



MCA26 Battery Optimizing System

User Manual

Preface

Welcome to the world of Hytera and thank you for purchasing this product. This manual includes a description of the functions and step-by-step procedures for use.


To avoid bodily injury or property loss caused by incorrect operation, please carefully read the *Safety Information Booklet* before use.


This manual is applicable to the following product:

MCA26 Battery Optimizing System

Icon Conventions

The instructional icons and their respective meanings are listed below:

 **NOTE:** Indicates references that can further describe the related topics.

 **CAUTION:** Indicates situations that could cause data loss or equipment damage.

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1. Instructions

To avoid bodily injury and property loss resulting from improper operation, please read the following safety information carefully before use.

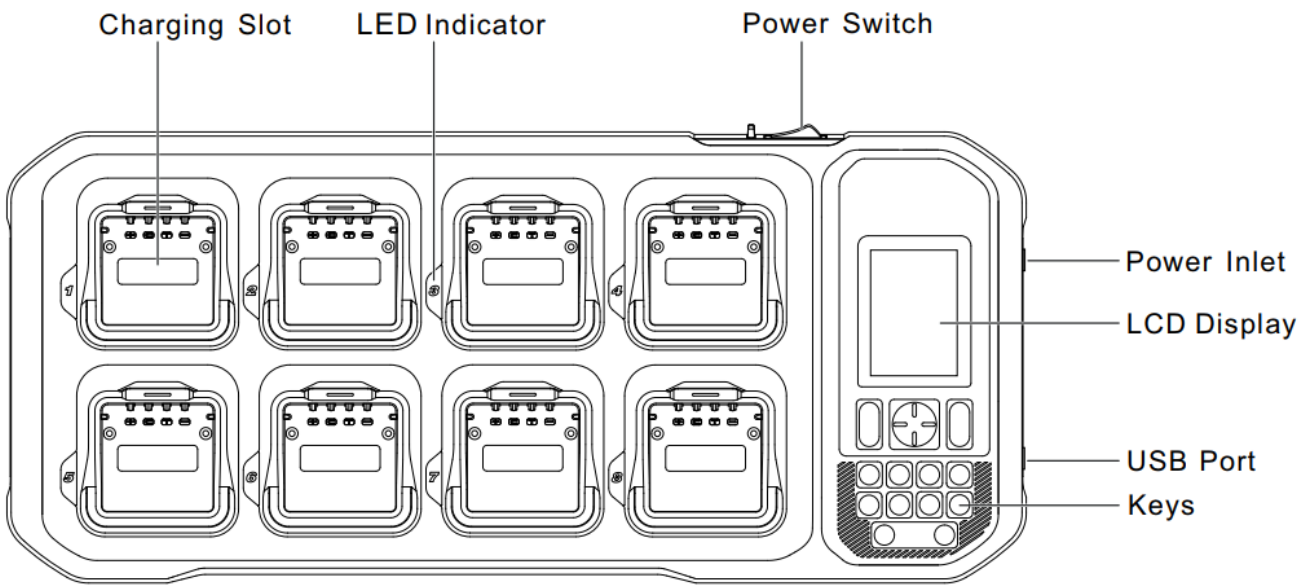
- Do not disassemble the product during operation to avoid fire or electric shock.
- Do not use unauthorized accessories to avoid fire, electric shock or bodily injury.
- Do not remove the AC power cord from the socket by the plug rather than the cable to avoid fire, electric shock or bodily injury.
- Do not use the product when any part of it is damaged.
- Keep the product away from intense shock.
- Do not expose the product to rain or moisture to avoid fire and electric shock.
- Do not operate the product in an environment which is too hot or too damp. Keep the product away from direct sunlight or other heating sources.
- Do not use chemical preparations such as stain remover, alcohol, sprays and oil preparations to clean the product; otherwise, damage may occur on its surface.
- Before cleaning or inspecting the product, disconnect the power to avoid fire and electric shock.
- Before replacing the charging slot, disconnect the power to avoid fire and electric shock.
- This product shall be serviced by qualified technicians only.

2. Packing List

Unpack carefully and check that you have received the following items. If any item is missing or damaged, contact your dealer.

No.	Item	No.	Item
1	Power Adapter	4	Battery Optimizing System
2	AC Power Cord	5	USB Data Cable
3	Documentation Kit	/	/

3. Product Layout



 **NOTE**

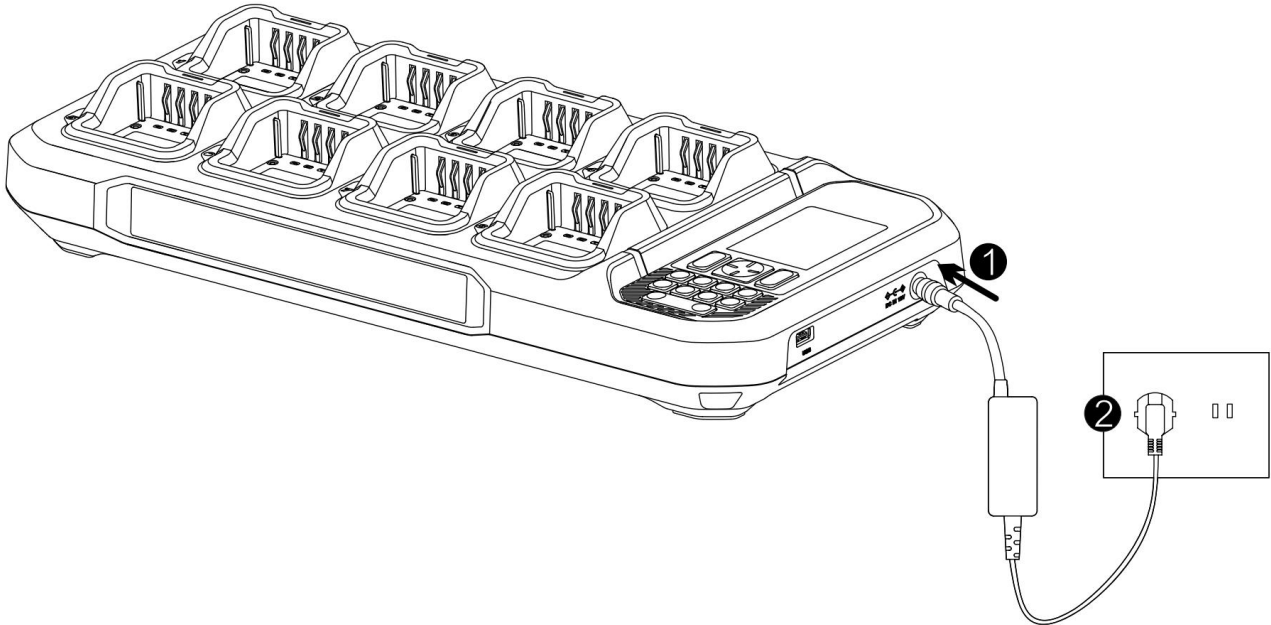
Figures in this manual are only for reference.

4. LED Indicator

LED Indicator	Status
Flashes red slowly	The charging slot is idle.
Flashes red rapidly	The charging slot is faulty.
Glow red	The battery is being charged, and the battery level is under 90%.
Flashes green rapidly	The battery is being discharged.
Glow green	The battery is fully charged.
Flashes orange slowly	The battery is being activated, calibrated, or reconditioned.
Glow orange	The battery is being charged, and the battery level is above 90%.
Flashes red and green alternatively	The battery reaches the end of its service life.

5. Basic Operations

5.1 Connect to the Power Supply



5.2 Turn On or Off the Product

- Turn on: connect the product to the power supply, and then toggle the **Power Switch** to the "I" position.

When the product turns on, the screen displays the progress bar. When the progress bar reaches 100%, the product enters the main interface.

- Turn off: toggle the **Power Switch** to the "O" position.

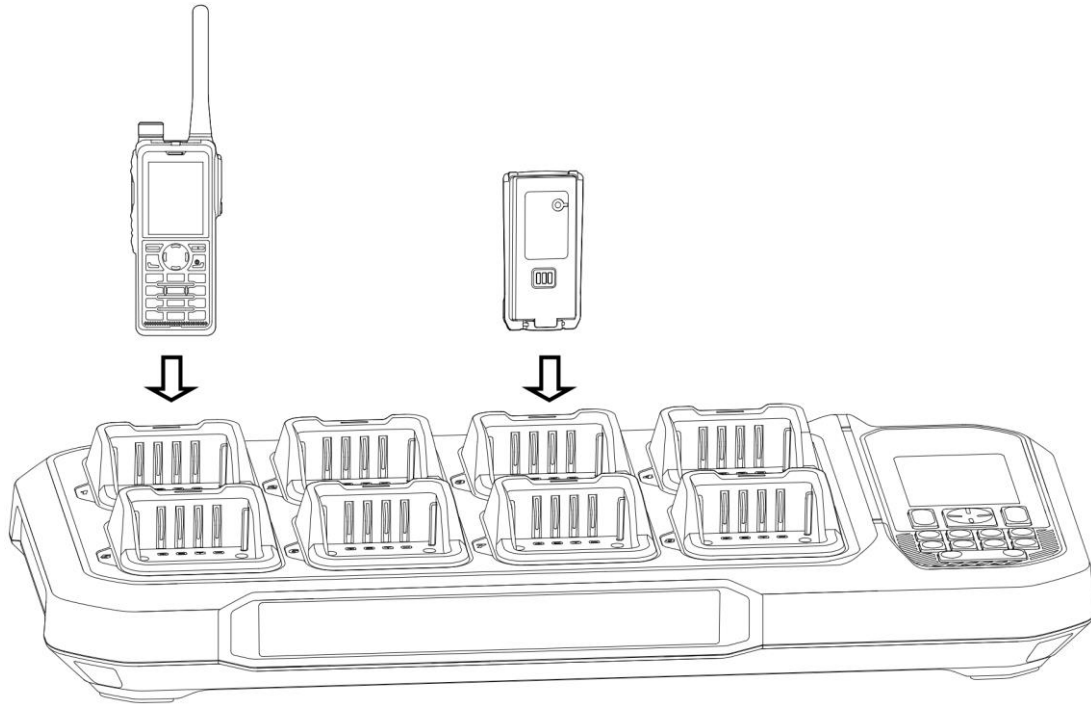
5.3 Charge the Battery

CAUTION

Turn off the radio before charging.

To charge the battery, turn on the product, and then insert the battery or the radio with battery attached to the charging slot.

During charging, you can view the charging status on the screen.



6. Supplementary Features

6.1 Set the Product

To enter the **Settings** interface, in the main interface, press the **Down** key to select **Settings**, and then press the **OK** key.

6.1.1 EOL Reminder

With EOL Reminder enabled, when the product detects that the smart battery reaches the end of its service life, the LED indicator flashes red and green alternatively to remind you to replace the battery.

To turn on EOL Reminder, in the **Settings** interface, select **EOL Reminder**, and then press the **OK** key.

6.1.2 Sleep

When the screen keeps idle for a preset time, the screen automatically goes to sleep.

1. In the **Settings** interface, select **Sleep**, and then press the **OK** key.
2. Select the time, and then press the **OK** key.

If you select **Always On**, the screen will never go to sleep.

6.1.3 Language

1. In the **Settings** interface, select **Language**, and then press the **OK** key.
2. Select the language, and then press the **OK** key.

6.2 Analyze the Battery

In the **Battery Details** interface, you can do any of the following:

- Perform health test
- Recondition the battery
- Calibrate the battery
- Set the battery to storage mode

To enter the **Battery Details** interface, press the numeric key corresponding with the charging slot where the battery or the radio with battery attached is inserted.

 **CAUTION**

Battery health test, recondition, calibration, and storage mode must be performed under 10–40°C. This will charge and then discharge the battery completely, which may take several hours.

6.2.1 Health Test

Health Test allows you to test the battery health by comparing the current capacity with the rated capacity.

When the test result shows "Replacement recommended" or "Replace soon", you should replace the battery.

1. In the **Battery Details** interface, select **Health Test**.
 2. (Optional) For non-smart battery, select or enter the rated capacity, and then press the **OK** key.
 3. Press the **OK** key.
-

 **NOTE**

- For smart battery, the test result is displayed quickly.
 - For non-smart battery, the battery will be charged and then discharged completely, which may take several hours.
-

6.2.2 Recondition

Recondition allows you to restore the battery capacity of new batteries that have been stored for a long time:

1. In the **Battery Details** interface, select **Recondition**.
 2. (Optional) For non-smart battery, select or enter the rated capacity, and then press the **OK** key.
 3. Press the **OK** key.
-

 **NOTE**

This feature is not applicable to batteries with reduced capacity due to regular use.

6.2.3 Calibration (Smart Battery Only)

Calibration allows you to recalibrate the battery capacity by completely discharging the battery and then charging it to 100%.

You can use this feature in the following cases:

- The battery capacity is not displayed correctly.
- The battery capacity does not accurately reflect the actual performance.

To calibrate the battery, do as follows:

1. In the **Battery Details** interface, select **Calibration**.
2. Press the **OK** key.

6.2.4 Storage Mode

Storage Mode allows you to set the battery for long-term storage by keeping the battery capacity at 50% of its rated capacity through a complete charge and discharge cycle.

1. In the **Battery Details** interface, select **Storage**.
2. (Optional) For non-smart battery, select or enter the rated capacity, and then press the **OK** key.
3. Press the **OK** key.

NOTE

To maintain optimal battery performance, it is not recommended that you set Li-battery to storage mode.

However, if you need to store the battery for long-term, you can set the battery to storage mode, place the battery in a proper environment, and then charge and discharge the battery every 6 months. But do not store the battery for more than 12 months.

7. Troubleshooting

If the battery or the product malfunctions during operation, the screen will display an error message. The error ID in the following table may help you to identify and fix the problem.

Type	Error ID	Phenomena	Cause	Solution
Charging failure	100	Activation timeout	The battery is excessively discharged.	Replace the battery.
			The battery is damaged.	Replace the battery.
			The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
	101	Precharge timeout	The battery is excessively discharged.	Replace the battery.
			The battery is damaged.	Replace the battery.
			The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
	102	High temperature battery	The ambient temperature is high during charge.	Charge the battery under lower ambient temperature.
			The radio is inserted to the charging slot immediately after a long-time call ends.	Cool down the battery before inserting the radio to the charging slot.
	103	Low temperature battery	The ambient temperature is low during charge.	Charge the battery under higher ambient temperature.
	104	Loop impedance failure	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.

Type	Error ID	Phenomena	Cause	Solution
			Battery protection board does not work properly.	Replace the battery.
			The charging slot is in poor contact with the main board.	Replace the charging slot.
	105	Timeout of constant current charging in low temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	106	Timeout of constant current charging in room temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	107	Timeout of constant current charging in high temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	108	Charging timeout in low temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	109	Charging timeout in room temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.

Type	Error ID	Phenomena	Cause	Solution
	110	Charging timeout in high temperature	The battery is in poor contact with the charging contacts.	Check and clean the charging contacts, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	111	High voltage difference	Voltage difference between the two cells in a dual-series battery is high.	Replace the battery.
	113	High voltage of the power supply	The power adapter does not work properly.	Replace the power adapter.
114	Low voltage of the power supply			
Discharging failure	115	No current during discharging	The battery is in poor contact with the charging contact.	Check and clean the charging contact, and then re-insert the battery to the charging slot.
			The battery is damaged.	Replace the battery.
	116	High mainboard temperature (> 80°C)	The ambient temperature is high during discharging.	Discharge the battery in room temperature.
			The fan does not work properly during discharging.	Repair or replace the fan.
118	High battery temperature	The battery stops discharging when the temperature exceeds 60°C	<ul style="list-style-type: none"> ● Cool down the battery. ● Replace the battery. 	
Temperature abnormal	119	High or low ambient temperature	Battery health test, recondition, calibration, and storage mode is performed under low or high ambient temperature.	Battery health test, recondition, calibration, and storage mode must be performed under 10–40°C.

Type	Error ID	Phenomena	Cause	Solution
Charging slot failure	120	Charging slot failure	The MCU fails to collect the information of the charging slot.	Repair or replace the charging slot.

8. Care and Cleaning

To guarantee optimum performance as well as a long service life of the product, please follow the tips below.

Product Care

- Do not pierce or scrape the product, especially the interfaces.
- Do not use the product in high temperature or dusty environment.
- Do not place the product in corrosive agents, solutions, or water.

Product Cleaning

CAUTION

- Disconnect the product from the power supply before cleaning.
 - Do not use chemical preparations such as stain remover, alcohol, sprays and oil preparations to clean the product; otherwise, damage may occur on its surface.
 - Do not use the product before it is fully dry.
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Use a clean and dry lint-free cloth or a brush to clean up the dust or dirt on the product surface regularly.

9. Optional Accessories

CAUTION

Use the accessories approved by the Company only. Otherwise, we will not be liable for any loss or damage arising out of the use of unauthorized accessories.

Contact your local dealer for the optional accessories used with the product.



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