

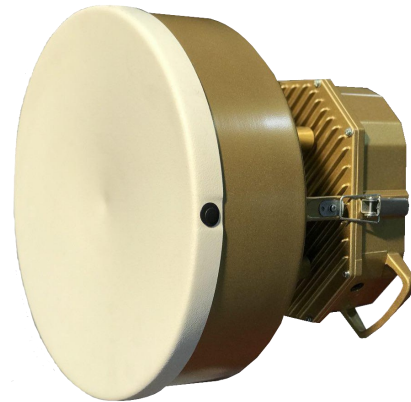
HW24000-HP

24 GHz

1Gbps

Full Duplex

**Technical Sheet**



**Specifications**

**Main Features**

Model Number	HW24000-HP
Frequency bands	24 GHz
Output power	Up to +5 / +10 dBm
Modulation scheme	QPSK to 4096 QAM
Transmission capacity	Up to 1 Gbps full duplex
Channel bandwidth	3.5 to 112 MHz
1 x 1Gbps RJ45 and 1 x 1Gbps SFP interface	
Adaptive coding and modulation (ACM)	
Automatic transmit power control (ATPC)	
Built-in spectrum analyzer	
Automatic polarization detection	
PoE 802.3at support	
WiFi and USB service interface, mobile app	
Compact All Outdoor design	

## Ethernet Features

MTU Up to 10240 Bytes

Full support of VLANs including QinQ

QoS support , 4 queues

RSTP Support

Advanced RMON statistic and counters

Packet fragmentation to minimize jitter

Low latency

## Management system

HTTP/S, Telnet, SSL management

In-band management

SNMPv3 protocol, SNMP traps

## Typical applications

Mobile RAN networks :

Backhaul for access sites with 3/4G base-stations

Rural and urban xDSL networks :

High capacity connections to micro exchanges

Fixed line access networks :

Broadband connections for enterprise customers

Internet service providers :

Backbones and last miles

Electric Smart Grid networks:

Sub-station interconnect

Public safety and security networks:

Tetra radio backhaul and border sites access

Oil and gas networks:

High capacity connections to field and pipeline infrastructure



<b>General</b>	
Operating frequency range (GHz)	24.000-24.250
TX/RX spacing (MHz)	min 60 MHz
Channel spacing (MHz)	3.5-112 MHz
Modulation	QPSK to 4096 QAM
Capacity full duplex (Mbps)	56 MHz/256 QAM : 360 56 MHz/4096 QAM : 540 112 MHz/2048 QAM : 1000
Frequency stability	< 10 ppm
Forward error correction	LDPC
System configuration	1+0
<b>Radio</b>	
RX sensitivity BER = $10^{-6}$ (dBm)	28 MHz/QPSK : -90   -89 28 MHz/256 QAM : -69   -68 56 MHz/QPSK : -85   -84 56 MHz/256 QAM : -64   -63
TX power range (dBm)	-25 to +5   -30 to +10
ATPC	Yes
ACM	Yes
<b>Interface</b>	
1 x 1 Gbps (10/100/1000) IEEE 802.3 ac 1000BASE-T, 1x 1000Base-SX/1000Base-LX SFP, user replaceble	
<b>Management</b>	
WebGUI, Telnet, SSH, USB, WiFi, SNMPv1, SNMPv2, SNMPv3	
<b>Ethernet</b>	
VLAN, QinQ, QoS, MTU 10240B	

<b>Antennas</b>	
0.35 m gain (dBi)	32.5   35.5
0.65 m gain (dBi)	38   41
0.9 m gain (dBi)	41.5   44
1.2 m gain (dBi)	43.5   46
Class	RPE Class 2 or Class 3
Polarization	Dual polarization
<b>Power supply and cabling</b>	
Range (V)	PoE 40 - 60 VDC(IEEE 802.3at), 20 -
Power consumption (W)	25
ODU connection	S-STP/S-FTP Cat.7 cable up to 100 m length, optical fiber
<b>Operating temperature</b>	
ODU (°C)	-30 up to +55
Protected terminal box (°C)	-25 up to +55