Hytera
Respond & Achieve

ACCESSNET®-T IP DIB-R5

Digital Integrated Base Station Series

The DIB-R5 is the latest generation of reliable and powerful base stations by Hytera for ACCESSNET®-T IP TETRA radio systems.
Leading edge TETRA Release 2 and TEDS capability makes the DIB-R5 attractive for all scenarios where availability and high-speed-data capability are a must.

www.hytera.co.uk

Base station

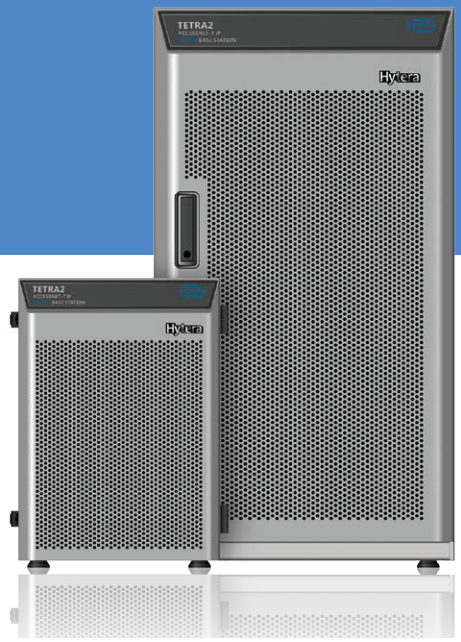
DIB-R5

ACCESSNET®-T IP
Digital Integrated Base Station

Reliable radio coverage is the most important basis for a mission-critical radio system. The DIB-R5 provides top-class radio performance and supports redundant operation without a single point of failure.

The DIB-R5 corresponds to the latest specification for TETRA Release 2 including QAM modulation technologies and the TETRA Enhanced Data Service (TEDS). Not only does this make the base station the perfect solution for the design of a TETRA mobile radio system, but also for integrated high-performance applications.

As part of the ACCESSNET®-T IP radio system, the DIB R5 supports redundant connections to central switching sites. Cost-efficient IP as well as E1 transmission options are available.



TETRA, an advanced and worldwide proven digital trunking radio standard, provides cellular wireless communications for various demanding situations with its powerful voice, dispatching and data transmission functions. As the leading provider of professional wireless communications equipment and a member of the TETRA and Critical Communications Association (TCCA), Hytera offers a series of TETRA infrastructure and terminal products complying to ETSI TETRA open standard.
The TETRA products from Hytera with their innovative applications and functions ensure efficient and reliable communication for customers from all types of industries: public safety, airport operating companies, public transportation, industrial enterprises and public utilities.

TETRA Enhanced Data Service (TEDS) capability

ACCESSNET®-T IP supports integrated voice and data services from the beginning. Many mission-critical data applications have already been realized with ACCESSNET®-T IP. Today, we perceive more demanding data applications requiring higher data throughout. TEDS is our answer to this requirement, and it is fully supported by the DIB-R5 family.
With adaptive QAM multi-carrier modulation, the air interface dynamically adapts to a changing radio environment and uses the available spectrum most efficiently. With a radio channel bandwidth of 50 kHz, a gross bit rate of up to 150 kbit/s and a user data rate of about 80 kbit/s considering overhead and strong error correction are achieved. The DIB-R5 is already prepared for a channel bandwidth of up to 150 kHz to support even higher data rates.
The DIB-R5 Channel Units (transceivers) can be configured to support both TETRA 1 PSK modulation for voice, as well as TETRA 2 QAM modulation for TEDS. This simplifies spare part handling and allows a later upgrade to TEDS.

RF performance

The DIB-R5 supports 3-way receiver (Rx) diversity and the highest sensitivity, to optimise the base stations radio characteristics, and to reduce the number of base stations required to cover a certain area. Different RF distribution system configurations are supported, including motor-tuned cavity combiner allowing remote frequency change. With its high output rating of 25 W PSK, modulated with cavity combiner at the antenna connector, reliable coverage is ensured. Up to four RF carriers are supported in one equipment rack, and up to eight carriers with an equipment rack (for DIB-R5 advanced)

Main features

DIB-R5 advanced

The DIB-R5 advanced base station has a modular and flexible design. The main components are the Channel Units (transceivers), the Base Station Control Unit, the voltage supply and the RF splitting-and-filtering equipment.

Based on capacity requirements, one to four Channel Units can be placed in one equipment rack. A capacity of up to eight carriers can be supported with an extension. All components are easily accessible and can easily be replaced. RF and power-cabling are connected at the top of the equipment rack.

Connection to the switch takes place either by ethernet/IP or over E1. Voltage supply modules with 48 V_{DC} as well as 110 / 203 V_{AC} provide an absolute flexibility to adapt to any existing environment. Furthermore, the base station is designed to withstand an exceptional temperature range of -30 °C to +55 °C for situations where the heating or air conditioning of an operation room is faulty.

DIB-R5 compact

The DIB-R5 compact is a more compact 2-carrier variant with an integrated hybrid combiner. With very small floor space and the ability to fit into a standard 19" equipment rack, installation costs are reduced and transport to a site is simplified.

Reliability

If the DIB-R5 should be isolated from the rest of the network, it still provides most of its features in local fallback operation. Security-related features like authentication and air interface encryption are supported.

Important modules can be configured redundantly and are hot-swappable. Each base station supports transmission link redundancy and can be connected to two switching nodes sites. Sites under heavy load can be equipped with up to four control channels (SCCH) to provide additional capacity for signaling, text messaging or location update.

The DIB-R5 can operate with GPS-/Galileo-/Glonass-based synchronisation, but permanent operation, without satellite-based synchronisation sources, is also supported. This allows reliable operation even in underground areas, or within buildings, without the need for an antenna to receive satellite signal.

Main features

- 25 W TETRA 1/PSK and 10 W TEDS/QAM at the antenna connector
- Transceiver can be programmed to support either TETRA 1/PSK or TEDS/QAM
- Up to 150 kHz RF radio bandwidth for TETRA Enhanced Data Service (TEDS)
- Sophisticated RF distribution system with 3-way diversity
- Motor tuned cavity combiner for DIB-R5 advanced
- Software updates
- Operation without GNSS/GPS with PTP precision time
- Full redundancy option (controller, transceiver, voltage supply)
- Operating temperature range -30 °C to +55 °C
- Supports distributed switching architecture without central nodes
- Fallback operation with complete scope of functions
- All configuration parameters can be set remotely
- Sophisticated jamming detection
- Hot-swap capability for controller and transceiver module

Technical Data

General Properties	
Transmitting power (antenna socket)	44 dBm with π/4-DQPSK modulation 40 dBm with QAM modulation
Reception	Triple diversity
Sensitivity	-119 dBm static (BER 4 %) -113 dBm dynamic (TU50 [TCH 7.2, BER 4 %]) -110 dBm dynamic (Class B) -108 dBm dynamic (Class A) With pi/4DQPSK
Synchronization	GNSS (GPS, Galileo, Glonass) Operation without GNSS is possible using PTP precision time.
Connection to the transport network	IP E1 (optionally)
Digital external alarm inputs and outputs	16 input 4 output
Antenna connector TX	7/16"
Antenna connector RX	3*7/16"
Local network connector	RJ45

Ambient data	
Operating temperature range	-30 °C to +55 °C
Storage temperature range	-40 °C to +70 °C
Relative humidity	5 % to 85 % (non-condensing)

DIB-R5 advanced	
Dimensions (W x H x D)	600 mm x 1200 mm x 600 mm
Weight	maximum 161 kg The weight is dependent on the respective configuration.
Power consumption	1500 W with max. 4 carriers (with 44 dBm at antenna socket)

DIB-R5 compact	
Dimensions (W x H x D)	450 mm x 640 mm x 540 mm
Weight	60 to 80 kg The weight is dependent on the respective configuration.
Power consumption	850 W with max. 2 carriers (with 44 dBm at antenna socket)

Configuration options	
Redundant controller	
Duplexer	TX combining with one of the RX antennas

All technical specifications were tested according to the relevant standards.
Subject to change on the basis of continuous development.

Your Hytera partner:

Further information can be found at:
www.hytera.co.uk

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