UNIMO

PT-1500GD

TETRA Handportable
USER Guide

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1   INTRODUCTION

With this manual, you will quickly discover how easy it is to use the main functions of your handheld terminal.

Before using the handheld terminal, read carefully this manual. In addition to the instructions for how to use the handheld terminal, you will also find important information on using it safely. Keep the manual for future reference. For any additional information, consult your supplier.

Some functions described in this guide may depend on the configuration and options of the handheld terminal, as well as the firmware version. Please, contact your service provider for more detailed information about the available features of your handheld terminal.

2   SAFETY & WARNINGS

2.1   General

Do not use the terminal without the antenna. To guarantee the safety requirements, always use antennas validated by UNIMO.

UNIMO has approved a range of accessories for the handheld terminal: antennas, batteries, chargers, audio accessories, etc. These accessories have passed all types of tests that ensure their suitability and safety for the use for which they are intended. Use only UNIMO approved accessories.

For your safety, only allow UNIMO qualified staff to repair the terminal or its accessories. If the installation or repair is not correct, it may be dangerous and may void the guarantee of the terminal.

The handheld terminal is functional between -20ºC to +55ºC (-4ºF and +131ºF).

Unapproved modifications or changes to this equipment may cause harmful interference unless the modifications are expressly approved by UNIMO. In this case, the user could lose the authority to operate with this equipment.

2.2   Electromagnetic compatibility

The majority of electronic devices are susceptible to electromagnetic interference if they are not adequately shielded, designed or configured for electromagnetic compatibility.

To avoid these compatibility conflicts, respect the current regulations of the area you are in, and turn off the terminal whenever its use is prohibited, when it may cause interference or be hazardous, for example, at hospitals or health care premises, where equipment sensitive to external RF radiation may be being used.

Aircraft

Follow all existing restrictions, according to the regulations of the airlines or the instructions of the crew

Pacemakers

Pacemaker manufacturers recommend keeping a minimum safety distance of 15 cm between a portable radio terminal and a pacemaker, to avoid possible interferences with the latter. People with pacemakers should:

When switched on, always keep the terminal more than 15 cm away from the pacemaker.

Not carry the terminal in your breast pocket.

Use the terminal with the ear on t he opposite side to the pacemaker to minimize possible interference.

Turn off the terminal immediately if, for any reason, you suspect it is causing interference.

Hearing aids or other medical devices

Some digital mobile devices may interfere with these appliances. If this interference occurs, contact your service supplier or the manufacturer of the hearing aid or medical device.

3   WARNINGS

Do not allow metallic objects contact or short-circuit the battery's terminals. Avoid placing it on metallic surfaces or putting it into a pocket, bag or recipient with metallic elements.

The RF signals may affect the electronic systems of motor vehicles that are not well installed or protected, for example, electronic injection systems, electronic anti-locking brake systems (ABS), speed control systems or airbag systems. For further information, verify these aspects of your vehicle, or equipment that has been added, with the corresponding manufacturers.

Do not place the terminal in the area above the airbag or in the area where it would inflate. Airbags inflate with great force and the terminal may be thrown, causing serious injury to the occupants of the vehicle.

Potentially explosive environments

Disconnect the terminal when it is in an area where explosions may occur and obey all signs and instructions.

The areas where explosions may occur are usually, but not always, marked. These areas

include fuel loading areas, such as ship decks, petrol stations, premises for storage and transport of motor fuel or chemical products, vehicles that use liquid gas petroleum and areas where the air contains chemical particles or elements, as grain, powder or metallic particles. Sparks in these areas may cause explosions or fire, with the subsequent risk of injury or even death.

⚠️ Check the laws and r egulations about the use of mobile telephones and radiotelephones in the area where you are driving and always respect them. While driving, pay full attention, and always keep your hands free for operating the vehicle.

As measure of caution, whenever possible, park off the road before making or answering a call.

⚠️ Acoustic shock

The terminal has a high power speaker for calls. Do not keep the terminal near to your ear for calls, otherwise it may damage your ear.

⚠️ Outdoor use

UNIMO guarantees that the equipment features an IP67 degree of protection when it is completely sealed and has all the protective gaskets on the different connectors, as it is first supplied by UNIMO. To comply with this degree of protection it is also necessary that the battery is inserted in the equipment.

⚠️ Use under severe conditions

Under aggressive environments (heavy rain, excess of humidity, chemical substances, dusty environments,…) or if any of the terminal gaskets is taken off or lost, additional protections are needed. In this case it is recommended to protect the terminal

with covers. To make this protection level is also necessary that the terminal will put your battery and antenna.

Programming

The equipment must always be programmed using a programmer release compatible with its firmware.

RF Exposure Compliance and Control Guidelines and Operating Instructions
To control your exposure and ensure compliance with the occupational/controlled environment exposure limits always adhere to the following procedures.

Guidelines:
• Do not remove the RF Exposure Label from the device.
• User awareness instructions should accompany device when transferred to other users.
• Do not use this device if the operational requirements described herein are not met.

Operating Instructions:
• Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. Transmitting 50 % of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance).

• Hold the radio in a vertical position in front of face with the microphone (and the other parts of the radio, including the antenna) at least one inch (2.5 cm) away from the nose.
Keeping the radio at the proper distance is important because RF exposures decrease with distance from the antenna. Antenna should be kept away from eyes.

• When worn on the body, always place the radio in a Hytera's approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of Hytera's or other manufacturer's non-approved accessories may result in exposure levels, which exceed the FCC's occupational/controlled environment RF exposure limits.

• Use only manufacturer's name approved supplied or replacement antennas, batteries, and accessories. Use of non-manufacturer-name approved antennas, batteries, and accessories may exceed the FCC RF exposure guidelines.

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4   FIRST STEP

4.1   Antenna

(1)   Turn the antenna clockwise into the antenna connector of the handheld terminal, until it is suitably secured. Do not force the thread of the connector.

(2)   To remove the antenna, turn it counter-clockwise.

(3)   Antenna model name (P/N) : 02015041-06340

Antenna type : Whip Antenna   Frequency Band : 806 - 870 MHz

Max Gain(dBi) : 0 dBi

4.2   Battery

4.2.1 Inserting the Battery

(1)   Insert the battery as shown in the figure. Press and slide the battery fully upper side of the handheld terminal until the battery release latch clicks into place.

(2)   To remove the battery, press down the battery release latch and slide the battery down side of the handheld terminal.
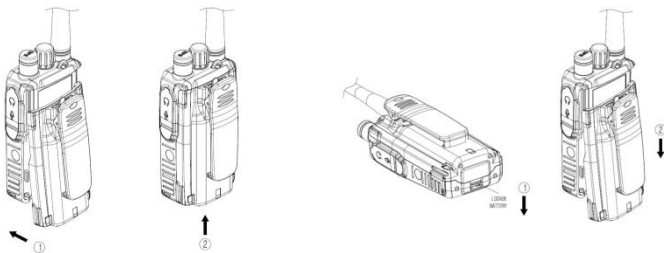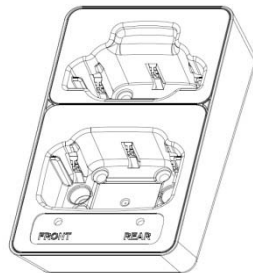
4.3　Charging the Battery Packs

(1) New batteries, or batteries that have been stored for a long time period, should be fully charged before placing into service.

(2) Low battery voltage will shorten the talk range and will worsen the performance of the handheld terminal.

4.3.1 Warnings

(1) Only use the battery charger provided by UNIMO.

(2) The battery can be charged separately or while connected to the terminal.

(3) Before starting to use your terminal, make sure the battery is fully charged.

4.3.2 Charger

(1) The desktop charger, as seen in figure can simultaneously charge a detached battery and a terminal.

(2) Charger used with battery packs must be supplied by UNIMO. The use of any other type of battery packs or chargers will invalidate the guarantee and can lead to early breakdown

4.3.3 Procedure for charging the battery

(1)   Get the AC-DC adaptor to plug its input into mains outlet and its output into charger.
(2)   When charging the battery installed in the handheld terminal, insert the set into slot of the charger after powering off the handheld terminal.
(3)   When charging the battery alone, insert it into slot of the charger.
(4)   Although the green LED is lighted up, please continue the charging for 30 minutes more for the complete full charge.

Indicative Light

| LED indications on the desktop charger		
	OFF	Standby, No Battery
	Red, continuous	Detecting battery / Fast charging
	Green, continuous	Charge completed
	Orange, continuous	Standby to charging for Rear port
	Orange, Blinking	Temperature out of range
	Red, Blinking	Error condition

Indications on the handheld terminal:

When the battery requires charging, the battery status icon 🔋 will blink on the display and the handheld terminal will generate a sound.

4.4   Start-up procedure

(1)   Press and hold for a few seconds the F4 function key to turn ON the handheld terminal.

(2)   While the terminal starts up, it will show a welcome message. A beep sound confirms that the booting process has completed.

(3)   There are two operating modes, network mode (TMO) and direct mode (DMO), depending on how the handheld terminal is configured. In network mode, the terminal will be operative when it has successfully registered on the system.

(4)   When the registration process is finished and the terminal is ready to work on the network. The signal strength icons 📶 will be displayed. And "Group name" will be appeared on the LCD screen. Also you can also hear a characteristic tone.

(5)   If the terminal is configured to start up in direct mode, after startup, the direct mode icon will be displayed on the main screen.

(6)   To turn OFF the handheld terminal, press and hold for a few seconds the F4 function key. A beep sound confirms that turning off is in process.

5   BASIC USE OF THE TERMINAL
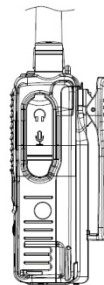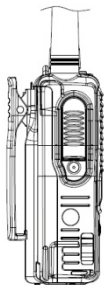
5.1 Controls

No.	Description	Observations
1	Rotary knob	This allows you to set the audio volume to the desired level. To increase audio sounds, turn the 'Volume' knob clockwise. To decrease the audio sounds, turn the knob counter clockwise.
2	Emergency button	Hold it down for a few seconds to make a priority call to the preset destination.
3	Indicator Light	Color LED with various associated functions.
4	GPS antenna	GPS antenna (Option)
5	PTT	Press to talk button. Press it down to make a Group call.
6	Mode	This allows you to turn On and Off the backlight on the LCD screen.
7	Auxiliary connector	This connector for programming or special function(debugging)
8	Speaker	Speaker for simplex calls
9	Microphone	Microphone for simplex calls
10	Screen	Mono display LCD and 14 characters cab be displayed.
11	Function buttons	F1, F2, F3, F4 These buttons will be used for dedicated function or additional

		function which can be programmed. Normally, 'F1' button acts as UP button, 'F2' button act as DOWN button, 'F3' button act as MENU/Select button and 'F4' button act as cancel button.
		'F4' button also act as the On/Off button. Press the 'F4' button for 2 or 3 seconds to turn the terminal on / off.
12	Audio accessory connector	Side connector to connect Speaker/Micro accessory. And it also can be used for programming with special programming cable.

5.2   Screen indicator

The screen indicators show information about terminal operation.

Symbol	Description
Yıll	Level of coverage
DM	Direct mode (DMO)
⚠	Emergency Call
☄	GPS module state
	Flashing: GPS module is synchronizing and still does not have position information
	Constant: GPS active and obtained connection with satellites
🎧	Audio accessory is connected.

✉	New message in inbox.
🔔	Enable alert tones (Key tone, PTT tone, Incoming call tone and etc)
🔒	Locked key button without PTT button
🔋	Battery status, High / medium / Low level. When the battery is flat and requires charging immediately, the icon will be flashed.

5.3   Light indicator

The indicator light provides additional information about terminal operations.

LED state	Descriptions
Green / flashing	On standby and registered on the system
Red / flashing	On standby and out of service
Red / constant	Transmission
Green / constant	Receiving
Green / fast flashing	Standby, call active but nobody transmitting

5.4 Main screen

The main screen is the 'Voice call – Group mode' screen. The terminal is ready for you to press PTT and make a c all directly to the selected group which is displayed on the LCD screen.

As it showed in the following figure, the basic information displayed on the screen consists of the service status or selected group belongs to the name of group and its status.
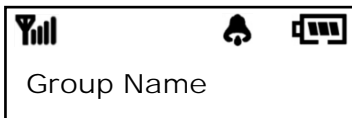
6   MAIN MENU

The terminal has a main menu and sub-menu system accessible using the MEMU button (F3).
Press hold the F3 button then the main menu will be displayed on the LCD screen. You use
the F1, F2 buttons to move next menu items. When you press the F3 button, it starts from sub-
menu.

When you press the F4 button then the menu will be moved to prior stage.

Below you can see a diagram with the menu structure.

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Menu	MODE	Mode TMO	TMO/DMO		
	GROUP	Scanning On	On/Off		
		Select Folder	Folder name	On/Off	
	MESSAGE	Inbox[0/100]	R:Message	Delete?	Yes/No
			Delete All?	Yes/No	
	SCREEN	LCD Cont. 5	On/Off		
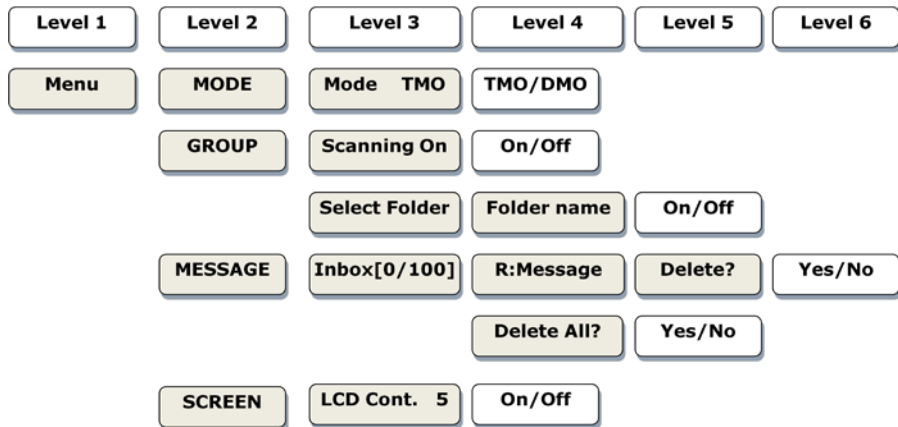
TONES	Alert Tone On	On/Off
	Key Tone On	On/Off
	PTT Tone On	On/Off
	All Tones On	On/Off
GPS	GPS Set. On	On/Off
	Loc Info	Lat./Lng.
LANGUAGE	Language Eng	ENG/KOR
BlackOut Mode	BlackOut Off	On/Off

Note: How to change on level 4

When you press F3 button on level-3 menu then the selected screen is displayed including a selected menu name. You use the F1, F2 button to change level-4.

For example, you want to change blackout mode;

(1) Press hold the F3 button, the MODE is displayed. (1st menu name on level 2)

```
Yul        ♣  ▥
MODE
```

(2) You use a F1, F2 button to move the "BlackOut Mode".

```
Yul        ♣  ▥
BlackOut Mode
```

(3) Press the F3 button, current setting status is displayed.

```
Yul        ♣  ▥
BlackOut Off
```

(4) Press the F3 button, the following screen is displayed and "Off" character is flashed. You use the F1, F2 button to change "On" / "Off".

```
Yul        ♣  ▥
BlackOut?Off
```

```
Yul        ♣  ▥
BlackOut?On
```
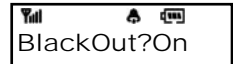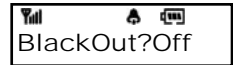
(5) When "On" is flashing, you press the F3 button. Then the Blackout mode is changed and "BlackOut On" is displayed.

```
Yul        ♣  ▥
BlackOut ON
```

7   BASIC FUNCTIONS

7.1   Group calls

Group calls allow you to communicate with a group of users who have the option to participate in the communication enabled, by attaching the groups into the network.

The groups are organized into folders. Each folder may have a variety of groups, the group distribution is programmed.

The name of the group you have selected appears on the LCD screen. You can change the different groups in the lists of group use a F1 or F2 button.

To change the folder, access the Group menu.

Once you have selected the chosen group, press PTT to initiate the call. You will bear an acoustic warning and the indicator light will turn red when the network has given permission for transmission. Whenever you wish to stop speaking, release the button.
The terminal always shows the progress of the call and the identity of the speaker.

To disconnect the call, press the 'F4' key, or simply release the PTT and wait for the system to disconnect the call.

☞ *To optimize the sound quality of the terminal, ensure that the terminal is vertical with the antenna pointing upwards, between 2.5 and 10cm from your mouth, while you are pressing the PTT.*

You can configure the groups so that they are on listen (scanned groups), so that you will

receive all the communications of the groups with this status. You can configure this by

programming or using the menu: Groups/scanning lists.

You do not require any specific action to receive a group call from the selected group or from those configured in scan. It will be received automatically and, on the screen, you can see the group receiving the call and the identifier of the user that has made it.

7.2 Individual calls

Individual calls are private calls between 2 users. No other user can hear the conversation. But you cannot make individual call yourself. It is only able to receiving first form the other user.

In addition, they may be half-duplex (to speak you must press the PTT) or, of the network allows it, duplex (the call is similar to a telephone call, and there is no need to press the PTT to speak).

In case of duplex call, you can't answer the call without an ear-microphone accessory. This terminal does not support to make a duplex call.

8 SPECIAL FUNCTIONS

8.1 Emergency call

There is a special red button, at the top of the terminal, with which you can make emergency calls.

The emergency calls may be:

◆ Group call (to the preset group)

The main characteristic of these calls is that they have maximum priority and interrupt any other ongoing calls.

The emergency icon ⚠ appears when the call is active, whether you have initiated the call or you are the recipient.

If the call is not connected, the terminal retries periodically until it connects, or until the action is cancelled by pressing the emergency button again.

Besides, being able to send the standard emergency status (status code: 0) it can be configured just before sending the programmed event to the emergency key.

Another possible configuration is to set the PTT priority as pre-emptive. This option (only available by programming) will allow you to define priority users who will be able to interrupt the talking party within a call.

8.2 Operation modes: Direct mode

This special operation mode, called DMO, allows you to communicate directly with other

TETRA terminals without having to use a network.

To access DMO mode, select the Modes/DMO menu or press hold the F1 button quick access you have configured in the terminal for this function.

In DMO mode you can make group calls and individual calls. The emergency button is also available, with which you can make a maximum priority call (pre-emptive) as explained in the previous section.

Each group programmed to work in DMO mode is associated with a frequency, so changing the group involves changing the frequency and only terminals with the same group selected may communicate with each other in this operation mode.

Group calls

To make a group call in DMO mode, select the group with the arrows and press PTT. The procedure is similar to a group call in network mode.

8.3   Security

The terminal has encryption services to ensure the confidentiality of your communications. Consult your services supplier for how to configure your terminal to work in encrypted mode.

8.4   Supplementary services

The following TETRA supplementary services are also available for this terminal:

Late Entry:

This service provides continuous call in progress updates to allow latecomers to join a communications channel. This is not a service but an air interface feature the allows a trunked radio terminal to behave in a similar way to conventional PMR terminals. For example, if a user turns on their TETRA terminal the control channel will automatically divert the user's terminal to a talk group call, if a call is already in progress. Similarly, if the user's terminal has been outside radio coverage, for example in tunnel, the control channel will also divert the user's terminal to a talk group call assuming a call is already in progress.

Ambience Listening:

This service is defined as the facility whereby a control point may place a TETRA MS (or LS) into a special type of individual voice call tele-service so that the called MS transmits without any action from, or indication to, the called user. Ambience listening only is set-up if the called unit is not already engaged in a call.

In the same way, Ambience Listening supplementary service does not prevent the affected user form making or receiving other calls.

Dynamic Group Number Assignment(DGNA):

This service allows the creation of unique Groups of users handle different communication needs and may also be used to group participants in an ongoing call. This service is considered by many public safety organisations to be extremely users in setting up a common talk group for incident communications. For example, selected users from the Police, Fire and Ambulance could be brought together to manage a major emergency where close co-ordination between the three emergency service is required. Similarly, DGNA is also considered useful for managing incidents by other user organisations such as utilities and transportation.

Fall-back mode (local mode):

PT-1500GD terminal support working in cells in fallback mode (disconnected from the rest of the system) indicating this situation to the MMI user.

The Terminal avoids registration in fall-back cells unless there are no other available cells. Services available in this mode will depend on system configuration.

Consult your supplier for other available services and special options.

8.5 GPS receiver (Option)

The PT-1500GD may incorporate an internal GPS receiver that enables you to know its exact location at all times.

Of the terminal has this option, you can access this information from the menu **GPS/Loc info**. The current location position is displayed on the screen. When the GPS module gets a valid position, the text will be shown.

In addition, via programming, you can configure various parameters for sending the GPS position to a central application which will manage this location information. Consult your service supplier for details on how to configure your terminal for this service.