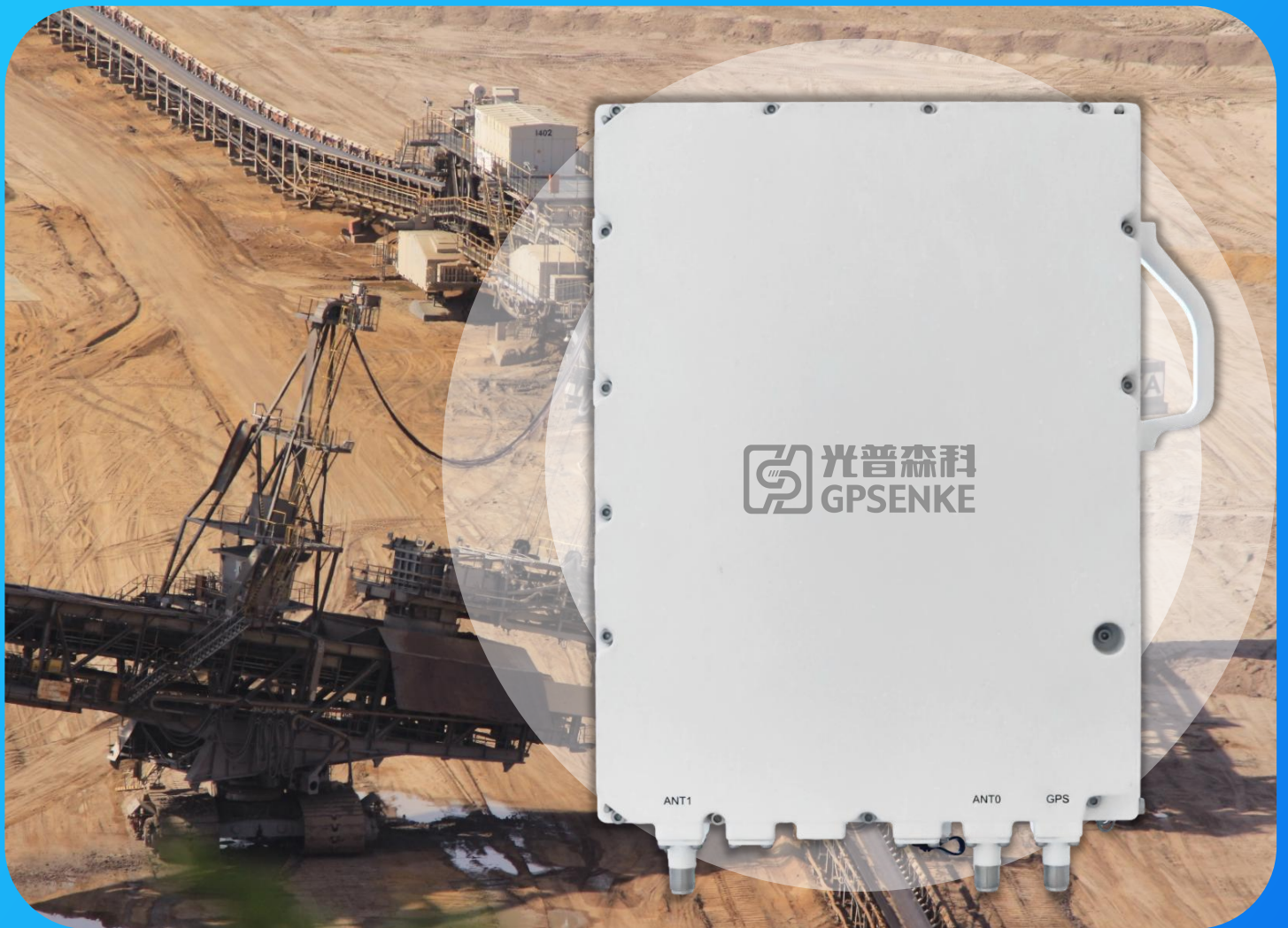# 5G Private Base Station TDD Mode High-Efficiency

GP-PBS5000-TDD Series

Introduction

GP-PBS5000-TDD Series is a high-performance, industrial-grade 5G TDD private base station designed for outdoor deployment. It supports multiple frequency bands and flexible bandwidths (n40, n41, n78), with downlink speeds up to 850 Mbps and uplink up to 660 Mbps. The device integrates high-gain antenna support, GPS sync, IP backhaul, and SON features for plug-and-play deployment.

GP-PBS5000-TDD Series complies with IP65 waterproof and dustproof standards, and is tested for operating temperature, surge protection, voltage input, and vibration resistance. It is ideal for industrial private wireless networks in sectors such as oil & gas, mining, metallurgy, power, transportation, emergency response, and smart industrial parks.

Network Feature

- Support NR FR1 n40, n41, n78 Band
- Follow 3GPP Release15 & Release 16 rules
- Max data rate: 850 Mbps Downlink
- Max data rate: 660 Mbps Uplink
- Up to 1200 connected users
- Support F1 * Deploy
- Support SA Mode
- Support SCTP Control (IKE SCTP)
- Support HaloB

Easy Deployment

- Support external high-gain antennas
- High transmit power for wider coverage
- IP backhaul including public transmission
- GPS synchronization supported
- Low power consumption, reduces OPEX
- SON-based plug-and-play
- Interoperable with standard 5GC

Management & Security

- GUI-based local and remote management
- Compatible with NMS for unified configuration, monitoring, and maintenance
- Supports TR-069 protocol for third-party network management integration
- Enhanced security with advanced authentication to prevent external attacks
- Support remote software upgrades for feature expansion and performance optimization

Technical Parameters

Operating mode	5G NR TDD (3GPP R15 & R16)
TDD uplink/downlink configuration	5ms Period (μ=1): DDDDD + DDSUU 5ms Period (μ=1): DDDDD + SUUUU* 2.5ms Dual Period (μ=1): DDDSU + DDSUU 2.5ms Single Period (μ=1): DDDSU*, DSUUU

Operating frequency band [a]		
	n40 Band	2350MHz–2390MHz
	n41 Band	2515MHz–2615MHz 2590 MHz–2690 MHz 2496-2690MHz
	n78 Band	3400MHz–3500MHz 3500MHz–3600MHz 3700 MHz–3800 MHz

Operating bandwidth	n40：40MHz ； n41：100MHz ；n78：60/70/100MHz
MIMO	DL 2x2 (DL: 2L, UL: 2L)
Security	Wireless: SNOW 3G / AES-128 / ZUC Backhaul: IPsec (X.509 AES-128, AES-256, SHA-128, SHA-256)

Maximum Throughput	100MHz	Downlink	Uplink
	5ms Period (DDDDD+DDSUU, 6:4:4)	850Mbps	230Mbps
	5ms Period (DDDDD+SUUUU, 6:4:4)*	525Mbps	400Mbps
	2.5ms Dual Period (DDDSU+DDSUU, 10:2:2)*	720Mbps	330Mbps
	2.5ms Single Period (DDDSU, 10:2:2)*	850Mbps	230Mbps
	2.5ms Single Period (DSUUU, 10:2:2)	380Mbps	660Mbps

Service Capability	Up to 1200 users
Maximum Coverage Area	5 km (Distance)
Latency	Round-trip Delay (RTD) less than 10 ms
Receiver Sensitivity [b]	-95 dBm (per channel)
Modulation Scheme	Uplink: MCS0 (QPSK) ~ MCS27 (256QAM) Downlink: MCS0 (QPSK) ~ MCS27 (256QAM)
Transmit Power	37 dBm ~ 46 dBm (single channel, total two channels)
Scheduling Method	3GPP Standard 5QI (5G QoS Indicator)
ARQ/HARQ	Support
Synchronization Method	GPS

a: Different models support different frequency bands.
b: Receive sensitivity is measured according to the testing method recommended by 3GPP TS 36.104, based on a 5 MHz bandwidth and receive sensitivity measured for FRC A1-3 in Annex A.1 (QPSK, R=1/3, 25RB) standard
*: Support in upcoming versions.

Hardware Parameters

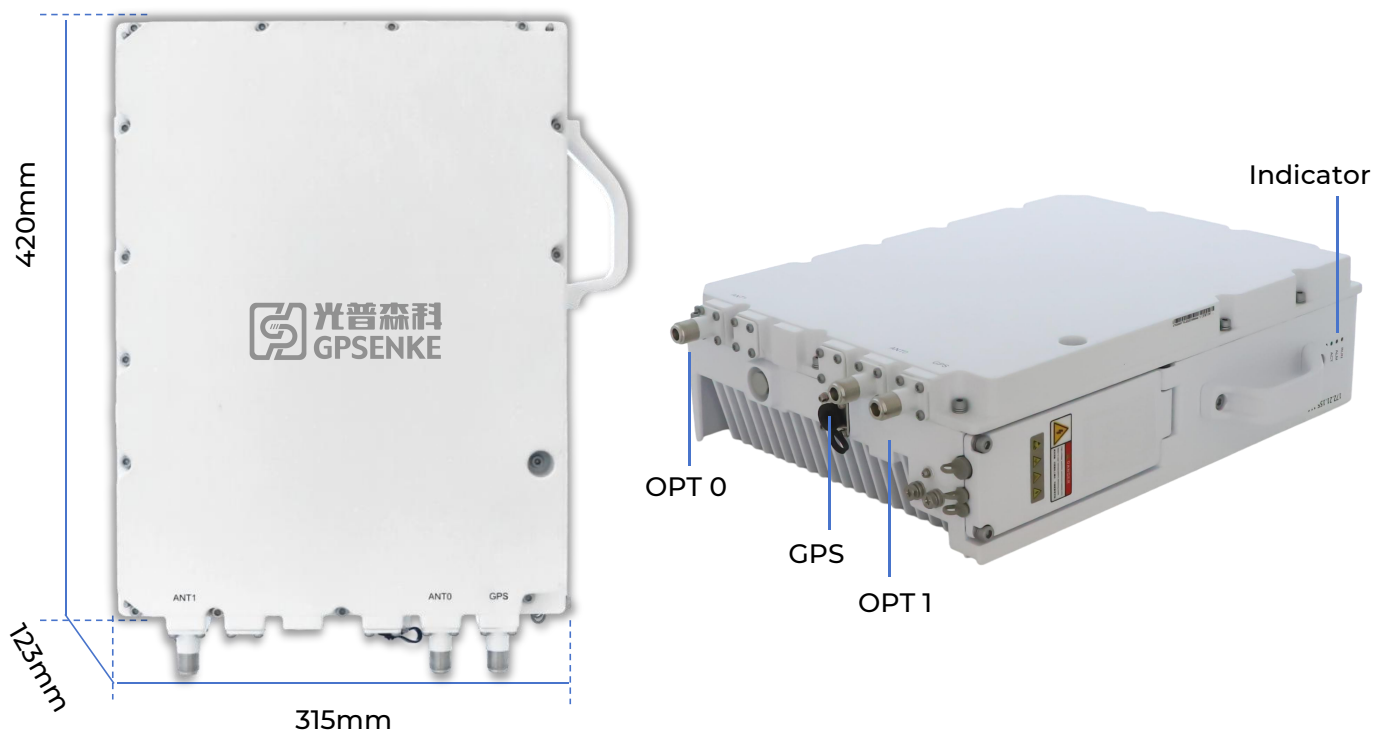|	
Protocol	IPv4/IPv6, UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPs, DHCP
Management	IPv4/IPv6, HTTP/HTTPs, TR-069, SSH, Embedded 5GC
Interface	1*1GE SFP + 1*10G SFP+
VLAN/VxLAN*	802.IQ/VxLAN
RF Antenna	External high-gain antenna (N-Type Port)
GPS Antenna	External GPS Antenna (N-Type Port)
Power Supply	40VDC ~ 57VDC, nominal 48VDC
Power consumption	Max. consumption < 360W
LED indicator	5*LED status indicators: PWR / RUN / ACT / ALM / OPT0 / OPT1
Operating Temperature	-40°C to 55°C
Storage Temperature	-45°C to 70°C
Humidity	Humidity: 0%–95% (non-condensing)
Dimensions	420mm x 315mm x 123mm
Weight	≈ 15.5kg
Installation method	Pole or wall mounting
IP protection rating	IP65
Air pressure	70 kPa ~ 106 kPa
Lightning Protection	Power Port: Differential mode: $\pm$10 kA ; Common mode: $\pm$20 kA
Surge Protection	Power Port: Differential mode: 2 kA ; Common mode: 4 kA
MTBF	≥ 150000 Hour
MTTR	≤ 1 Hour

*: Support in upcoming versions

Link Budget

VSWR	<= 1.5
EIRP	External Antenna Gain=G EIRP = (49+G)dBm/100MHz
Power Control	Uplink Open-loop/Closed-loop Power Control Downlink Power Allocation (3GPP TS 38.213)

Software Parameters

Voice Solution	VoNR/EPS-FB: Voice over New Radio/Evolved Packet System Fallback
Self-Organizing Networks (SON)	Supports ANR and PCI Conflict Detection
Traffic Offloading	Local Offloading
Operation and maintenance	Support Local or Remote Maintenance
	Support Online Status Management
	Support Performance Statistics
	Support Fault Management
	Support Software Upgrade and Rollback
	Support Logging
	Support Connectivity Diagnosis
	Support Auto-start

Appearance & Accessories

420mm

123mm

315mm

Indicator

OPT 0

GPS

OPT 1

ANT1   ANT0   GPS

Packing *1   Device*1   PIN Power cable*1   Accessories*1   Manual*1

Model Selection		
Model	GP-PBS5000-TDD	
Working Band	n78(3400MHz-3500MHz)	Please select the required frequency band!
	n78(3500MHz-3600MHz)	
	n78(3700MHz-3800MHz)	
	n40(2350MHz-2390MHz)	
	n41(2515MHz-2615MHz)	
	n41(2590MHz-2690MHz)	
	1*1GE SFP+1*10GE SFP+	
Antenna	External high-gain antenna	
Power	DC48V	
For other options, please contact GPSENKE!		