

# RTN 910 Product Brochure







## RTN 910

The RTN 910 is networking IP radio equipment. It bases on unified platform for TDM/Hybrid/Packet, provides several types of service interfaces, and facilitates installation and flexible configuration. It can provide a solution which integrates with the TDM microwave, Hybrid microwave, and Packet microwave based on the network requirements. Thus, The RTN 910 can meet the requirements of not only traditional TDM networks, but also future IP networks.



## Architecture

The RTN 910 adopts a split structure. The system consists of the IDU 910 and the ODU. The IDU910 provides multiple features with different cards, and supports convergence of up to 2 RF directions. The box size is 442mm (W) x 220mm(D) x 44mm(H)(1U).



## Features

- Unified Platform for TDM/Hybrid/Packet, Meeting the Requirements of Network Evolution Towards All-IP Backhaul.
  - » Supports the processing and accessing of native TDM services, native Ethernet services and PWE3 services.
  - » Supports multi-mode microwave radio: Hybrid mode (E1+ ETH), pure Packet mode, PDH mode and SDH mode.
  - » Provides packet-based IEEE 1588v2 clock synchronization, facilitating cost-effective clock solutions.

## • Large-Capacity and Broadband-Oriented Microwave Platform

- » Adopts highly efficient encapsulation and advanced header compression technologies, boosting the maximum capacity on one carrier to over 1Gbps.
- » Supports XPIC technology.
- » Supports Air-LAG.
- » Provides hitless switching from QPSK to 1024QAM with Adaptive Modulation(AM), in all channels sizes and all frequencies. Priority levels can be set for Native E1 services and packet services.

## • Robust IP Service-Processing Capability

- » Supports E-line or E-LAN services based on VLAN or QinQ and supports E-line services based on PW.
- » Supports basic MPLS functions and service forwarding, and supports static LSPs.
- » Adopts the LSP tunnel technology and the PWE3 technology to form an MPLS network, where multiple services can be accessed.
- » Supports 8-class QoS, provides a wide range of services, and ensures the quality of services of high priority.
- » Supports EOS/EOPDH.
- » Supports Eth. LAG.
- » Supports abundant OAM features, including Eth OAM, MPLS OAM, ATM OAM, PW OAM, making management and maintenance in IP networks similar to those in SDH networks.

## • Complete Protection Schemes

- » Protections for radio links
  - 01.1+1 HSB/SD/FD protections.
  - 02.2+0,1+1, 2x(1+0) protections.
  - 03.XPIC 1+1.
- » Network-level protections
  - 01.Ethernet Ring Protection Switching (ERPS) protection and MSTP protection (including FE/GE ports and radio link) .
  - 02.LAG protection for Ethernet services.
  - 03.MPLS 1:1 tunnel protection.
  - 04.TDM SNCP protection(including SDH link and radio link).
  - 05.IMA protection for ATM over E1 services.
  - 06.Linear MSP.
- » Equipment-level protections
  - 01.1+1 hot backup for the power input

- Easy Installation

- » The RTN 910 can be installed in any standard telecom cabinet, or outdoor cabinet, on a desktop/pole/wall.
- » The RTN 910 and wireless base station can share one cabinet.

- Easy Maintenance

- » Supports different types of loopbacks at the service port and the IF port.
- » Supports RMON performance events and the MPLS OAM functions.
- » Supports MPLS OAM, IEEE 802.1ag, and IEEE 802.3ah
- » Supports ITU-T .1731.
- » Supports ATM OAM.
- » Provides a built-in test system to perform the pseudo-random binary sequence (PRBS) error test at the E1 port and the IF port.
- » Provides the hot-pluggable CF card, which stores data configuration files and software. The CF card can be changed for data loading or software upgrade.
- » Supports remote data and software loading by using the NMS. Thus, the entire network can be upgraded rapidly, achieving in-service software upgrades.

- Multiple Methods for Network Management

- » Uses the iManager U2000 to manage the RTN devices and Huawei optical transport devices. Hence, quick fault locating, quick service provisioning, and visual IP service management are achieved while reduce the OPEX.
- » Uses the Web LCT to manage a single RTN NE or multiple RTN NEs in a centralized manner.
- » Enables users to query alarms and performance events through the simple network management protocol (SNMP).
- » Adopts the inband DCN scheme. Hence, dedicated DCN channels are not required, and the network construction cost is reduced.

**Figure 1-1 RTN 910 (IDU 910)**



**Table 1-1 Technical specifications**

Frequency Band		6GHz, 7GHz, 8GHz, 10GHz, 10.5GHz, 11GHz, 13GHz, 15GHz, 18GHz, 23GHz, 26GHz, 28GHz, 32GHz, 38GHz, 42GHz
Channel Spacing (MHz)		3.5 MHz, 7 MHz, 14 MHz, 28 MHz, 40 MHz, 56 MHz
Modulation Mode		QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM*, 1024QAM*
Interface Type	E1 interface	TDM E1, Smart E1 (CES E1, IMA E1 ML-PPP E1*)
	SDH interface	STM-1 optical/electrical interface, STM-4 optical interface*
	Ethernet interface	FE interface: 10/100BASE-T(X), 100BASE-FX GE interface: 1000Base-SX, 1000Base-LX, 10/100/1000BASE-T(X)
	Auxiliary interface	Order-wire interface, external clock input/output interface, IEEE 1588v2 clock input/output interface
	Alarm interface	External alarm 3 input/1 output interface
Maximum Interface		PDH interface: 96 × E1 SDH interface: 6 × STM-1, 4 × STM-4* Ethernet interface: 20 × FE , 6 × GE
Maximum Capacity		Switching capacity: 4.4Gbit/s TDM cross connection capacity: 8×8VC-4, full timeslot cross-connections at the VC-12/VC-3/VC-4 level
RF Direction		A maximum of 2 RF directions
XMC-2 ODU		Frequency bands: 7/8/11/13/15/18/23/26/28/32/38/42 GHz.. Modulation schemes: QPSK/16QAM/32QAM/64QAM/128QAM/256QAM Channel spacings: 7/14/28/40/56 MHz.
Configuration		2 × (1+0) configuration 2+0 configuration 1+1 configuration XPIC configuration 1+1 configuration: 1+1 HSB, 1+1 FD, 1+1 SD, XPIC 1+1

Ethernet Function	Ethernet II, IEEE 802.3, and IEEE 802.1q/p service frame formats E-line and E-LAN Ethernet services Adding, deletion, and exchange VLAN tags (IEEE 802.1q/p) Flow control (IEEE 802.3x) Link aggregation group (LAG) RMON (IETF RFC 2819)	
Synchronous Ethernet	ITU-T G.8261- and ITU-T G.8262-compliant synchronous Ethernet.	
Security	MAC address-based black list Suppression of broadcast packets Access control list (ACL)	
PWE3	Simulation of TDM E1 and ATM/IMA E1 services Encapsulation of Ethernet services over LSP tunnel to implement E-line services Static PW	
QoS	IP DSCP/IP TOS, MPLS EXP, VLAN 802.1p CAR and traffic policing in color-blind or color-aware mode 8 classes for queue scheduling	
MPLS Capacity	Number of VLAN tags: 4,094 Number of tunnels (including MPLS tunnel, TMPLS tunnel, IP tunnel, and GRE tunnel): 1,024 Number of CESs: 80 Number of PWs: 1,024 Number of E-lines: 1,024 Number of APS protection groups: 32	
Dimensions and Weight	Dimensions: 442 mm (width) x 220 mm (depth) x 44 mm (height) Weight: 4.1 kg	
Working Temperature	IDU	- 5°C to +60°C
	ODU	- 33°C to +55°C
Relative Humidity	IDU	5% to 95%
	ODU	5% to 100%
Power Supply	- 72 V to -38.4 V	
Heat Dissipation	Fan cooling	
Maximum Working Altitude	4,500 m	

\* Available in roadmap



**Table 1-2 Information about the 18GHz frequency band (XMC-2 ODU)**

T/R Spacing (MHz)	Sub-Band	Lower Sub-band TX Frequency (MHz)		Higher Sub-band TX Frequency (MHz)	
		Lower Limit	Upper Limit	Lower Limit	Upper Limit
1010/1008	A	17,685.00	18,230.00	18,695.00	19,240.00
1010/1008	B	18,180.00	18,700.00	19,190.00	19,710.00
1560	C	17,700.00	18,140.00	19,260.00	19,700.00
1092.5	A	17,712.50	18,060.00	18,805.00	19,152.50
1092.5	B	17,987.50	18,595.00	19,080.00	19,687.50

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