



RFL Communications plc

PRODUCT INFORMATION

UMUX 1500/1200 Multi-Service Platform



Key Benefits

- Scalable to meet low, medium and high density applications
- Combines access/cross connect and PDH/SDH/ATM/GbE functionality in a single platform
- Cross-connect capacity: 128x2.048Mbit/s with granularity options for 64Kbit/s & nx64Kbit/s
- Flexibility of installation 19" rack or cabinet mounting
- Ease of operation and maintenance
- Compact UMUX1200 available with wall mount option

Key Features

- Full ETSI/ITU-T compliance
- Sub-station Hardened (BS EN 61000-4-x)
- Modular 19" sub-rack arrangement
- Integrates both legacy voice and data services (TDM) to advanced high speed services such as STM-1 xDSL, ATM and IP
- Configurable for SDH or PDH ADM and TE applications
- Local/remote Windows NMS seamlessly manages all aspects (transmission/cross-connect/access)
- Low density applications satisfied by UMUX 1200 platform

The UMUX1500 combines multi-service access for voice, data and video applications; multiplexing/cross connect functionality and connection to copper, fibre and radio backbone infrastructures, within a single high performance platform.

This approach satisfies the requirements of legacy telecommunication and datacom systems whilst addressing the needs of new high bandwidth services such as Fast Ethernet, GbE, ATM and HDSL.

A key benefit includes a single network management system controlling all functions and providing both remote and local access to all networked nodes.

At the transmission level the UMUX can be configured as either an ADM or TE node with connection options for 2.048Mbit/s, 8Mbit/s, 34Mbit/s PDH or 155Mbit/s SDH interfaces.

Technical Data – Sub-Rack Options

Main Characteristics	UMUX 1500	21 Slot, 19" rack Cross connect capacity: 128x2Mbit/s Granularity: 64 kbit/s, nx64 kbit/s, 2Mbit/s
	UMUX 1200	8 Slot, wall mounted or 19" rack Cross connect capacity: 48x2Mbit/s
Management Facility	UCST UNEM	Element manager; local or remote configuration Network manager with user friendly, element and network graphical display

Technical Data – Transmission Element

STM-1 155Mbit/s SYNIO/SYNIF Optical Interface Unit	Class 1 laser ALS according to ITU-T G.958	1+1 unidirectional and bi-directional MSP (Multiplex Section Protection) Short haul optics 1310nm – Typical 45Km Medium haul optics 1310nm – Typical 65Km Long haul optics 1550nm – Typical 110km RFL Fibre Booster option for distances up to 180km
8448 kbit/s Electrical/ Optical Interface:	Bit rate transmission code Optical transmission	8Mbit/s 1300nm/1550nm optical, 4 x E1 G.703 Typical distance 45km
ATM STM-1 optical interface unit: ATIOP	ITU-T recommendations Bit rate Number of ports Optical port types Protection	G.703, G.783, G.813, G.823, G.825, G.957, G.958 155.52 Mbit/s ± 4.6 ppm 1 S-1.1, L-11 Supports MSP and EQP over 2 units
xDSL, S-HDSL Interface:	Usable bit rate/service Line bit rates Line code Transmission range Interface to digital network	2 Mbit/s; nx64 kbit/s; fract. E1 or nx64 kbit/s 1x2320 kbit/s 2x1168 kbit/s CAP / 2B1Q / PAM16 Up to 16 km G.703; G.703/G.704; V.3 (ISDN PRA); X.21/V.11
Combined 2Mbit/s Electrical and DSL Interface: SLIM1, SLID1, SLIM2	ITU-T Recommendations Bit Rate Number of 2Mbit/s ports DSL Services Number of DSL ports DSL Line Codes Transmission Range	G.703, G704, G.823, G991.1, G991.2 Annex B 2048 kbit/s ± 50 ppm 2 HDSL, S-HDSL, or G.SHDSL 4 (2 two-pair or 2 single-pair services) CAP, PAM16 and 2B1Q Up to 16 km
MSDSL Interface: LEMU6, LEMQ6 Unit	Bridging IP routing Frame relay Transmission range Number of MSDSL interfaces per unit LAN interface	Transparent MAC bridge (standard mode) Star bridge mode; Port based virtual LAN Static IP routing; OSPF V2 dynamic IP routing Frame Relay Termination (FRAD) or switching Up to 29 km 6 10BaseT (full duplex)
Local Ehternet Interface: NEBRO, NEBRA	Functionality LAN Connection Number of ports Interfaces (NEBRO) Interfaces (NEBRA)	Transport and switching of Ehternet data over SDH networks, Ethernet/Fast Ethernet/ Gigabit Ethernet Point-to-point or multi-point to multi-point 6 4 x RJ-45 10/100 BaseT, 2 SFP 100 BaseFX or Gigabit 4 x SFP 100 BaseFX, 2 x 100 BaseFX or Gigabit
IDSL Interface: SULIC Unit	Transmission code Number of interfaces per unit Transmission range Interface to digital network	2B1Q; ISDN BA Uo Interface (ANSI T1.601-1992) 8 Up to 11.5 km V.24/V.28, X.21/V.11, V.35

Technical Data – Cross Connect

2 Mbit/s SDH STM-1 Access Interface: SYNAC	ITU-T Recommendations PBUS-SBUS Capacity Traffic Protection	G.702, G.704, G.707, G.775, G.783, G.803, G.805, G.823, G.825, G.841 8 x 2 Mbit/s 1+1 Linear Trail Protection (LTP) on VC-12
2.3 Mbit/s TU-12 SDH STM-1 Access Interface: SYNVA	ITU-T Recommendations PBUS-SBUS Capacity Traffic Protection	G.702, G.704, G.707, G.775, G.783, G.803, G.805, G.823, G.825, G.841 32 x 2.3 Mbit/s Sub-Network Connection Protection (SNCP)

Technical data – Channel Cards

Asynchronous Data: UNIDA 431	Interface Type Bit Rate Options Number of Ports	RS232/V.24/V.28 Data rates from 0.6...38.4 kbit/s 1+1, subrate multiplexing, Pont-Multipoint, performance monitoring 4
Synchronous Data nx64Kbit/s: UNIDA 436	Interface Type Options Number of Ports	X.24/V.11 n x 64kbit/s (n=1...31) synch 1+1, subrate multiplexing, Pont-Multipoint, performance monitoring 4
64 kbit/s G.703 Co-directional interface: GECOD	ITU-T Recommendation Bit Rate Number of Ports	G.703 64 kbit/s Co-directional 8
2 Mbit/s Electrical Interface: LOMIF, LOMI4 unit	ITU-T recommendations Bit Rate Number of Ports	G.703, G.704, G.823 2048Kbit/s 75/120 Ohm ± 50 ppm 8 x interfaces per module (4 x interfaces LOMI4)
10 BaseT Interface: LAWA4 Unit	Bridging IP routing Frame relay WAN interface LAN interface	Transparent MAC bridge (standard mode) Star bridge mode; Port based virtual LAN Static IP routing; OSPF V2 dynamic IP routing Frame Relay Switching PPP, Frame Relay; 2x2Mbit/s, nx64 kbit/s, transp. 10BaseT (full duplex)
Voice	4-wire - NEMCA 4-wire E&M - NEMCA 2-wire FXO - EXLA 2-wire FXS - SUBH	300...3400Hz, 8 ports 300...3400Hz, 8 ports 300...3400Hz, 12 ports 300...3400Hz, 10 ports
Bi-directional Audio Wideband module: RFL VF-WB	Number of interfaces Frequency Response Analog Interface Digital Interface	4, bi-directional wideband audio to X.24 300Hz...6KHz RJ45, 600 ohm 2 wire or 4 wire V.11/X.24, to match UNIDA 436 E&M signaling optional
C37.94	Number of fibre interfaces (relay) Number of Electrical/Network interfaces Wavelength and emitter type	2 C37.94 ports 2 X.21 n x 64 kbit/s 850nm LED (short haul)

Technical data – Desktops and IADs

IAD MUSIC 700		
Main Characteristics	Interoperability Technology Management Power Supply	With UMUX platform only TDM (channelised VoDSL) UCST, UNEM 85..264 VAC (47..63Hz), battery back-up
Router/bridge functionality	Internet & remote access functionalities LAN –LAN, VLAN functionalities WAN protocols	PAT, NAT, DHCP, traffic shaping, static routing, bridging, RIP2, OSPF, FRAD 802.1q, VLAN (optional) PPP, Frame Relay, L2TP
Transmission	Transmission rate Medium Technology Line Code Distance	Up to 2320 kbit/s One or two twisted copper pair G.SHDSL ITU-T G.991.2 Annex B PAM16 Up to 16km
Voice (POTS)	Type Number of Ports Modes of Operation	a/b, short haul in house Up to 8 V5.x, MCAS, phone-exchange
Voice (ISDN)	Type Number of Ports Modes of Operation	ISDN-So, acc. EN 300 012-1 Up to 4 V5.x only
Data Interface	Interfaces	2 x Ethernet 10/100BaseT auto-sensing
Leased line interface (optional)	Selectable service rates Supported interface types	Nx64kbit/s (n=1 up to 31) to 2048kbit/s V.11/X.21, V.35 or V.36

Desktop MUSIC 200		
Main Characteristics	Interoperability Useable bit rate/services Line bit rates Line code Jitter reducer Special features Management Optional items User interface Power consumption and supply	With UMUX platform & MUSIC 200 2048kbit/s (transparent/structured G.704) 30B+D (ISDN PRA 1.431); N*64 kbit/s 1x2320 kbit/s 2x1168 kbit/s PAM16/CAP/2B1Q International patent SDH/VC-12 termination in the MUSIC 200, noise margin analysis UCST, UNEM POTS splitter, Regenerator G.703/G.704; X.21/V.11; V.35; V.36/RS49; 10BaseT Ethernet; T (ISDN-PRA) 230 Vac < 12Va -48 Vdc < 6.3W
Transmission	Typical values as a function of wire diameter in kilometres (over 2 copper pairs)	Ø 1.0 mm 10.0 km – max 16.0 km Ø 0.6 mm 5.5 km – max 9.0 km Ø 0.4 mm 3.0 km – max 5.5 km

Desktop MUSIC 100		
Main Characteristics	Selectable service rates Interoperability Power supply and consumption Dimensions (l x b x w)	64 kbit/s to 2304 kbit/s (upstream mx64 kbit/s, m=1..36) (downstream nx64 kbit/s, n=1..36) With UMUX platform & MUSIC 100 85..264 VAC, 47..63 Hz; <6W 222 x 155 x 37 mm
Transmission	Multiple rate Bi-directional	Up to 2320 kbit/s Over one twisted pair
Router/bridge functionality	LAN protocols Routing protocols WAN protocols Interoperates with	IP, IPX Static Routing, RIP HDLC, PPP, Frame Relay (including RFC 1490) Cisco, 3Com, Nortelnetworks, etc
Mini-hub	User interfaces; connectors	4 x 10BaseT Ethernet (across hub); 4 x RJ-45

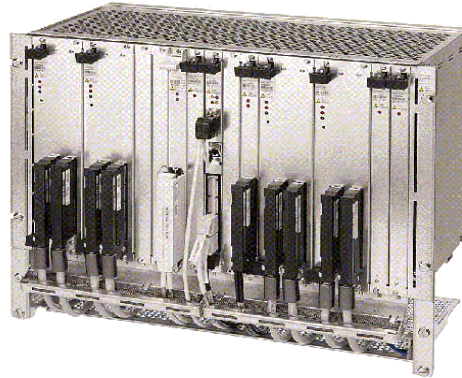
Desktop NTU																	
Main Characteristics	Transmission User Interface Supported service rate Interoperability Management Power Consumption Dimensions (l x b x w)	2B1Q, ISDN-BA U Interface (ANSI T1.601-1992) V.24/V.28, X.21/V.11 or V.35 0.6 to 128 kbit/s With UMUX platform & NTU UCST, UNEM Locally powered: 5.5 VDC < 1.2 W Remotely (line) powered: < 1.4 W Aluminum housing: 254 x 196 x 42 mm															
Transmission	Typical values as a function of wire diameter in kilometres (over 1 copper pairs)	<table border="0"> <tr> <td></td> <td>Remotely powered:</td> <td>Locally powered:</td> </tr> <tr> <td></td> <td>48 V:</td> <td>96 V:</td> </tr> <tr> <td>Ø 0.8 mm:</td> <td>4.3 km</td> <td>11.5 km</td> </tr> <tr> <td>Ø 0.6 mm:</td> <td>2.4 km</td> <td>8.8 km</td> </tr> <tr> <td>Ø 0.4 mm:</td> <td>1.0 km</td> <td>4.3 km</td> </tr> </table>		Remotely powered:	Locally powered:		48 V:	96 V:	Ø 0.8 mm:	4.3 km	11.5 km	Ø 0.6 mm:	2.4 km	8.8 km	Ø 0.4 mm:	1.0 km	4.3 km
	Remotely powered:	Locally powered:															
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Desktop TUNOR (OPTO 4x2)		
Main Characteristics	Interoperability Useable bit rate Optical fibre type Wavelength Management User Interface Network termination Power supply and consumption	With UMUX platform & TUNOR (OPTO 4x2) 4 x 2048 kbit/s Monomode or multimode 1300 nm UCST, UNEM 2048 kbit/s G.703, 75 Ω and 120 Ω; V.11/X.21 ISDN-PRA ITU-T I.431 (one port, optional) 230 Vac: < 12VA 48 Vdc: < 6W
Transmission	Transmission code Max. Overall cable attenuation Monomode cable Multimode cable	MCMI 21 dB 45 km 21 km

Desktop LECAR								
Main Characteristics	Interoperability Useable bit rate/services Line bit rates Line code Jitter reducer Management Optional items User interface Power consumption and supply	With UMUX platform & LECAR 2048 kbit/s (transparent/structured G.704) 30B+D (ISDN PRA I.431); N*64 kbit/s Fractional E1 or N*64 kbit/s 1x2320 kbit/s or 2x1168 kbit/s CAP/2B1Q International patent UCST, UNEM POTS splitter, regenerator, line powering G.703/G.704; X.21/V.11; V.35; V.36/RS49; 10BaseT Ethernet; T (ISDN PRA) Locally powered: 230 Vac < 9.0 W 48 Vdc < 6.3 W Remotely (line) powered: < 5.8 W						
Transmission	Typical values as a function of wire diameter in kilometres (over 2 copper pairs)	<table border="0"> <tr> <td>Ø 1.0 mm</td> <td>10.0 km – max 16.0 km</td> </tr> <tr> <td>Ø 0.6 mm</td> <td>5.5 km – max 9.0 km</td> </tr> <tr> <td>Ø 0.4 mm</td> <td>3.0 km – max 5.5 km</td> </tr> </table>	Ø 1.0 mm	10.0 km – max 16.0 km	Ø 0.6 mm	5.5 km – max 9.0 km	Ø 0.4 mm	3.0 km – max 5.5 km
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Ø 0.6 mm	5.5 km – max 9.0 km							
Ø 0.4 mm	3.0 km – max 5.5 km							

Environmental

Physical Specifications



UMUX 1500

Height	308.2mm (with front cover in place)
Width	482.6mm with brackets for 19" cubicle mounting
Depth	283mm (with cover in place)

UMUX 1200

Height	176.1mm
Width	482.6mm
Depth	282.1mm (with front cover in place)

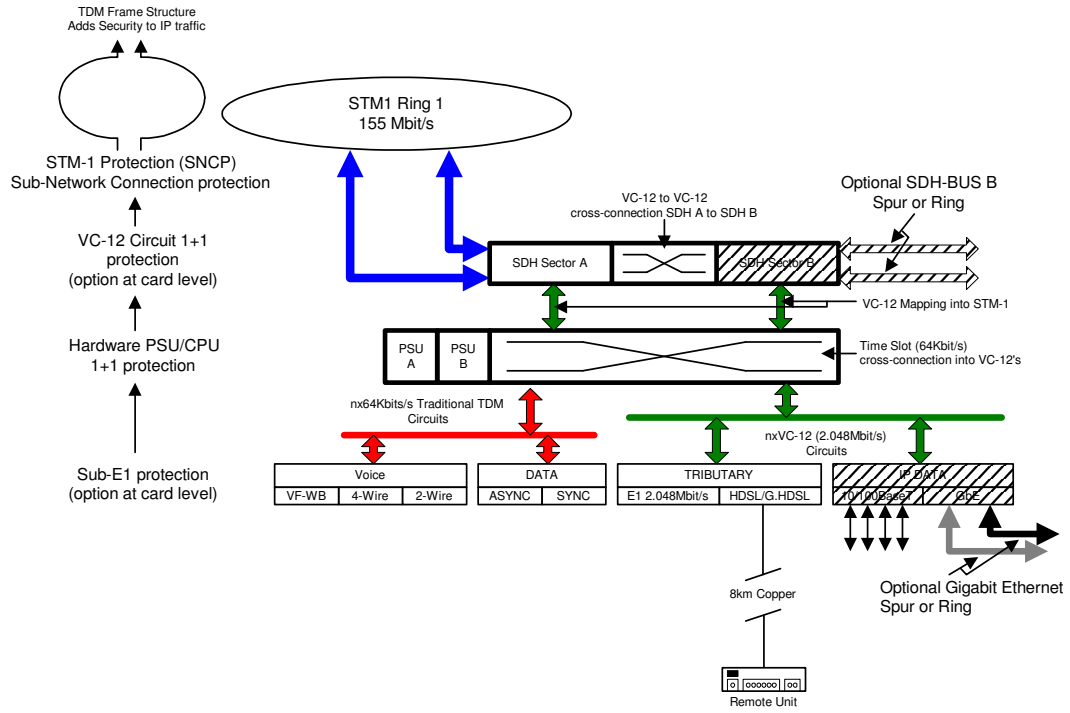
Environmental Specifications

Operating temperature	-5°C to +55°C
Storage temperature	-25°C to +55°C
Humidity	Class 1.2
EMC Compliance	89/336/EEC Electromagnetic Compatibility
	73/23/EEC Safety of low voltage equipment
	1999/5/EC radio equipment/telecom terminal equipment
	EN 300/386 V1.2.1 (2000-03)
	EN 6095: 1992 plus amendments A1-4 and A11
Power Utility Compliance	EN 61000-4-xx (Type Test on request)
MTTF Specification	MTTF (MIL – HD – BK – 217F > 20 years)

Power Specification

UMUX1500	-38.5 to -75Vdc
UMUX1200	-38.5 to -75Vdc/ 115VAC/230VAC

UMUX System Architecture



Fax Back Information Request Form

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Please send information/call

Company: _____

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Information Required

Product **Please Tick**

Video Transmission Products	
Multiplexers (STM-1/4/16)	
Power Line Carrier	
Protection Signaling	
LAN Products (ATM/IP)	
Substation Network Gateway/Protocol Translation	

Systems

Voice/Data Communication Systems	
LAN Infrastructures	
Video/Surveillance Schemes	

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