUIT PROVISIONING AND IN-SERVICE MANAGEMENT FUNCTIONALITY
LINK STATE FORWARDING, RSTP, JUMBO FRAME SUPPORT
PASS-THROUGH & TAG SWITCHING VLAN SUPPORT
SSH & TACACS+ FOR SECURE AUTHENTICATION
CARRIER ETHERNET OAM SUPPORT: IEEE 802.3ah (EFM), EEE 801.1ag (CFM), ITU-T Y.1731 (SOAM) FOR 'PERFORMANCE ASSURED ETHERNET'

ETHERNET SERVICE DELIVERY

METROCONNECT MANAGED LAN EXTENSION & CPE FAMILY

Metrodata's WCM, FCM and LHM range of managed Ethernet demarcation devices offer service delivery over:
LEASED LINES - Fractional E1/T1, Framed E3, DS-3, STM-1/OC-3
SERIAL - EIA530, V.35, X.21, RS449, RS232, HSSI

The range offers the following as standard:
Ethernet OAM (802.3ah & 802.1ag)
Jumbo Frame (10kbyte) Support
802.1q VLAN & 802.1p Prioritisation
TACACS+ For Secure Authentication

ORDERING INFO

PART CODES:

	AC PSU	DC PSU
WCM1100	80-70-542	80-71-542
WCM1400	80-70-4542	80-71-4542
WCM1400BNC	80-70-4572	80-71-4572
WCM1800	80-70-8542	80-71-8542
WCM1800BNC	80-70-8572	80-71-8572
WCM1820	80-70-82542	80-71-82542
WCM1820BNC	80-70-82572	80-71-82572
WCM3100	80-70-543	80-71-543
WCM3200	80-70-2543	80-71-2543
WCM3400	80-70-4543	80-71-4543
WCM5100	80-70-547	80-71-547
WCM_SERIAL	80-70-545	80-71-545
LHM1000	80-70-544	80-71-544

E1/T1 SERVICES

WCM1100:
ETHERNET EXTENSION OVER E1/T1 SERVICES
2x RJ45 PLUS 1x SFP ETHERNET CONNECTIONS OVER SINGLE E1 OR T1 LINK
CLEAR-CHANNEL OR FRAMED/FRACTIONAL E1/T1 SUPPORT VIA GFP ENCAPSULATION

WCM1400 (4 x E1/T1 Ports)   **WCM1800** (8 x E1/T1 Ports)   **WCM1820** (16 x E1/T1 Ports)
ETHERNET EXTENSION OVER MULTIPLE 'BONDED' E1 OR T1 SERVICES
SUPPORT FOR UP TO 4x, 8x OR 16x 'BONDED' E1/T1 SERVICES FOR INCREASED ETHERNET BANDWIDTH
RJ45 OR BNC PRESENTATION FOR E1, 2x RJ45 PLUS 1x SFP ETHERNET CONNECTIONS
GFP, VCAT/LCAS POINT-TO-POINT AND POINT-TO-MULTIPOINT TOPOLOGIES SUPPORTED

E3/DS3 SERVICES

WCM3100   **WCM3200** (2 x E3/DS3 Ports)   **WCM3400** (4 x E3/DS3 Ports)
ETHERNET EXTENSION OVER FRAMED E3/DS3 SERVICES
2x RJ45 PLUS 1x SFP ETHERNET CONNECTIONS
GFP ENCAPSULATION WITH VCAT/LCAS, 1x VC4 AND Nx VC3 POINT-TO-POINT/MULTIPOINT TOPOLOGIES SUPPORTED

STM1/OC3 SERVICES

WCM5100:
ETHERNET EXTENSION OVER RESILIENT STM-1 OR OC-3 SERVICES
2x RJ45 PLUS 1x SFP ETHERNET CONNECTIONS
GFP ENCAPSULATION WITH VCAT/LCAS, 1x VC4 AND Nx VC3 POINT-TO-POINT/MULTIPOINT TOPOLOGIES SUPPORTED

SERIAL SERVICES

WCM SERIAL:
LAN EXTENSION OVER X.21, V.35, EIA-530 UP TO 20MBPS

LHM1000:
LAN EXTENSION OVER HSSI UP TO 52MBPS

PLUG-&-PLAY LAN EXTENSION

For cost-effective point-to-point extension of Ethernet services, Metrodata offers a range of simple, unmanaged LAN Extension solutions.

Support if offered for the following WAN Transports:
SDH/PDH Leased Line@ E1, E3, DS-3, STM-1/OC-3
SERIAL: EIA530, V.35, X.21, RS449, RS232, LVDS, HSSI

LAN OVER LEASED LINES

WC1000:
LAN TO E1 2.048MBPS

WC3445:
LAN TO E3 OR DS-3
DIP SWITCH SELECTED

WC155:
LAN TO STM-1/OC-3

LAN OVER SERIAL

WC X.21:
LAN TO X.21 OR EIA-530
UP TO 20MBPS

WC V.35:
LAN TO V.35
UP TO 20MBPS

LV2000:
LAN TO LVDS/EIA644
UP TO 52MBPS
AUTO CRYPTO RESYNC

LH1000:
ENABLES THE TRANSMISSION OF LAN FRAMES ACROSS
SATELLITE LINKS VIA SERIAL MODEMS.
LAN OVER HSSI UP TO 110MBPS
LAN OVER X.21, EIA530, RS449, V.35 UP TO 20MBPS
LAN OVER RS232 UP TO 256KBPS

ORDERING INFO

PART CODES:

	AC PSU	DC PSU
WC1000	80-05-541	80-21-541
WC3445	80-05-542	80-21-542
WC155/MM	80-05-547	80-21-547
WC155/SM SH	80-05-548	80-21-548
WC155/SM LH	80-05-549	80-21-549
WC X.21	80-05-545	80-21-545
WC V.35	80-05-546	80-21-546
LV2000	80-05-558	80-21-558
LH1000	80-05-544	80-21-544

> " I was delighted with the speed of delivery, and the quality of pre-sales technical support I received from Metrodata. Installation took less than 1 hour, and the devices worked straight from the box, with little on-site configuration. "

Lee Lambourne,
Engineering Manager
Nessco Ltd

APPLICATION NOTE

A number of the 'plug & play' LAN Extension solutions shown here have largely been superceded by Managed Ethernet Service Delivery Solutions within our 'MetroCONNECT' family, shown on page 4 of this catalogue. The MetroCONNECT family offers not only full manageability, but also enhanced flexibility for both Fibre and Copper Ethernet connections, plus advanced features including VLAN switching & traffic prioritisation.

Some upgrade paths to consider are:

WC1000	>	MetroCONNECT WCM1100
WC X.21 & WC V.35	>	MetroCONNECT WCM SERIAL
WC3445	>	MetroCONNECT WCM3100
WC155	>	MetroCONNECT WCM5100
LH1000	>	MetroCONNECT LHM1000

FIBRE MODEMS

Metrodata have an extensive product range providing different Fibre Optic Solutions:
- Fibre Optic Modems (FOM) for E1, E3, DS-3 extension over fibre
- Fibre Optic Modems (FOM) for RS232, Serial extension over fibre, e.g. X.21, V.35, EIA530, RS449,V.36

E1 OVER FIBRE PRODUCTS

FC1000:
BNC/ RJ45 E1 TO MULTMODE FIBRE
PAYLOAD AND PROTOCOL TRANSPARENT

FC1100:
BNC/ RJ45 E1 TO SINGLEMODE SHORT HAUL
PAYLOAD AND PROTOCOL TRANSPARENT

FC1200:
BNC/RJ45 E1 TO SINGLEMODE LONG HAUL
PAYLOAD AND PROTOCOL TRANSPARENT

E3/DS-3 OVER FIBRE PRODUCTS

FC3000:
BNC E3/DS-3 TO MULTMODE FIBRE
PAYLOAD AND PROTOCOL TRANSPARENT

FC3100:
BNC E3/DS-3 TO SINGLEMODE SHORT HAUL
PAYLOAD AND PROTOCOL TRANSPARENT

FC3200:
BNC E3/DS-3 TO SINGLEMODE LONG HAUL
PAYLOAD AND PROTOCOL TRANSPARENT

SERIAL OVER FIBRE PRODUCTS

FIMO-232:
ASYNCHRONOUS RS-232 STANDARD 9 WAY D-TYPE
DTE OR DCE INTERFACE
DATE RATE AGILE
EXTEND UP TO 70KM

FIMO-2100:
RESILIENT FIBRE UPLINK
MULTI-STANDARD SERIAL INTERFACE UP TO 8.192MBPS
RS-232, EIA530, X.21 AND V.35
DTE OR DCE INTERFACE
CONFIGURABLE IN 64KBPS STEPS
EXTEND UP TO 70KM

ORDERING INFO

PART CODES:

	AC PSU	DC PSU
FC1000/MM	80-05-910	80-21-910
FC1100/SMSH	80-05-918	80-21-918
FC1200/SMLH	80-05-919	80-21-919
FC3000/MM	80-05-920	80-21-920
FC3100/SMSH	80-05-921	80-21-921
FC3200/SMLH	80-05-922	80-21-922
FIMO-232/MM	80-05-924	80-21-924
FIMO-232/SMSH	80-05-925	80-21-925
FIMO-232/SMLH	80-05-926	80-21-926
FIMO-2100	80-05-940	80-21-940

FIMO-2100 155MBPS SFPS	
MULTIMODE 2KM 1300NM	80-30-021
SINGLEMODE 10KM 1300NM	80-30-031
SINGLEMODE 40KM 1300NM	80-30-033
SINGLEMODE 80KM 1550NM	80-30-042

> We used Metrodata's FC1000 products to connect our Siemens DX to the NHS N3 Voice Network Gateway. Installation was simple and usage has been trouble-free, I am happy to recommend Metrodata for this solution.
>
> **Ken Pearson,**
> **Telecoms Manager,**
> **St. Charles Hospital London**

MEDIA CONVERTERS

Metrodata have a wide range of products for transporting various technologies over fibre including Ethernet, STM-1/OC-3 and STM-4/OC-12.

ETHERNET COPPER TO FIBRE

FC5000:
CONVERSION FROM 10/100/1000BASE-T TO 1000BASE-X
SFP MODULE FOR 1000BASE-SX OR 1000BASE-LX
1000BASE-SX = 550M OVER MULTIMODE
1000BASE-LX = 10KM OVER SINGLEMODE
LINK STATE FORWARDING
ZERO TOUCH, PLUG AND PLAY INTERFACE

FC7X00:
CONVERSION FROM 10/100BASE-T TO 100BASE-FX
AVAILABLE IN MULTIMODE OR SINGLEMODE VARIANTS
UP TO 70K ON SINGLEMODE LONG HAUL
LINK STATE FORWARDING
ZERO TOUCH, PLUG AND PLAY INTERFACE

STM-1 ELECTRICAL TO FIBRE

FC4000:
STM-1/OC-3 BNC
ELECTRICAL TO MULTIMODE
PLUG AND PLAY INTERFACE

FC4100:
STM-1/OC-3 BNC
ELECTRICAL TO SINGLEMODE SHORT HAUL
PLUG AND PLAY INTERFACE

FC4200:
STM-1/OC-3 BNC
ELECTRICAL TO SINGLEMODE LONG HAUL
PLUG AND PLAY INTERFACE

MULTIMODE TO SINGLEMODE FIBRE CONVERTER

FC2000:
STM-1/OC-3 MULTIMODE TO SINGLEMODE SHORT HAUL
100BASEFX MULTIMODE TO SINGLEMODE SHORT HAUL
PLUG AND PLAY INTERFACE

FC2500:
STM-1/OC-3 MULTIMODE TO SINGLEMODE LONG HAUL
100BASEFX MULTIMODE TO SINGLEMODE LONG HAUL
PLUG AND PLAY INTERFACE

FC-GigE:
MEDIA CONVERSION BETWEEN 1000BASE-SX & 1000BASE-LX
850NM TO 1300NM WAVELENGTH CONVERSION
1000BASE-LX = 10K OVER SINGLEMODE
ZERO TOUCH, PLUG AND PLAY INTERFACE

ORDERING INFO
PART CODES:

	AC PSU	DC PSU
FC5000 SX	80-05-934	80-21-934
FC5000 LX	80-05-935	80-21-935
FC7000/MM	80-05-937	80-21-937
FC7100/SMSH	80-05-938	80-21-938
FC7200/SMLH	80-05-939	80-21-939
FC4000/MM	80-05-915	80-21-915
FC4100/SMSH	80-05-916	80-21-916
FC4200/SMLH	80-05-917	80-21-917
FC-GIGE	80-05-923	80-21-923
FC2000	80-05-911	80-21-911
FC2500	80-05-912	80-21-912

> This was a very rush job, and we were delighted with the speed & quality of the pre-sales technical support we got from Metrodata, in particular the same day delivery achieved on two separate orders.

Engineering Operations Dept, RAF Henlow

DATA INTERFACE CONVERTERS

Metrodata support a wide range of standard telco, router, satcom and encryptor data interface converters. Typically used for converting Nx64Kbps and E1, E2, E3 and DS-3 leased lines to serial data interfaces.

E1 PRODUCTS

DC1000:
E1 G.703 TO X.21
E1 BNC OR RJ45
CLEAR CHANNEL

DC1200:
E1 G.703 TO V.35
E1 BNC OR RJ45
CLEAR CHANNEL

DC3000:
E1 G.703 TO X.21
E1 BNC OR RJ45
G.704 Nx64Kbps

DC3200:
E1 G.703 TO V.35
E1 BNC OR RJ45
G.704 Nx64Kbps

FM4000:
E1 CSU/DSU
BNC TO X.21   BNC TO V.35
RJ45 TO X.21   RJ45 TO V.35
REMOTE MANAGEMENT OPTION

ORDERING INFO

PART CODES:

	AC PSU	DC PSU
DC1000	80-05-210	80-21-210
DC1200	80-05-212	80-21-212
DC3000	80-05-230	80-21-230
DC3200	80-05-232	80-21-232
FM4000 BNC TO X.21	80-05-005	80-21-005
FM4000 BNC TO V.35	80-05-006	80-21-006
FM4000 RJ45 TO X.21	80-05-007	80-21-007
FM4000 RJ45 TO V.35	80-05-008	80-21-008
FM4800	80-05-013	80-21-013
FM4850	80-05-014	80-21-014
DC3445	80-05-234	80-21-234
FM4900	80-05-015	80-21-015
FM4950	80-05-018	80-21-018

E2 PRODUCTS

FM4800:
E2 8.448MBPS CSU/DSU
BNC TO X.21
REMOTE MANAGEMENT OPTION

FM4850:
E2 8.448MBPS CSU/DSU
BNC TO HSSI
REMOTE MANAGEMENT OPTION

SNMP ENABLER

LM1100:
OPTIONAL SNMP CARD FOR REMOTE
MANAGEMENT CARD OF FM PRODUCTS

E3 AND DS-3 PRODUCTS

DC3445:
E3 OR DS-3 TO HSSI CONVERTER
DIP SWITCH SELECTABLE

FM4900:
E3 CSU/DS-3 BNC TO HSSI
REMOTE MANAGEMENT OPTION

FM4950:
DS-3 CSU/DSU BNC TO HSSI
REMOTE MANAGEMENT OPTION

Metrodata

MULTIPLEXERS

Metrodata offer a wide range of multiplexers, converging multiple Nx64Kbps services over E1, or multiple E1,T1, E3, DS-3 and Ethernet services over STM-1 or OC-3.

E1 SUB-RATE MULTIPLEXERS

FM4200:
E1 DROP/INSERT MULTIPLEXER
1 X E1 LINE PORT
1 X E1 DROP PORT, 1 X SERIAL PORT
REMOTE MANAGEMENT OPTION

FM4500:
E1 DROP/INSERT MULTIPLEXER
1 X E1 LINE PORT
1 X E1 DROP PORT, 4 X SERIAL PORT
REMOTE MANAGEMENT OPTION

E1 - FIBRE MUX

EMUX:
COST EFFECTIVE 4, 8 OR 16 PORT E1 FANOUT OVER FIBRE
RESILIENT 1+1 FIBRE INTERFACE OFFERS AUTOMATIC SWITCH OVER
REMOTE CONFIGURATION AND TESTING OF UNITS ACROSS THE NETWORK
COMPREHENSIVE MANAGEMENT & PERFORMANCE MONITORING OF BOTH DEVICE AND LINE
SFP FIBRE MODULES ENABLE MANY TYPES OF FIBRE: MULTIMODE, SINGLEMODE, CWDM AND DWDM

SDH/FIBRE MUX

METROLAN 1000:
8 X ETHERNET PLUS 8 X E1 / T1
OVER SDH STM-1 / SONET OC-3

METROLAN 2000:
8 X ETHERNET PLUS 8 X E1 / T1
PLUS 3 X E3/DS-3
OVER SDH STM-1 / SONET OC-3

NOTE: BOTH METROLAN UNITS ARE ABLE TO BE USED AS 'BACK TO BACK' FIBRE MUXS

ORDERING INFO
PART CODES:

	AC PSU	DC PSU
FM4200		
BNC TO X.21	80-05-301	80-21-301
BNC TO V.35	80-05-302	80-21-302
RJ45 TO X.21	80-05-303	80-21-303
RJ45 TO V.35	80-05-304	80-21-304
FM4500		
BNC TO X.21	80-05-009	80-21-009
BNC TO V.35	80-05-010	80-21-010
RJ45 TO X.21	80-05-011	80-21-011
RJ45 TO V.35	80-05-012	80-21-012
MetroLAN1000		
SM SH	80-12-301	80-24-301
SM LH	80-12-302	80-24-302
MM	80-12-300	80-24-300
MetroLAN2000		
SM SH	80-12-311	80-24-311
SM LH	80-12-312	80-24-312
MM	80-12-310	80-24-310
Emux Chassis		
Emux-4	80-12-400	80-24-400
Emux-8	80-12-401	80-24-401
Emux-16	80-12-402	80-24-402

MAXIMUM FIBRE DISTANCES

MM	SMSH	SMLH
5KM	30KM	70KM

Satcom & Encryptor Interfaces

Metrodata have a range of products for transporting various technologies over LVDS and EIA530.

From our experience with satcom, encryptor and radio relay systems, Metrodata have brought functionality and features into this cost effective range of products.

LVDS TO HSSI CONVERTERS

BC1X00:
THE BC1X00 BASEBAND CONVERTER ALLOWS THE LATEST GENERATION OF SERIAL LINK AND BULK ENCRYPTION DEVICES WITH LVDS/EIA-644 INTERFACES TO BE CONNECTED TO SATCOMS EQUIPMENT, ROUTERS AND RADIO SYSTEMS. ENCRYPTOR RESYNC IS SUPPORTED

LV2000:
ENABLES THE TRANSMISSION OF LAN FRAMES OVER AN EIA-644/LVDS CONNECTION, SATELLITE MODEMS OFFERING LVDS INTERFACES OFFER A LOWER COST ALTERNATIVE TO HSSI FOR OPERATION AT UP TO 52MBPS. THE LV2000 PROVIDES A CRYPTO AUTO RESYNC FUNCTION THAT WILL GENERATE A RESYNC REQUEST TO THE ENCRYPTOR IF THE LV2000 SENSES THE DATA STREAM HAS LOST SYNCHRONISATION

EIA530 TO HSSI CONVERTERS

BC2X00:
THE BC2X00 BASEBAND CONVERTER PRODUCTS ALLOW EIA530 AND HSSI EQUIPMENT TO INTERWORK, FOR EXAMPLE: SATCOMS, ROUTERS AND RADIO RELAY SYSTEMS.

ETHERNET OVER HSSI CONVERTERS

LH1000:
ENABLES THE TRANSMISSION OF LAN FRAMES ACROSS SATELLITE LINKS VIA SERIAL MODEMS.
LAN OVER HSSI UP TO 110MBPS
LAN OVER X.21, EIA530, RS449, V.35 UP TO 20MBPS
LAN OVER RS232 UP TO 256KBPS

Ordering Info

PART CODES:

	AC PSU	DC PSU
BC1000	80-05-934	80-21-934
BC1100	80-05-935	80-21-935
LV2000	80-05-558	80-21-558
BC2000	80-05-562	80-21-562
BC2100	80-05-563	80-21-563
LH1000	80-05-544	80-21-544

" Your technical solution is bullet proof, and perhaps the core to Metrodata being a Global leader in this niche market. "

**John Baddick,
Senior Network Architect,
Verestar**

RACKMOUNT & RACKING SYSTEMS

Metrodata provides rackmounting for all Modem sized units, solutions offering either a 1U 2 unit rackmount, or for more density the 6U 18 unit rackmount.

Need High density with centralised management? The MetroRack offers many of Metrodata's popular modem sized boxes in modular form with SNMP.

RACKMOUNT KITS

RMK2R:
2 UNIT 1U 19" RACKMOUNT KIT
HOLDS UP TO 2 UNITS OF:
DC, FC, WC, BC, LH, LV
HOLDS AC, DC OR MIXED PSU UNITS
MIXTURE OF PRODUCTS ALLOWED

RMK18:
18 UNIT 6U 19" RACKMOUNT KIT
HOLDS UP TO 18 UNITS OF:
DC, FC, WC, BC, LH, LV
MIXTURE OF PRODUCTS ALLOWED

ORDERING INFO
PART CODES:

	AC PSU	DC PSU
RMK2R	80-05-256	80-05-256
RMK18	80-05-250	80-05-255

MetroRack AC PSU	
Unmanaged Chassis	80-15-001
Unmanaged Chassis Dual PSU	80-15-002
Managed Chassis	80-15-021
Managed Chassis Dual PSU	80-15-022
MetroRack DC PSU	
Unmanaged Chassis	80-15-011
Unmanaged Chassis Dual PSU	80-15-012
Managed Chassis	80-15-031
Managed Chassis Dual PSU	80-15-032
MetroRack Modules	
DC1X00	80-15-210
FC1000/MM	80-15-910
FC1100/SM SH	80-15-918
FC1200/SM LH	80-15-919
FC3000/MM	80-15-920
FC3100/SM SH	80-15-921
FC3200/SM LH	80-15-922
FC4000/MM	80-15-915
FC4100/SM SH	80-15-916
FC4200/SM LH	80-15-917
WC1000	80-15-541

RACKING SYSTEM - METRORACK

METRORACK
CENTRALISED MANAGEMENT IN A SINGLE RACK SOLUTION
MULTIPLE I/O MODULE OPTIONS AVAILABLE IN A SINGLE RACK
MIXTURE OF PRODUCTS ALLOWED
12 SLOT CHASSIS UNIT IN COMPACT 4RU 19" RACK
1 ADDITIONAL SLOT AVAILABLE FOR OPTIONAL SNMP MANAGEMENT MODULE
ALARM EXTENSION RELAYS
HOT-SWAP FOR ALL MODULES AND POWER SUPPLIES
SNMP REMOTE MANAGEMENT
COST EFFECTIVE SOLUTION TO MULTIPLE INTERFACE REQUIREMENTS

METRORACK MODULES

FC1X00 FAMILY
E1 G.703 ELECTRICAL
OVER FIBRE

FC3X00 FAMILY
E3/DS-3 G.703 ELECTRICAL
OVER FIBRE

FC4X00 FAMILY
STM-1/OC-3 ELECTRICAL
OVER FIBRE

WC1000
10/100 BASE-T OVER E1
G.703 CONVERTER

MANAGEMENT CARD
MANAGEMENT VIA THE
CONSOLE PORT, OR
ETHERNET PORT USING
SNMP OR TELNET

ACCESS PROCESSOR

The Metrodata AP Platform provides backhaul, concentration and multiplexing capability, interfacing between Telco services, LAN / IP and serial infrastructures such as Satcom or serial encryption

The AP Platform supports all common North American and European Interfaces such as T1, E1, E2, E3, DS-3, OC-3/STM-1. It can be used as a small ATM Switch, an Access Concentrator of non-ATM Services, or even as an interface converter.

With the addition of specialist modules for Satellite and Defense interfacing, the AP Platform becomes a small backbone switch for integrating satellite and terrestrial networks, and in particular the supporting of exact bit rates.

AP CHASSIS OPTIONS

ORDERING INFO
PART CODES:

	AC PSU	DC PSU
AP3000	80-07-003	80-18-003
AP4000	80-07-001	80-18-001
AP8000	80-07-011	80-18-011
AP4000L	80-07-101	80-18-101
AP4000R	80-07-021	80-18-021
AP4000LR	80-07-121	80-18-121
AP8000L	80-07-111	80-18-111
AP8000R	80-07-031	80-18-031
AP8000LR	80-07-131	80-18-131

AP3000: 3 SLOT CHASSIS

" The ability to scale from T1 to OC-3, in a single chassis, on both sides of an ATM switch, providing serial circuit emulation AND satellite trunking is compelling across Federal Networks. "

**Pete Babendrier,
US Air Force Team,
Cisco Federal Systems**

AP4000: 4 SLOT CHASSIS
AP4000L LITE VERSION (5 SLOTS)
AP4000R REDUNDANT PSU VERSION (4 SLOTS)
AP4000LR LITE REDUNDANT PSU VERSION (5 SLOTS)

AP8000: 8 SLOT CHASSIS
AP8000L LITE VERSION (9 SLOTS)
AP8000R REDUNDANT PSU VERSION (8 SLOTS)
AP8000LR LITE REDUNDANT PSU VERSION (9 SLOTS)

ACCESS PROCESSOR MODULES

The interface modules for the AP Platform have evolved out of existing Carrier/ Telco products and customer requirements for back-hauling satellite links and multiplexing terrestrial services over satellite. This platform is ideal for transporting either ATM and/or NON-ATM traffic.

ATM MODULES

E1 UNI
BNC G.703 I/F
E1 2.048MBPS

E2 UNI
BNC G.703 I/F
E2 8.448MBPS

E3 UNI
BNC G.703 I/F
E3 34.368MBPS

DS-3 UNI
BNC G.703 I/F
DS-3 44.736MBPS

OC-3 UNI
SC I/F
OC-3 155.52MBPS
MULTIMODE
SINGLEMODE SH
SINGLEMODE LH

EIA530 UNI
DB25 I/F
MAX BITRATE 20MBPS
AUTO CRYPTO RESYNC

ASI UNI
BNC G.703 I/F
MAX BITRATE 155MBPS

HSSI UNI
SCSI2 I/F
MAX BITRATE 110MBPS

NON ATM MODULES

Circuit emulation modules supporting AAL.1 adaption

QUAD T1 CE
RJ45 G.703 I/F
T1 1.544MBPS

DUAL E1 CE
BNC G.703 I/F
E1 2.048MBPS

QUAD E1 CE
RJ45 G.703 I/F
E1 2.048MBPS

DUAL E2 CE
BNC G.703 I/F
E2 8.448MBPS

E3 CE
BNC G.703 I/F
E3 34.368MBPS

DS-3 CE
BNC G.703 I/F
DS-3 44.736MBPS

ASI CE
52MBPS MAX BITRATE
1BPS INCREMENTS
ASYMMETRIC OPERATION

LAN CE
100MBPS WIRESPEED
1BPS INCREMENTS
ASYMMETRIC OPERATION

EIA530 CE
20MBPS MAX BITRATE
1BPS INCREMENTS
ASYMMETRIC OPERATION

HSSI CE
110MBPS MAX BITRATE
1BPS INCREMENTS
ASYMMETRIC OPERATION

ECL CE
110MBPS MAX BITRATE
1BPS INCREMENTS
ASYMMETRIC OPERATION

ORDERING INFO

PART CODES:

ATM MODULES

E1 UNI	80-07-201
E2 UNI	80-07-202
E3 UNI	80-07-203
DS-3 UNI	80-07-206
OC-3/MM	80-07-207
OC-3/SMSH	80-07-208
OC-3/SMLH	80-07-209
OC-3 APS/MM	80-07-216
OC-3 APS/SMSH	80-07-217
OC-3 APS/SMLH	80-07-218
EIA530 UNI	80-07-219
HSSI UNI	80-07-213
ASI UNI	80-07-215

NON-ATM MODULES

QUAD T1 RJ45 CE	80-07-301
DUAL E1 BNC CE	80-07-302
QUAD E1 RJ45 CE	80-07-303
DUAL E2 BNC CE	80-07-304
E3 BNC CE	80-07-305
DS-3 BNC CE	80-07-306
EIA530 CE	80-07-344
HSSI CE	80-07-309
ECL CE	80-07-343
ASI CE	80-07-332
LAN CE	80-07-345

ATM ADAPTION & CONNECTIVITY

Metrodata's ATM product range provide Rate, Interface and Media conversion functions for E1, T1, E2, E3, E4, DS3, STM1, OC3 leased line, fibre and copper ATM presentations. The Access processor range (see page 12) also provides a convergence function between a wide variety of interface types.

ATM SWITCHING DSUs*

The ATM switching dsu's are a range of 2 Port ATM switching converters which perform physical interface conversion and rate adaption functions. For example allowing 155Mbit/s ATM equipment to interconnect over lower speed ATM or leased line services.

ATM Network Interfaces: E1, E2, E3, DS3, E4

ATM Equipment Interfaces: E3, DS3, STM-1, OC-3, including electrical and multimode and singlemode optical interfaces

ATM CIRCUIT EMULATION DSUs*

The ATM circuit emulation dsu's are a range of 2 Port ATM feeder devices which allow non-ATM equipment e.g. PBX, Video Codec, to be integrated into an ATM infrastructure. For example allowing 2Mbit/s PBX equipment or 34Mbit/s broadcast quality video to interconnect across an ATM network.

Non-ATM Interfaces:- E1, E2, E3, DS3

ATM Interfaces: E3, DS3, STM1, OC3, including electrical and multimode and singlemode optical interfaces

NOTE: All ATM CE DSU designs should be discussed with Metrodata prior to implementation as some of these have extended lead times and maybe subject to minumum order quantity.

ATM NETWORKING TERMINATION UNITS*

These products are 2 Port ATM Network Termination Units which allow the connection of 155Mbit/s ATM equipment with multimode fibre or twisted pair copper connections to ATM services which are typically delivered via singlemode or BNC circuits.

ATM Port 1: STM1 or OC3 155Mbit/s multimode or twisted pair RJ45

ATM Port 2: STM1 or OC3 155Mbit/s Singlemode Fibre (long haul or short haul) or BNC

* Consult www.metrodata.co.uk for full ordering information