

10dBm (cable-access); -10dBm (wireless-access)

Integrated Bi-Directional Amplifier

Highlights

- Superior RF performance, high efficiency
- High Gain and low Noise Figure
- Full Duplex mode, Tetra network
- Operating frequency can be customized
- Use PLL and ALC technology, high stability and reliability
- Advanced software radio technology
- Outstanding digital IF signal procession technology
- Easy installation, operation and maintenance
- Flexible to any environment and low cost



Machine Drawing for Repeater
(Cast aluminum chassis)

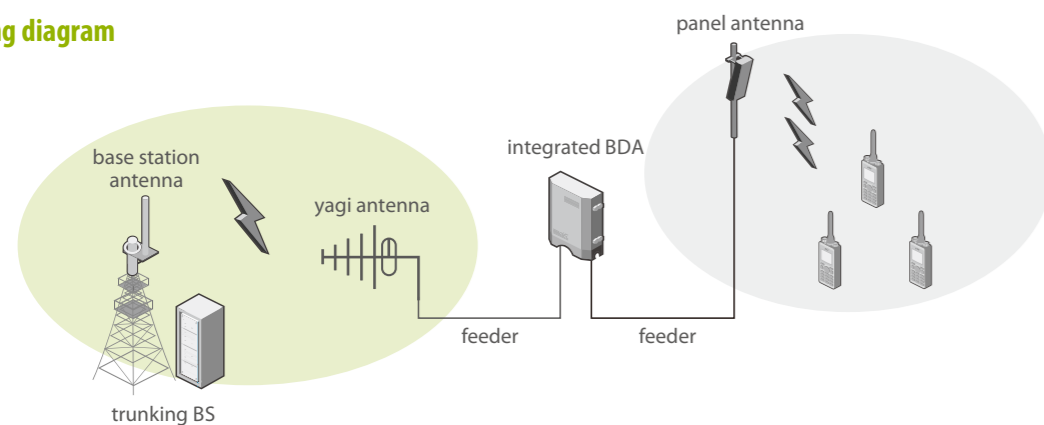


Machine Drawing for Repeater
(Sheet metal chassis)

Specifications

Items	Parameters	
	Downlink	Uplink
Frequency Range	350MHz~520MHz	350MHz~520MHz
	Customized according to customer requirements.(5MHz bandwidth)	
Channel Bandwidth	25kHz	25kHz
NO. of Channel	8	8
Max output power	40±2dBm	33±2dBm
Max gain	95±3dB	90±3dB
Noise Factor	≤5dB	≤5dB
Max NO Damage Input Power	10dBm(cable-access) ; -10dBm(wireless-access)	-10dBm
Automatic Level Control (ALC)	Output power variation < 2dB or be off when adding 10dB at max output power.. Control range≥30dB.	
VSWR	≤1.5	
Time Delay	≤22.0μs	
Spurious Emissions	In-Band	1≤-36dBm/3kHz or ≤-60dBc/3kHz
	Out-Band (Deviation from the band edge outside 2.5MHz)	9kHz~1GHz: ≤-36dBm 1GHz~12.75GHz: ≤-30dBm
IMD	In-Band	≤-45dBc/30kHz
	Out-Band (Deviation from the band edge outside 2.5MHz)	9kHz~1GHz: ≤-36dBm 1GHz~12.75GHz: ≤-30dBm
Rejection Out of band	≤-40dBc@±200kHz; ≤-50dBc@±600kHz; ≤-55dBc@±1MHz; ≤-60dBc@±5MHz	
Power Consumption	≤220W	
Local Monitoring & Control	Rs232	
RF Connection Mode	N/F, 50Ω	
Power Supply Mode	AC 220V±20%, 50±5Hz	
Operation Temperature	-25°C~+55°C	
Relative humidity	≤95%	
Casing class	IP65	
Machine Weight	≤25kg	
Dimension	Cast aluminum chassis: 357mm×217mm×453mm (W*H*L), Sheet metal chassis: 400mm×200mm×530mm (W*H*L)	
Mounting	Wall or Pole	
MTBF	≥100000h	

Networking diagram



Integrated Bi-Directional Amplifier

Highlights

The micro repeater(DS-9300 cell enhancer) aims at the deep optimization requirements of the trunking network coverage. Solving the coverage problems in tiny space or closed rooms such as elevator shaft, conference room, warehouse and so on.

- Industry leading tiny-compact structure, saving installation space.
- Highly intelligent: Automatic adjustment of operating parameters, with status and alarm indicator. Fast to deploy and easy to maintain, power on to operate.
- High performance: high performance power adapter ensures the stability of the equipment. High gain and high power, suitable for most of the deep scenarios.
- High stability: stable and reliable performance with advanced integrated RF circuit design. Full metal shell and excellent heat dissipation, ensuring the stable and long-term working.



Specifications

Items	Technical parameters		
	Downlink		Uplink
Frequency Range	350MHz	361-366MHz	351-356MHz
	860MHz	851-866MHz	806-821MHz
Max output power	25±2dBm		25±2dBm
Max gain	75±3dB		70±3dB
Noise factor			≤6dB
Max input level	-10dBm		-10dBm
Input/Output VSWR			≤2
Time delay			≤1.5μs
Frequency error			≤5×10 ⁻⁸
Spurious Emissions	In-Band	≤30dBm/30kHz	
	Out-Band (Deviation from the band edge outside 2.5MHz)	9kHz~1GHz: ≤-36dBm 1GHz~12.75GHz: ≤-30dBm	
IMD	In-Band	≤-45dBc@RBW30kHz, 600kHz channel spacing	
RF connector	SMA-F, 50Ω		
Power supply	Input: AC 220V, 50/60Hz, 0.5A Output: DC 5.0V/2.5A		
Max power consumption	15W		
Protection	IP40		
Dimension(L*W*H)	188*162*28mm		
MTBF	≥50000h		



DS-9300

Bi-Directional Amplifier

BDA Type:

- Channel-selective Digital Fiber Optical BDA(coupling by air)
- Channel-selective Digital Fiber Optical BDA(coupling directly)
- Integrated RF BDA
- Micro Repeater



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BDA (Bi-Directional Amplifier) is used to provide bidirectional communication between radio terminals and the base station in order to fit in any kind of environments. It can be used outdoors to extend the coverage range of base station, making communication services available in areas with no or weak signals. Additionally, it can be used indoors as the signal source to improve signal strength. With a multichannel selecting unit, BDA can selectively amplify the signals, ensuring the frequency purity of repeated signals and the stability of output power. It has been widely used in scenarios such as tunnels, along roads and railways, indoor areas, outskirt areas and congested residential areas. It has excellent compatibility, widely used in trunking communication systems such as DMR, TETRA, APCO25, MPT-1327, as well as conventional communication system.

Product Highlights

- Modularized design, easy for maintenance.
- With high-linearity power amplifier and high-rejection duplexer, capable of rejecting inter-modulation and spurious signals.
- With the function of channel switch, the channel will be automatically shut down if there is no call in the coverage, which can strongly reduce the impact of base stations.
- Pole mounted, wall mounted to satisfy different application scenarios.
- Dustproof, moistureproof & waterproof, with low requirements on installation environment.
- Flexible monitoring (ethernet or serial port), convenient for maintenance and management.

Digital fiber optical BDA

Highlights

- Excellent hardware performance: low inter-modulation, high rejection, high isolation.
- Network management platform: The network management system adopts the SNMP protocol, providing the features such as site information identification, real-time data sampling, performance parameter setting, positive alarm report and automatically remote upgrade.
- Supporting optical loop link redundancy, makes the system more stable and reliable.
- Full digital processing: Supporting star, chain, ring and mixed networking, SDR technology is adopted to compensate the time delay, silence the uplink and downlink noise.
- Remote operate: monitoring abundant parameters and upgrading devices remotely via IP.
- O&M Interface: supporting serial port, internet port, fiber optical.
- Double optical fiber provides more stable data service.

Product introduction

Coupling directly

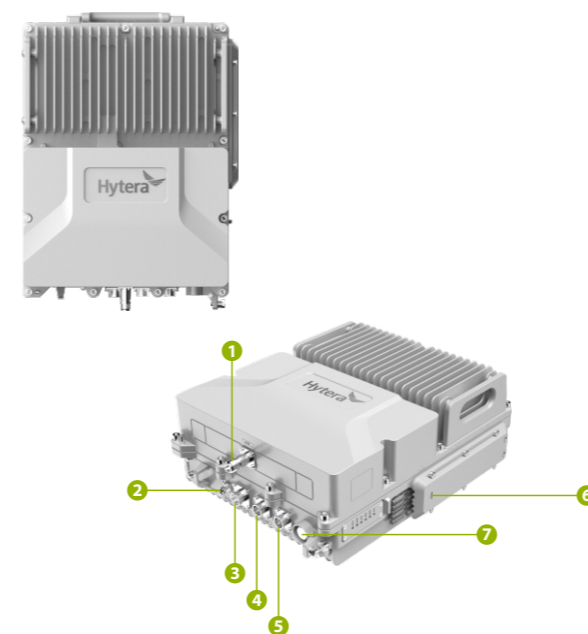
Interfaces & Explanation of DS-9300 local unit



1	GSM Modem antenna port
2~3	RF port
4	Local debugging port
5	CPRI 0~3(optical port synchronization indicator)
6	Remote monitoring Ethernet port
7	Optical module debugging port
8	Power supply
9	GND

Coupling by air

DS-9300 Local&Remote Unit (coupling by air)



1	RF antenna port
2	GSM modem antenna port
3	Power supply
4	External device alarm
5	Lacation alarm
6	Optical fiber port & Ethernet port
7	4 optiacl fiber port & 1 ethernet port

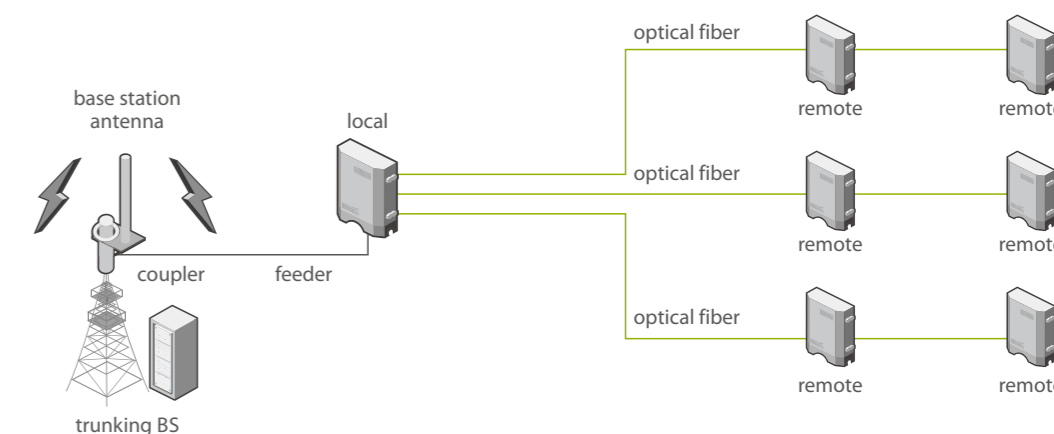
Specifications

Items	Technical parameters	
	Downlink	Uplink
Frequency range	320-400MHz,400-470MHz (5MHz bandwidth)	
Amplifier type	16 channels selective	
Channel bandwidth	25KHz	25KHz
Max output power	37±2dBm	-10±2dBm(coupling directly), 30±2dBm(coupling by air)
Max gain	50±3dB 90±3dB	45±3dB (coupling directly) 85±3dB (coupling by air)
Max input level	10dBm	10dBm
Noise factor	≤5dB(coupling by air)	≤5dB
Time delay	≤35μs	
Spurious emission	Within operating freq. band	≤-15dBm/30kHz
	Out of operating freq. band (2.5MHz deviating from the edge of the working band)	9kHz~1GHz: ≤-36dBm 1GHz~12.75GHz: ≤-30dBm
Inter-modulation attenuation	Within operating freq. band	≤-45dBc@RBW30kHz, 8CH 75kHz carrier spacing
	Out of operating freq. band (2.5MHz deviating from the edge of the working band)	9kHz~1GHz: ≤-36dBm/100kHz 1GHz~12.75GHz: ≤-30dBm

Input/output VSWR	≤1.5
Fiber optical port rate	1.25Gb/s, 2.5Gb/s, 3.02Gb/s, 6.04Gb/s(optional)
RF connector type	N/F, 50Ω
Power consumption	Local unit: ≤30W(coupling directly); ≤100W(coupling by air) Remote unit: ≤100W
Protection	Local unit: IP20 Remote unit: IP65 (including local unit coupling by air)
Power Supply	Local unit/Remote unit: AC 90~264V, 50Hz±5Hz; or DC -60~ -40V
Networking	star type, chain type, ring type, mixed type
Networking	Local monitoring: RS232; Remote monitoring: SNMP; Internal communication: Rs485;
Electromagnetic compatibility	IEC 61000 standard class B
Environment Humidity	Local unit: ≤85%; Remote unit: ≤95%
Environment Humidity	Local unit: -10°C~ +45°C(coupling directly)/-25°C~ +55°C(coupling by air) Remote unit: -25°C~ +55°C
Storage temperature	-40°C~ +85°C
MTBF	≥100000h

Networking diagram

Coupling directly



Coupling by air

