Hytera
Respond & Achieve

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Hytera
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Hytera TETRA Series Product Introduction

Hytera, complying with ETSI TETRA open standard, brings you versatile TETRA series products, including portable radio, mobile radio, data modem, base station and various solutions. Hytera responds to your demands for mission critical with the most valuable solution of leading digital technologies, innovative user-oriented product design and complete product portfolio.

TETRA

www.hytera.com

TETRA Overview

TETRA, an advanced and popular digital trunking standard, delivers multiple-base wireless communications for various demanding situations with its powerful dispatching and data transmission functions.

Hytera, as the leading provider of professional wireless communications equipment and a member of TETRA MoU, offers a series of TETRA products complying with ETSI TETRA open standard. Characterized by superior performance, comprehensive solution, novel appearance, user-friendly menu and flexible configuration, Hytera TETRA products provide efficient, reliable communications for industry clients of public security, airport, port and subway etc, with its innovative applications and unique functions.

ACCESSNET®-T IP

DT600

MT680

PT580H PT580

* More about TETRA standard, please visit www.tetramou.com

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What is TETRA?

TETRA (Terrestrial Trunked Radio) is an open standard for digital mobile radio communication defined by ETSI (European Telecommunications Standards Institute). It was developed to meet the needs of the most demanding professional radio users who need fast one to-one and one-to-many radio communication using voice and data in their daily work. TETRA provides a high-end solution for small private systems up to large public networks, while preserving characteristics and advantages of private land mobile radio systems, such as fast call set-up, group calls, and direct mode communication.

TETRA : new level of PMR Technology

TETRA is a highly advanced technical platform providing integrated voice and data services. This combined with outstanding connectivity possibilities set a whole new level in PMR technology.

What does TETRA offer?

1. **Private Network**
   Total network control without depending on operators.
2. **Digital trunking system (cellular)**
   Robust communication. Several options for network coverage redundancy. If a repeater fails, modems roam and the monitoring system is not interrupted.
3. **High spectral efficiency Cost savings**
4. **Network Growth capacity / Possibility of additional services (voice, etc.)**
5. **Data services**
   Availability of different data services to be adapted to communication needs:
   Short Data Messages (SDS) and Status Messages
   Standard Packet Data service (PD)
   Circuit Mode Data (CMD)

* More about TETRA standard, please visit www.tetramou.com or digital.hytera.com.cn/TETRA

Why TETRA?

The main reason for adopting PMR services is its special functions, such as group calls (one-to-many), advanced group configuration, instant communications without call set-up delay and maximum security. Another specialized service is dispatching which helps an organization manage its field operations and related communications. For public safety organizations security is fundamental and requires authentication of the network's users as well as encryption of voice and data communication. For many organizations, being able to control network resources is crucial.

TETRA Technical Characteristics

- High quality and high security in communications;
- Double spectral efficiency;
- Higher data bandwidths (up to 28.8 kbps);
- Multiple real-time data services;
- Half-duplex and full-duplex communications;
- Interoperable with other networks;
- Continuous coverage;
- Emergency calls;
- Fast call setup;
- Simultaneous voice and data;
- Open standard technology: protects investment.

Global Markets

TETRA technology fulfills the requirements of a wide group of PMR users. They are typically public safety and security organizations like police, fire and rescue forces, ambulance services, frontier guards and other professional cellular users like transportation companies, courier services, energy utilities, airports and so on. Most TETRA networks for public safety and security (PSS) users such as police, fire and rescue services are government owned. Other networks are either privately owned or run by network operators who invest in the network and sell communications services to private companies and government agencies.

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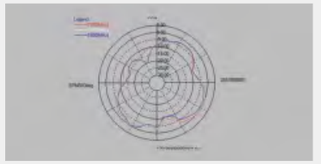
Hytera TETRA Advantages

Innovative Design & Convenient Operation

1 Patented antenna

The radio antenna and GPS antenna are integrated to ensure convenience and better performance.



2 Large-size color display & multilingual UI

The large-size TFT LCD display with multilingual UI delivers you favorable accessibility.

3 Separated knobs

Separated by the antenna, the two knobs of portable radio stand apart from each other, which reduces misoperation when with gloves on or under dim light.

4 User-friendly menu

The menu gives you quick access to all services and functions. Our TETRA products, terminal and mobile, employ the same UI style so that you can learn to operate different models easily.

5 Ergonomic key

The smart body incorporates big keys for ease of use and precise operation.

6 2-in-1 knob

The mobile radio employs a 2-in-1 large knob to adjust the channel and volume quickly.

Reliable quality & Superior performance

1 Rugged and reliable

Compliance with MIL-STD-810 C/D/E/F/G requirements, ensure outstanding performance even under harsh environments.

2 IP67 compliance

PT580H complies with IP67 requirements, withstanding immersion testing (1meter up to 30 minutes).

3 High RF output power for large-area coverage

High RF output power (portable up to 3W, mobile up to 10W) can effectively enlarge signal coverage, including basement and in-door coverage.

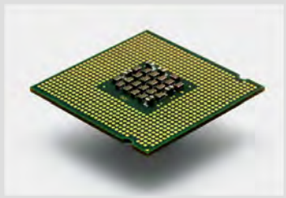
4 High compatibility

Strong network compatibility can accommodate the interconnection requirements of TETRA MoU, and be compatible with systems and terminals of other manufacturers.

Flexibility & Scalability

1 Customized encryption

Besides TETRA standard encryption, advanced encryption tailored to users' demands can also be achieved to ensure communication confidentiality.



2 Further development port

Our TETRA products reserve port for you or any third party to further develop desired functions such as GPS, call control and telemetry.

3 Software upgradable

Authorized dealers can download the Software Upgrade Kit on Hytera official website*; this can help end-users upgrade software and enjoy further features with an ease .

4 Customizable interface

Users can customize the operation interface of portables and mobiles, shielding unnecessary menus to simplify operation and improve efficiency.

ACCESSNET® -T IP

TETRA Infrastructure

ACCESSNET® -T IP is a comprehensive and efficient solution for all professional mobile radio applications.

TETRA Base Station DIB-500 R4.1

- **"Best in Class" radio characteristics**

  Sensitivity – 119 dBm (TOC)
  Tx Output Power max. 50 W
  Up to 8 Carriers (= 32 radio channels)

- **Net-wide and local switching capability**

  Full-featured Fallback Mode guarantees continuing operation when isolated from switch all TETRA security features will not be compromised even when isolated from network

- **Compact design**

  Dimensions (HxWxD): 900x600x600 mm
  Weight max. 100kgs
  Integrated Tx+Rx Filters

- **400 and 800 MHz frequency band**

- **Outstanding power efficiency**

  350 Watt (1 carrier), 550 Watt (2 carrier)

System Controller Node IPN

- **Provides full IP-based TETRA soft-switching functions, applications and gateways**

  Application Interface (A-CAPI)
  PSTN/PBX (SIP, S0, S2m)
  Packet Data interface (IP)
  IBS interface (IP)
  Network Database (Subscriber register)
  Voice and Data Recorder

- **Based on carrier-grade servers (COTS) as one common HW platform**

- **Voltage 110-230 VAC, others on request**

- **Compact Design**

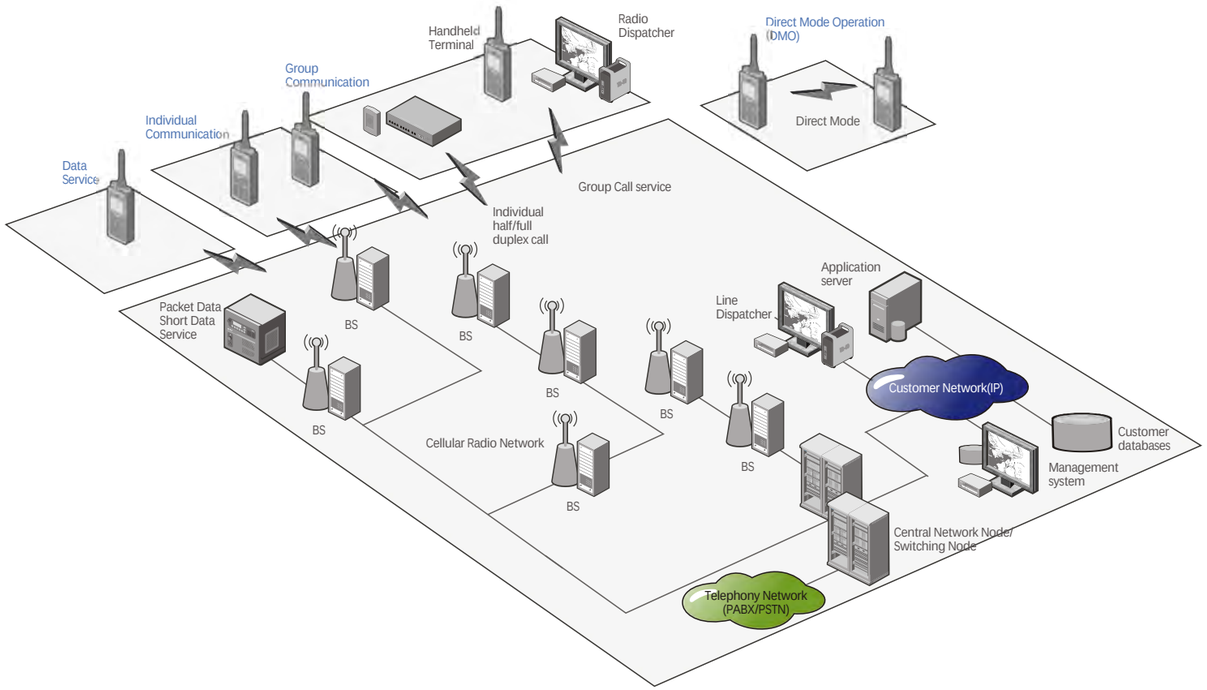
  Dimensions (HxWxD): 900x600x800 mm
  Weight: 100 kg

System Architecture

ACCESSNET®-T IP was developed in compliance with the specifications issued by the European Telecommunications Standards Institute (ETSI) and meets all the requirements of the internationally recognized ETSI TETRA standard.

The ACCESSNET®-T IP TETRA radio system is a highly scalable digital TETRA mobile radio system. It can be used to implement structures ranging from single-cell systems up to nationwide networks. It supports decentralized and centralized network architectures, enabling it to optimally satisfy all user requirements. Besides, it provides unsurpassed system availability based on an elaborate redundancy concept, as well as exceptional robustness.

Networking Topologies ACCESSNET® -T IP



ACCESSNET® -T IP Leading-Edge in TETRA

TETRA Base Station	Services and Features	Network Management	System/Infrasturucture
Highest Sensitivity **-119 dBm** (static, top of Cabinet) **Guaranteed** (not typical value)	Multi-Agency Support with **VPN** (Virtual Private Network)	**Fully integrated NMS** (single-vendor R&S product, TETRA optimized)	Geographically **Distributed Redundancy**
Full-featured Fallback Mode including… ▪ Authentication ▪ Air Interface Encryption ▪ All call services	**Full TETRA Security** options	Graphical, **Tool based network configuration**	**Modular** and **Distributed Switching** with high scalability
Local Gateways and Switching Capability	**Full TETRA Data** options	**Central Repository** for complete network configuration	**E1 or IP** based links
Remote Software and Configuration **Update**	Flexible, **IP based application interface**	**Open SNMP Interfaces** to umbrella Mgmt. and external network elements	High **COTS** content
	Secondary Control Channel for scenarios with high data/signaling load	**Role-based Access Control** to all NMS facilities	**Full IP based** switching architecture (Soft switching)
	Fully Integrated End-to-End Encryption incl. voice recorder and dispatcher		

PT580

TETRA
Portable Radio

Powered by compact body, IP56 compliance, 1.8-inch high resolution color display,1W RF output and clear digital voice, the TETRA portable radio PT580 will refresh your communication experience.

Innovative Design

① **Large-size color display**
PT580 adopts a 1.8-inch high resolution color transflective LCD display (up to 6 lines), allowing good visibility even under sunshine.

② **Ergonomic key**
The smart body incorporates big keys for your comfort and convenience.

③ **IP56 compliance**
Compliant with IP56 requirements, it works well after the direct jet of water.

④ **Display & keyboard protection**
Avoid damage to the display and keyboard while falling, enhancing durability.

⑤ **2-in-1 knob**
Easy channel selection and volume control with one knob.

Other Features

- **Rugged and reliable**
  Compliance with MIL-STD-810 C/D/E/F, ensure outstanding performance even in harsh environments
- **Vibration**
  This feature is helpful in alerting you to reception of any voice or message under noisy or low-volume conditions.
- **Powerful speaker**
  The built-in 1W speaker in PT580 generates loud and clear voice even under noisy environment.
- **Reversible screen**
  When the radio is belted on the waist, you can read the screen just by reversing the screen instead of reversing the whole radio.
- **Man down**
  An alarm will be triggered when the radio is down or positioned aslant for a preset time period, improving user safety.

PT580H

TETRA
Portable Radio

Distinguished by IP67 compliance, 1.8-inch high resolution color display, 3W RF output, clear digital voice, man down and GPS positioning, the TETRA portable radio PT580H will enrich your communication experience.

*Launch adjustable power

Innovative Design

① **Patented antenna**
The radio antenna and GPS antenna are integrated to ensure convenience and better performance.

② **Separated knob design**
Separated by the antenna, the two knobs of portable radio stand apart from each other, which reduces misoperation when with gloves on or under dim light.

③ **Large-size color display**
PT580H adopts a 1.8-inch high resolution color transflective LCD display (up to 6 lines), allowing good visibility even under sunshine

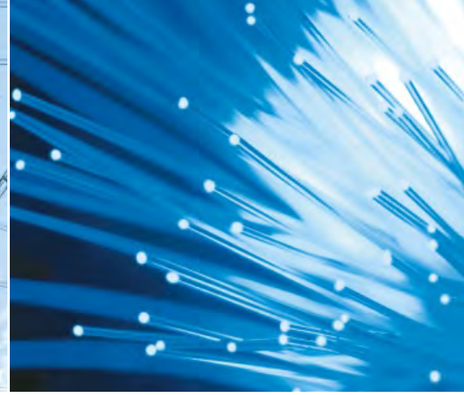
④ **Ergonomic key**
The smart body incorporates big keys for your comfort and convenience.

⑤ **IP67 compliance**
Compliant with IP67 requirements, withstanding immersion testing (1meter up to 30 minutes)

⑥ **Display & keyboard protection**
Avoid damage to the display and keyboard while falling, enhancing durability.

Other Features

- **Rugged and reliable**
  Compliance with MIL-STD-810 C/D/E/F/G, ensure outstanding performance even under harsh environments.
- **High RF output power**
  PT580H gets a RF output power up to 3W*; effectively enlarges signal coverage, including basement and in-door area.
- **GPS positioning**
  The built-in GPS port supports GPS message transmission, GPS positioning and visualized dispatching.
- **Man down**
  An alarm will be triggered when the radio is down or positioned aslant for a preset time period, improving user safety.
- **Vibration**
  This feature is helpful in alerting you to reception of any voice or message under noisy or low-volume conditions.
- **Powerful speaker**
  The built-in 1W speaker in PT580H generates loud and clear voice even in noisy environment.
- **Reversible screen**
  When the radio is belted on the waist, you can read the screen just by reversing the screen instead of reversing the whole radio.
- **Programmable keys**
  Quick access to functions by 20 programmable keys.
- **High compatibility**
  Meet IOP requirements of TETRA MOU, Hytera TETRA products can be compatible with equipments of other vendors and have accomplished IOTs.
- **Upgradable software**
  Software upgrade packages could be downloaded from Hytera website to let you enjoy the latest features in time.
- **Further development**
  Reserve ports for you and any third party to further develop desired functions.



MT680

TETRA
Mobile Radio

10W RF output power, easy operation, flexible installation, front panel compliant with Ip67*, and built-in powerful speaker; Hytera TETRA mobile radio offers you real-time communications and dispatching for mission critical.

Innovative Design

① **Large-size color display**

MT680 adopts a 2.8-inch 260K color TFT LCD display (up to 6 lines), allowing good visibility even under sunshine.

② **2-in-1 knob**

Easy channel selection and volume control with one knob .

③ **Knob whitening ring**

The channel/volume knob can also work as a status indicator.

④ **Reliable handheld microphone port**

The reliable handheld microphone port is compliant with military requirements, ensuring communication consistency.

⑤ **Programmable keys**

20 programmable keys available for shortcut access to facilitate your operation.

20 programmable keys

Flexible installation

⑥ **Flexible installation**

MT680 allows much installation flexibility. You may integrate the front panel with the main unit, or install it separately. The front panel is IP67 compliant.

⑦ **Ergonomic key**

The smart body incorporates big keys for your comfort and convenience.

Other Features

- **Rugged and reliable**

  Compliance with MIL-STD-810 C/D/E/F/G, and passing of HALT (Highly Accelerated Life Test), ensure outstanding performance even under harsh environments.

- **High RF output power**

  MT680 gets a RF output power up to 10W, effectively enlarging signal coverage.

- **GPS**

  The built-in GPS port supports GPS message sending, positioning and visualized dispatching.

- **Built-in 4W powerful speakers**

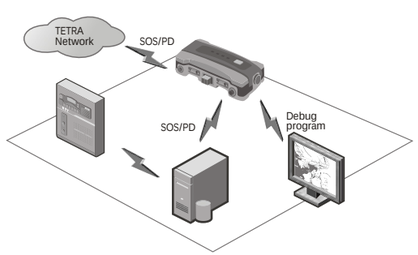
  No external speakers, saving installation space as well as cost.

*The front panel in compliant with IP67 when installed separately.

DT600

TETRA
Data Modem

Powered by professional modular design, 3W RF output power and rich application interfaces, Hytera TETRA data modem provides efficient and reliable data acquisition and remote monitoring for professional users in electricity, water industry hydraulic engineering, and oil pipeline etc.



Main Interface

① **Dat (DATA) indicator**

② **Reg (Register) indicator**

③ **GPS working indicator**

④ **Power indicator**

⑤ **ON/OFF button**

⑥ **GPS antenna interface**

⑦ **PEI interface**

⑧ **Power interface**

⑨ **Debugging interface**

⑩ **TETRA antenna interface**

Main Features

- **3W RF output power**
- **Compact body & flexible installation**
- **Status indicator**
- **Standard PEI interface**
- **Supporting PPP/AT**
- **DNP3, IEC101**
- **Built-in GPS port**
- **User-friendly PC interface**
- **SDS Messages**
- **Packet data/Services**

PBT580H

Transceiver Board

PBT580H is the transceiver board which is modified from PT580H subscriber hardware platform. Proven in PT580H series portable radio, PBT580H provides a highly flexible and customizable TETRA transceiver board to meet the requirements for 3rd party solution providers.

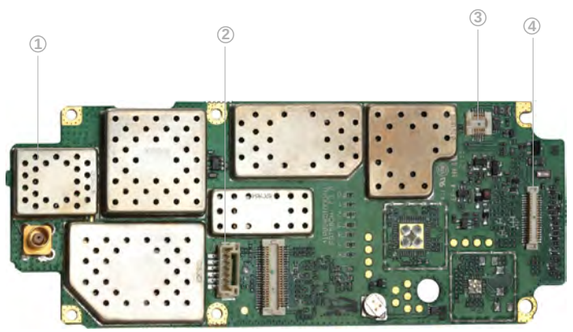
Main Interface

① **Antenna connector**
The antenna connector is a 50Ω impedance-matching female MCX connector. It is the combined TETRA+GPS port.

② **Power supply**
The power supply connector is using 6-pin board-to-wire connector. The power input cable with fuse-protected and high voltage protected is commended.

③ **SIM connector**
The SIM Connector is using 10pins board-to-board connector. It provides interfaces to the external SIM Card slot for E2EE encryption purpose.

④ **AT/Data & I/O interface**
The AT/Data & I/O connector is using 40-pins board-to-board connector. AT Commands can be used to manage and control the functionality of the PBT580H. PBT580H is using combined interface for AT Command and Data transmission, only one mode could be operated at one time. External switch to separate individual interface could be implemented in 3rd party development. PBT580H is equipped with 6 programmable I/O lines that can be configured and controlled using AT Command and SDS.



Specification

- **Operating voltage**
  7.4V±15%connector. It is the combined TETRA+GPS port.
- **Operating temperature**
  -25℃ to +65℃
- **Storage temperature**
  -40℃ to +85℃
- **Humidity**
  ≤95%
- **Safety**
  EN 60950-1
- **EMC**
  EN-301-489
- **Dimension**
  119mm x 46mm x 10mm

Accessories contents

Hytera also provides a full line of professional accessories (such as audio accessory, battery, charger and carrying accessory*) to deliver an optimal communication experience.

For Portable Radio*

Battery

BL1805	Li-ion Battery (1800mAh) (Standard Accessory) (PT580)
BL1806	Li-ion Battery (1800mAh) (Standard Accessory) (PT580H)
BL3201	Li-ion Battery (3200mAh) (PT580)


BL1806

Charger Accessory

CH10L13	Dual Pocket MCU Charger (Standard Accessory) (PT580)
CH10A04	MCU Rapid-rate Charger (Standard Accessory) (PT580H)
MCA05	Battery Optimizing System (PT580H)
MCA06	MCU Multi-unit Rapid-rate Charger (PT580H)


CH10A04

Carrying Accessory

RO04	Leather Strap (Standard Accessory)
BC17	Spring Belt Clip (Standard Accessory) (PT580)
BC08	Spring Belt Clip (Standard Accessory) (PT580H)
LCY002	Carrying Case (Thin Battery) (Leather) (Swivel) (PT580)
LCY003	Carrying Case (Thick Battery) (Leather) (Swivel)


LCY003 Carrying Case

Antenna

GPS dual-frequency antenna
350-400MHz/1575MHz
380-430MHz/1575MHz
410-430MHz/1575MHz
450-470MHz/1575MHz
806-870MHz/1575MHz


Combination GPS/UHF Antenna

* Unless exceptional notification, accessories applicable for PT580H and PT580

Audio Accessory

EHN12	D-earset with on-MIC PTT
ESN10	Earbud with on-MIC PTT
EAN16	Earpiece with On-MIC PTT & Transparent Acoustic Tube
EAN17	3-wire Surveillance Earpiece with Transparent Acoustic Tube (Beige)
EAN18	3-wire Surveillance Earpiece with Transparent Acoustic Tube(Black)
SM18N1	Waterproof Remote Speaker Microphone (IP57) (PT580)
SM18N3	Waterproof Remote Speaker Microphone (IP57) (PT580H)
ESS07	Receive-Only Earbud (for use with remote speaker microphone)
ESS08	Receive-Only Earpiece with Transparent Acoustic Tube (for use with remote speaker microphone)


ESS07


ESS08


EAN16


EAN17


EHN12


SM18N3

Power Source

PS1014	US-standard Switching Power Adapter
PS1016	UK-standard Switching Power Adapter
PS1017	AU-standard Switching Power Adapter
PS1018	EU-standard Switching Power Adapter
PS1025	KR-standard Switching Power Adapter
PS1027	JP-standard Switching Power Adapter
CHV09	Vehicle Adapter for charger, (Output:12V 1A)


MCA05


PS1018


PC36

Data Cablet

PC36	Programming Cable (USB to Serial Port)

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For Data Modem

Antenna

AN0390M02	UHF/380-400MHz, TQC-400FC3 dBi BNC-M Connector, M110 Cupule
GPSO4	MOBILE GPS Antenna, SMA, 1575MHz

Mounting Accessories

BRK10	Mounting Bracket

Power Accessory

PS22002	Power Supply for Mobile Radio (300W, Backup Power Supply applicable)
PWC10	Vehicle Power Cord (>15A)

Maintenance Kit

PC41	Data Cable (USB to DB9 Female Connector)
PC42	Data Cable (USB to DB9 Male Connector)


Ps22002


SM10A1

For Mobile Terminal

Antenna

AN0390M01	UHF/380-400MHz,TQC-400FC3.5dBi BNC-M Connector,M110 Cupule/
GPSO4	MOBILE GPS Antenna, SMA, 1575MHZ

Audio Accessory

SM16A1	Palm Microphone (Standard Accessory)
SM10A1	Desktop Microphone
SM09D1	External Speaker

Power Source

PS22002	Power Supply for Mobile Radio (300W,Backup Power Supply applicable)
PWC10	Vehicle Power Cord (>15A) (Standard Accessory)
POA33	Tube Fuse 32VAC-15A (Standard Accessory)

Vehicle mounting Accessories

BRK11	Mounting Bracket
SM07	Palm microphone hanger

Maintenance Kit

PC35	10pin-connector Programming Cable (USB to Serial por)
PC39	DB26-connector Data Cable (USB to Serial port)


AN0390M01


SM09D1


SM16A1


GPS


PC39

ACCESSNET®-T IP DIB 500 R4.1		
Specifications in brief		
Frequency ranges	Frequency Bands	RX/TX: 380 MHz to 486 MHz RX: 806 MHz to 876 MHz TX: 851 MHz to 921 MHz (others on request)
Characteristics	Receiver sensitivity [*1]	
	Static (4 % BER with TCH7.2)	– 119dBm
	Dynamic (4 % BER with TCH7.2 and TU50)	– 113dBm
	Dynamic (in line with EN 300 392-2 class A)	– 108dBm
	Dynamic (in line with EN 300 392-2 class B)	– 110dBm
	Output power at transmitter output	50W
	Maximum RF output power(after antenna coupling network)	25W [*2]
	Diversity reception	dual as standard
	Operating mode	duplex
	Antenna configuration	RX/TX
		RX/TX + RX
		2 x RX/TX (high-power version)
	Antenna coupling network	hybrid combiner
		cavity combiner (with additional components)
		high-power version with 2 duplexers
Radio capacity	Maximum number of TETRA carriers	8
	Maximum number of communications channels	31

ACCESSNET®-T IP DIB 500 R4.1		
General data		
Ambient conditions (in line with EN 300019-1-3, class 3.1)	Operating temperature range	+5 °C to +45 °C
	Storage temperature range	- 40°C to +70°C
	Relative humidity	5 % to 85 % (non-condensing)
	Power supply	48 V DC (nominal)
		110 V AC (optional)
		230 V AC (optional)
	Power consumption	550 W (two carriers)
		1100 W (four carriers)
	Cooling	integrated active fans
	Degree of protection	IP 40
Features	Interfaces	E1, Ethernet LAN, GPS signal, external alarm contacts
	Local and remote access	configuration of base station
		software upgrades
		management of internal and external alarms
		network management access
	Internal redundancy of base station	full-featured fallback mode in case of interconnecting network failure
	Synchronization	GPS
	Additional components	uninterruptible power supply (UPS)
		AC power supply unit (PSU)
		additional remote monitoring system (RMS)
	Dimensions (W x H x D) [*3]	600 mm x 910 mm x 600 mm (23.6 in x 35.8 in x 23.6 in), 18 height units
	Weight [*3]	max. 100 kg (220.5 lb)

Ordering information	
Designation	Type
Digital Indoor Base Station	ACCESSNET®-T IP DIB-500 R4.1-x [*4]

[*1] Sensitivity after antenna coupling network without diversity reception.
[*2] With two duplexers.
[*3] With four TETRA carriers.
[*4] Number of TETRA carriers in an ACCESSNET®-T IP DIB-500 R4.1 base station.

		Transceiver Board	Portable Radio		Mobile Radio	Data Modem
		PBT580H	PT580	PT580H	MT680	DT600
General Specifications	Frequency Bands	380-430MHz	806-870MHz	350-400MHz 380-430MHz 410-470MHz 806-870MHz	350-400MHz 380-430MHz 410-470MHz 806-870MHz	380-430MHz 410-470MHz
	Dimensions (HxWxD)	119 × 46 × 10mm	125 x 53.5 x 32mm	127.5 x 54.5 x 35.5mm	70 x 184 x 201mm	194 x 133 x 46mm
	Weight	40g	265g (with battery and antenna)	348g (with battery and antenna)	1900g	<980g (with GPS receiver)
	Battery	–	1800mAh Li-Ion battery	1800mAh Li-Ion battery	–	–
	Battery Life (5/5/90 Duty Cycle)	–	>10hours	>16hours	–	–
	Operating Voltage	7.4V	3.7V	7.4V	10.8V-15.6V (Typical values 13.2V)	10.8V-15.6V (Typical values 13.2V)
User Interface	LCD Color Display	–	1.8inch, 160*128pixels, 65536colors	1.8inch, 160*128pixels, 65536colors	2.8inch, 320*240pixels, 260K colors	–
	Talk Groups - TMO	–	2048	2048	2048	–
	Talk Groups - DMO	–	1024	1024	1024	–
	Phonebook	–	512	512	512	–
	Missed Calls	–	20	20	20	–
	Received Calls	–	20	20	20	–
	Dialed Calls	–	20	20	20	–
	Inbox	–	50	50	50	–
	Outbox	–	20	20	20	–
	Drafts	–	10	10	10	–
	Scan Lists	–	64 (200 groups in each list)	64 (200 groups in each list)	64 (200 groups in each list)	–
RF Specifications	RF Channel Bandwidth	25KHz	25KHz	25KHz	25KHz	25KHz
	RF Power Output	3W	1W	3W	10W	3W
	RF Power Level Accuracy	±2dB	±2dB	±2dB	±2dB	±2dB
	Receiver Class	ETSI EN 392-2/396-2 Class A				
	RX Static Sensitivity	-112dBm (typical -116dBm)				
	RX Dynamic Sensitivity	-103dBm (typical -105dBm)				
	Maximum Audio Power Output	–	1.5W	1W	4W (internal) 10W (external)	–
GPS Specifications	Sensitivity	⩽-138dBm acquisition sensitivity	–	⩽-138dBm acquisition sensitivity	⩽-138dBm acquisition sensitivity	⩽-138dBm acquisition sensitivity
		⩽-154dBm tracking sensitivity	–	⩽-154dBm tracking sensitivity	⩽-154dBm tracking sensitivity	⩽-154dBm tracking sensitivity
	Accuracy	⩽10m	–	⩽10m	⩽10m	
	Cold Start (Time to First Fix)	<50s	–	<50s	<50s	<50s
	Hot Start (Time to First Fix)	<10s	–	<10s	<10s	<10s
Environmental	Operating Temperature	-25℃ ~ +65℃	-25℃ ~ +65℃	-25℃ ~ +65℃	-25℃ ~ +65℃	-30℃ ~ +70℃
	Storage Temperature	-40℃ ~ +85℃	-40℃ ~ +85℃	-40℃ ~ +85℃	-40℃ ~ +85℃	-40℃ ~ +85℃
	Humidity	ETS 300 019 (95%)	ETS 300 019 (95%)	ETS 300 019 (95%)	ETS 300 019 (95%)	0%~100%
	Water and Dust Protection	–	IEC60529, IP56	IEC60529, IP67	IP54 (main unit) IP67 (front panel) IEC60529 or GB-4208-93	IEC60529， IP54
	Drop, Shock & Vibration	–	MIL-STD- 810C/D/E/ F	MIL-STD- 810C/D/E/ F/G		

All Specifications are subject to change without notice due to continuous development.
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