H16MRS

Broadband Digital Radio

Applications

Cellular Backhaul

H16MRS is perfect for 2G/3G/LTE base stations backhaul to replace optical fiber cable and FSO. As a radio with built-in TDM and IP interfaces, it comprises all the connection needs: voice, data, management and control.

Repeater with Cross-Connect

H16MRS with built-in ADM supports super PDH, either TDM or Ethernet. The Indoor Unit (IDU) with Cross-Connect function serves two Outdoor Units (ODU) and allows traffic derivation in each repeating point. It is an ideal solution to enterprises managing highways, railways, pipelines (water, gas, oil, etc.), transmission lines, or that serves to several discontinued geographical areas.

Broadband access

H16MRS is a high capacity solution to enterprises that need private lines and broadband Ethernet traffic.

ISP Backhaul

H16MRS allows ISPs, which owns no communication lines, to establish a backhaul in a very fast way with great quality. ISPs can grow up their profits by delivering services with guaranteed SLA or reaching distant clients from their PoP using radios with low cost, high integration at licensed frequencies.

Characteristics

1. Frequency: 6.5GHz~23GHz
2. Single IDU,transmission capacity up to 310Mbps (2×28MHz)
3. High capacity, low cost, integrated native TDM digital radio
4. Standard TDM and IP interfaces: STM-1, GE and E1, FE
5. 1+0, or 2+0, 1+1: Hot Standby (HSB), Frequency Diversity (FD) and Space Diversity (SD)
6. Multidirectional, ring and repeater applications
7. RF and digital loopback functions
8. Built-in Bit Error Rate (BER) monitoring, ATPC and FEC functions
9. Wide operating temperature range
10. Wide DC input range and low power consumption
11. SNMP and various optional network management modes
12. Up to 300 meters separation between IDU and ODU
13. Easy operation, convenient maintenance, high reliability, low CAPEX and OPEX.

Benefits

1. High transmission capacity
2. Simultaneous IP and TDM capability, controlled by software
3. 1+0 or 2+0, 1+1 Protection: Hot Standby (HSB), Frequency Diversity (FD) and Space Diversity (SD)
4. Multi-direction, ring and repeater
5. Higher integration
6. Less power consumption
7. Light-weight

Technical Specifications

ODU TECHNICAL SPECIFICATIONS

Frequency			6.5GHz	7GHz	8GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz
Standard			ETSI/ITU or customer specified							
RF Output Power (dBm)- Maximum	128QAM		20	20	20	16	17	16	15	15
RF Output Power (dBm)-Minimum			0							
Tuning Increment (dB)			1							
Accuracy (dB)			±2							
RX at BER=10-6 (dBm)	28MHz	128QAM	-69	-69	-69	-68	-68	-68	-67	-67
Flange			UBR84	UBR84	UBR84	UBR100	UBR140	UBR140	UBR220	UBR220
IF Interface			50Ω Coaxial, N-type female, 300m max, separation between IDU and ODU							
RSSI			Output voltage vs. RSL: 0～3V vs. -90～-20dBm							
Frequency Stability			±5ppm							

IDU TECHNICAL SPECIFICATIONS

Throughput (Sing Channel)/Mbps		192Mbps(28MHz,128QAM)
STM-1 Interface	Maximum	2×STM-1
	Interface type	SC, S-1.1 Single Mode 1310nm
GE Interface	Maximum	2×GE
	Interface type	RJ45
Compact Interface	Maximum	48×E1
	E1 Interface Type	60-pin Molex, 120Ω
	Maximum	4×FE
	Interface type	RJ45

SYSTEM TECHNICAL SPECIFICATIONS

Network Management	SNMP or Telnet	
System configurations	Non protected(N+0), Protected(2+2, 1+1): HSB, SD, FD; Multi-direction, Ring or Repeater	
Input power range	-36~72VDC	
Power consumption	1+0: ≤55W	1+1: ≤85W
Temperature	IDU: -5~ 55℃	ODU: -35~ +55℃
Humidity	IDU: 0 ~ 95%, no condensation	ODU: All weather
Weight(kg) & Dimension (mm)	IDU: 3.5/445x238.5x44.5	ODU: 5/315×265×92
Elevation	15,000ft / 4572 meters	

Notes: *All Specifications are typical values and subject to change without prior notice.*

H16MRP

Broadband Digital Radio

Applications

Cellular Backhaul

H16MRP connects base stations to controllers. As a radio with E1 and Ethernet interfaces, it comprises all the connection needs: voice, data, management and control.

Repeater with Cross-Connect

H16MRP carries broadband, either TDM or Ethernet, to long distances thanks to the Indoor Unit (IDU) with Cross-Connect function which serves two Outdoor Units (ODU) and allows traffic derivation in each repeating point. It is an ideal solution to enterprises managing highways, railways, pipelines (water, gas, oil, etc.), transmission lines, or that serves to several discontinued geographical areas.

Broadband access

H16MRP is a solution to small and middle enterprises which need private lines and broadband Ethernet traffic.

ISP Backhaul

H16MRP allows ISPs, which owns no communication lines, to establish a backhaul in a very fast way with great quality. ISPs can grow up their profits by delivering services with guaranteed SLA or reaching distant clients from their PoP using radios with low cost, high integration at licensed frequencies.

Characteristics

1. Frequency: 5.8 to 38GHz
2. Supports 7/14/28MHz bandwidth
3. FDD/TDM PtP digital radio
4. 4, 8, 16 or 24 E1 with built-in Ethernet interfaces
5. Data traffic sharing between interfaces, E1 and Ethernet, configurable by software
6. Supports 1+0, 1+1, East/West configurations
7. ATPC and FEC function
8. Cross-connect function for repeater applications
9. Low latency Ethernet traffic up to 60Mbps
10. Expansible from 1+0 to 1+1: field upgradable by plug-in module assembly
11. RF, analog and digital loopback capability
12. Built-in Bit Error Rate (BER) monitoring
13. Wide operating temperature range
14. Low power consumption
15. SNMP network management protocol
16. Up to 300 meters separation between IDU and ODU
17. IDU and ODU with small and attractive profiles

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Benefits

1. Built-in Equalizer and FEC
2. IP and TDM capability, controlled by software
3. 1+0 or 1+1 Protection
4. Built-in Cross-connection
5. IP and TDM simultaneously
6. Multi-direction
7. Higher integration
8. Less power consumption
9. Light-weight

Technical Specifications

ODU TECHNICAL SPECIFICATIONS

Frequency(GHz)			5.8 GHz	6 GHz	7/8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	38 GHz
Standard			ETSI/ITU or Customer specified									
RF Power (dBm)			-10~20	-10~27	-10~27	-10~20	-10~20	-10~20	-10~22	-10~22	-10~22	-10~20
Accuracy (dB)			±2									
Increments (dB)			1									
RX at BER=10^{-6} (dBm)	**QCPSK**	**4E1**	-84	-84	-84	-84	-84	-84	-83.5	-83	-83	-81
		8E1	-81	-81	-81	-81	-81	-81	-80.5	-80	-80	-78
		16E1	-78	-78	-78	-78	-78	-78	-77.5	-77	-77	-75
	8CPSK	**24E1**	-68	-68	-68	-68	-68	-68	-67.5	-67	-67	-65
RF BW (MHz)			7/14/28	7/14/28	7/14/28	7/14/28	7/14/28	7/14/28	7/13.75/27.5	7/14/28	7/14/28	7/14/28
Flange			N-type	UBR84	UBR84	UBR100	UBR140	UBR140	UBR220	UBR220	UBR220	UBR320
Max Power Consumption IDU+ODU (1+0/1+1)			25/40W	25/40W	25/40W	25/40W	25/40W	30/45W	30/45W	30/45W	30/45W	30/45W
IF			50Ω coaxial, N-type female connector, 300m max, separation between IDU and ODU									
Frequency Stability			±5ppm									
Max RSL without Damage			0dBm									
RSL Accuracy			±5 dB(-30~-90dBm)									

IDU TECHNICAL SPECIFICATIONS

Capacity	8 Mbps	16 Mbps	34 Mbps	50Mbps
No. of E1 Port	0~4	0~8	0~16	0~24
No. of Ethernet Port	2	2	2	2
Ethernet Throughput	10.3Mbps@64byte	20.6 Mbps@64byte	41.4Mbps@64byte	62Mbps@64byte
	8.3Mbps@1552byte	16.7Mbps@1552byte	33.4Mbps@1552byte	50Mbps@1552byte
Bit Rate Adjustment Between E1 & Ethernet with 2Mbps Step				
Impedance	E1= 75Ω Unbalanced or 120Ω Balanced		Ethernet=100Ω Balanced	
Line Code	E1 = HDB3		Ethernet=10/100Base-T	
Status Indicator	LED	Power, Local, Remote-East, Remote-West, multiple Alarms & Status		
Alarms	Form C	2 software-selectable dry contacts		

SYSTEM TECHNICAL SPECIFICATIONS

Network Management	SNMP or Telnet	
Input Voltage	-36~-72VDC	
Operational Temperature	IDU: -5℃~55℃	ODU: -35℃~+55℃
Humidity	IDU: 0~95%, No condensation	ODU: All weather
Weight (Kg)/Dimension (mm)	IDU: 2.5~3.0 /44×436×278	ODU: 2.8~3.1 / 225×225×90
Elevation	15,000ft / 4572meters	
System Configurations	Non-protected (1+0), Protected (1+1): HSB, SD, FD; East/West or Repeater with Cross-Connect	

Notes: *All specifications are showed with typical values and subject to change without prior notice.*