DNYS-2C smart key

Operating Manual

Total 30 pages

Zhuhai Unitech Power Technology Co., Ltd.

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READING GUIDE

Manual Objective:

The Manual mainly provides operating instructions on DNYS-2C Smart Keys and auxiliary iAdapterE-1 transmission adapter and iCDZE-1 recharge stand products supplied by Zhuhai Unitech Power Technology Co., Ltd. To enable product users to have a basic understanding of product functions, performance and characteristics and grasp product operating and maintenance methods.

Audience:

The Manual, prepared for DNYS-2C Smart Key users, mainly includes contents such as operation, parameter settings and production maintenance, and is mainly to provide the operating method of this product for operators.

Structure:

This Manual contains the following contents: general information and features are introduced in the first chapter. Product installation and precautions are described in the second chapter. The appearance and basic operations, as well as each menu to be operated by users are described in the third chapter. The defaulting parameter settings are introduced in the fourth chapter. Display information and data during using process are described in the fifth chapter. The sixth chapter describes the product maintenance and troubleshooting methods.

Conventions:

The manual complies with the following conventions:

1 All the menus come with "";

2 All references adopt *Italic;*

"NOTE" means the matters requiring readers to pay attention.

"WARNING" means the matters that may cause serious errors and must be attended.

Foreword

The products are mainly used in power industry interlock by foreign terminals, such as substations, power plants, etc. It is capable to receive operating orders from Smart interlock hosts, and then to operate all kinds of locks in strict operating orders. In Smart interlock system, the smart key is used as a handheld device between the host and device on site, and regarded as one of the most critical system components. This product is developed base on the company's existing key, which integrates current new technologies on the market, and satisfies the needs of users, thus to have powerful competitiveness of the Smart interlock system market.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment   off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

● Reorient or relocate the receiving antenna.
● Increase the separation between the equipment and receiver.
● Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
● Consult the dealer or an experienced   radio/TV technician for help.

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Table of Contents

Chapter 1 Overview

1.1 Introduction

DNYS-2C smart key is a new type of OLED color-screen smart key based on the "Double-less" technology of the company, based on our application and development experience over the years, which can be operated in conjunction with JOYO series of microcomputer safety interlock systems. The "Double-less" technology is a new acquiring and coding technique developed by the company under huge investments, which has gained many patents and is especially applicable to the Smart interlock field, characterized by limitless coding and wireless acquiring.

The DNYS-2C smart key has been essentially upgraded and improved, no matter in technology, performance, and manufacture process, compared with the previous type of smart keys, and it is capable of meeting the customer's new requirements on interlock devices such as the applications in centralized control station.

1.2 Scope of application

Applicable to intetlock of substations, power plants, etc.

1.3 Functions and features

The product has the following functions and features:

✓ Limitless coding; and the coding system adopts the GUID;

✓ Wireless code acquiring; the smart key adopts the non-contact acquisition mode.

✓ "Black Box" function: Recording and browsing the operation orders and the operation information; the data can be well saved within 10 years after power-off;

✓ The smart key functions as order clearance, synchronization, memory, lock code checking, termination of the current operation order, step-skipping, real-time clock, battery electric quantity detection, self-diagnosis, etc.

✓ It can release and detect various locks as follows:

◆ Mechanical coding lock

◆ fixed program lock

◆ Electric cording lock

◆ Locking box

◆ Electroscope

◆ State detector

◆ High-voltage presence indicating systems

✓ The system is provided high-speed data transmission module such as high-speed infrared IRDA module.

✓ Voice prompt in English;

- ✓ Available in recording function, equipped with large-capacity recording & storage device, available to be selected according to needs.

- ✓ OLED color screen to enhance the visual effects.

- ✓ High-contrast, multi-line Chinese character display.

- ✓ OLED screen, adjustable display brightness, thus to meet the needs of different users.

- ✓ Friendly interface, easy to use, simple.

- ✓ Intelligent power management technology, automatic detection of battery failure, thus to ensure the system is running at low power consumption and extends battery life.

- ✓ Lithium-ion battery, with built-in design.

- ✓ Compatible with Chinese characters & English characters under GBK encoding standards

- ✓ Super capacity memory; expandable as needed;

- ✓ Developed based on the Real-Time Operating System (RTOS); high stability; convenient extension;

- ✓ Integrated mechanism and overall metal frame design to enhance its fall resistance and impact resistance;

- ✓ Brand new structure integrating functions such as code acquisition, detection, and releasing mechanical lock, for a simple and convenient operation and the improvement on the stability, reliability, and productbility.

1.4 Model and configuration

Product Name: smart Key
Model: DNYS-2C

Chapter 2 Installation

2.1 Installation Steps

Handheld standalone product, no needs in on-site installation; available to be placed directly on the adapter

2.2 Installation cautions

1. When it is being placed on the adapter, please ensure the adapter needles are properly contacted with charging contacts.
2. Placement: when the smart key is not in service, please place the smart key in a fixed place, rather than random places.
3. Do not place the smart key in any specially wet environment in a long term, to extend the service life of the smart key.

4. The smart key is product integrating machinery, optic, and electric technologies, with a complex internal structure, except as authorized by its manufacturer, please do not disassemble to avoid any damage to internal components.

5. Please keep its data transmission ports clean, to avoid any damage to data transmission performance.

6. Smart key is a precision power handheld devices; please avoid damage and abnormality resulting from strong shock or falling.

Chapter 3 Operation

3.1 Display Panel
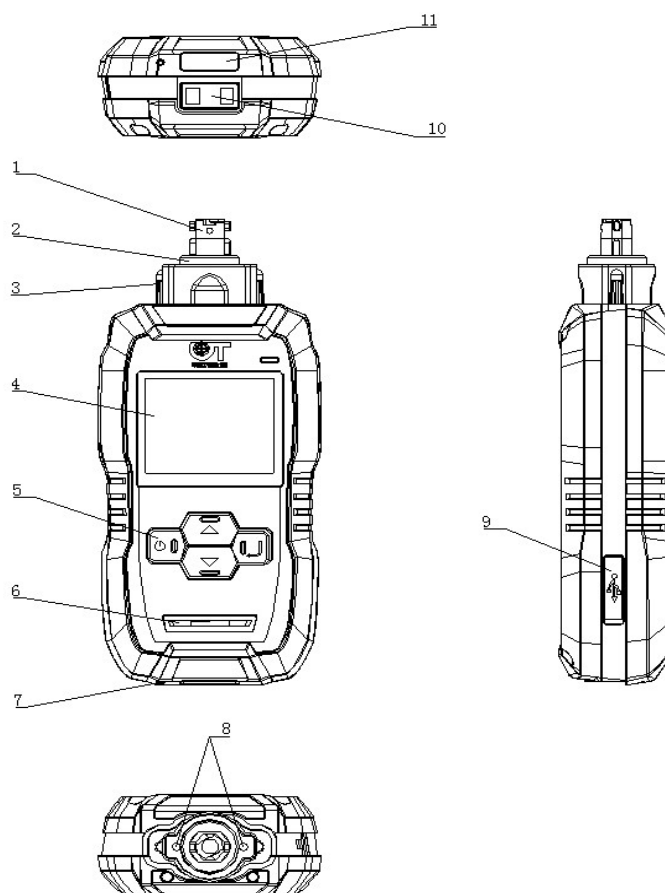
1------- Release rod: release the mechanical coding lock, or other locks;

2 ------- Disk, determining the rotating direction of release rod in unlocking.

3 ------- Conductive electrode, powering on locks needing external power supply.

4------- OLED color screen: displaying the operation information by characters and graphics information;

5------- Keys, including the Return key (the Switch on/off key), the Up key, the Down key, and the Enter key

6------- Speaker and phonic hole;

7 ------- MiC microphone for recording.

8 ------- Infrared tube communication interface.

9 ------- USB data line interface.

10 ------ Charging electrode contacting with the charging mount.

11 ------ High speed infrared IRDA transmission device for exchanging data with mis-operation prevention hosts.

## 3.2 Operations

3.2.1 Basic operations

➢   Power-on

(1) Ensure that the smart key is available to be powered. If the battery runs low, the smart key can't start, please operate in accordance with the second step. When the power is enough, please operate in accordance with the third step.

(2) Place the smart key on the charger and check if it is properly placed and is stably connected to the charger.

(3) Press the on / off key on the panel, and then release it, the smart key produces "Beep" sound and displays the dynamic LOGO on the interface, and shows the following standby interface later:

Thereinto:

● "▮▮▮" is a symbol of battery, indicating the current running level of the battery, the full-green color indicates that the battery runs in full level; the full-black color indicates that the battery runs out. When the battery symbol is empty, indicates the battery runs out, please charge the battery immediately. " " icon indicates smart key's current communication mode, the above icon means IRDA communication mode." "icon indicates the current voice state, and availability in playing voice. The above figure shows enablement state of the function, and " " shows disablement state. See specific setting method in the **"Settings"** -> **"VoiceFunc"** -> **"SetVoice"** as described in 3.2.8 Voice Settings.

➢   Power-off

It is available to close the smart key at any state after starting. A user can press and hold down the On / Off key on the panel for about 2 seconds, the smart key produces the sound "beep…beep…", then the user can release the key, the key can switch off the power supply automatically.

➢   Preparation before Operation

The smart key is a general-purpose smart key, which can be applied to any station, and it is required to enable the "Sync" function before operation, thus to transmit the station's device information to the smart key. If the device information is not modified in a station, the smart key can be used forever as long as enabled "Sync".

➢ Menu Operation

In the standby interface, press the **"Menu"** key to enter main menu: Then press the UP or Down keys to browse the whole main menu, as shown below:
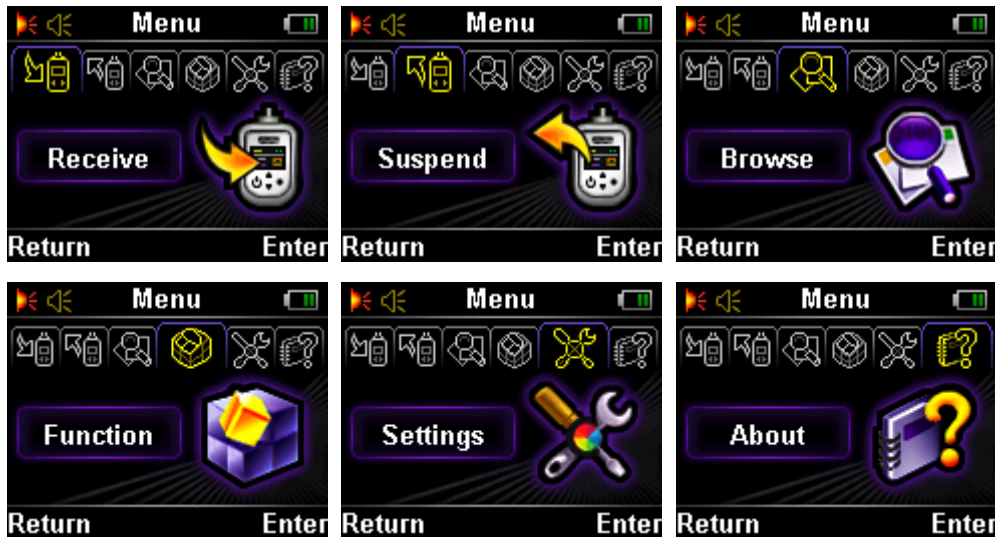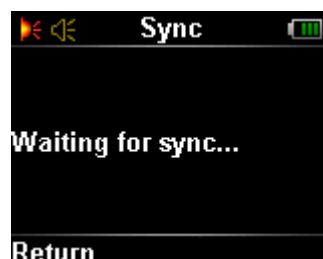

Thereinto:

● The **"Receive"** is the default option on the menu, indicating the option is selected. Now a user presses the Down key to select the next option on the menu, similarly, it is available to press the Up key to select the previous option.

● When selecting an option on the menu, press the Enter key to enter the function menu interface or the submenu interface; press the Cancel key to the standby interface or the option's parent menu.

● When a user operates on a submenu, it can display the scroll bar icon on the right side of the screen, to show the current position of the selected submenu.

3.2.2 Synchronization

The smart key features good interchangeability and versatility, it can be applicable to different substations or power plants once successfully synchronized before the first operation.

It is available to receive synchronous data directly in the standby interface, or select **"Function"** on the main menu, and then select the **"Sync"** option to directly enter the synchronous interface; the smart key can receive the synchronous data atomically.

● Press the Return key to the previous menu

When the key is being charged on the transmission adapter, the key can receive synchronous data if the user sets host system to the synchronous state, and the smart key enters the synchronous interface.
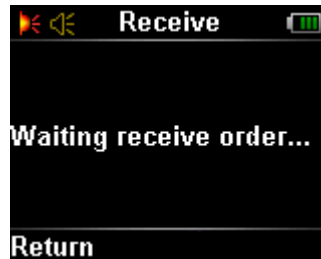
When the key starts receiving synchronous data, it can display the following interface, the progress bar shows the receiving progress of synchronous data.
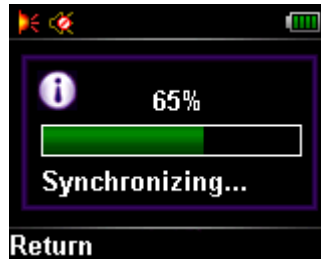
When the synchronous data have been received, the smart key is capable of processing and saving the received data.

3.2.3 Receive Operation Orders

A user can press the Upward or Downward key to select the option **"Receive"** on the main menu, and press Enter; it can enter the order-receiving interface. Then Smart Key can enter order-receiving interface directly.

● If the key hasn't synchronized, it can not enter the order-receiving interface, the screen displays the information "Without sync, cannot receive order", and a user must conduct synchronization before receiving orders.

● Press the On / Off key to the main menu.

When the key is being charged on the transmission adapter, the key can receive orders if the user sets host system to the order-sending state, and the smart key enters the order-receiving interface.

When the key starts receiving order data, it can display the following interface, the progress bar shows the receiving progress of order data.
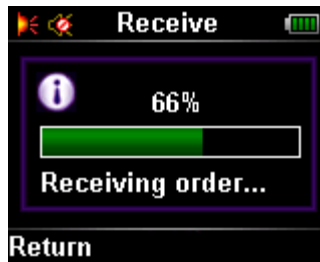
When the smart key has processed and saved the received data, the key can switch to the following operating interface automatically.
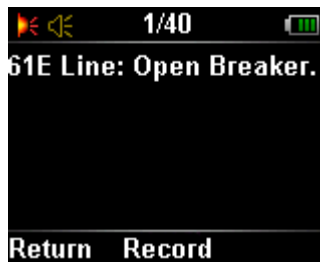

A user can operate on site now in accordance with the displayed content.

3.2.4 Unlock

● Unlock the Devices Locked by Mechanical Coding Locks Such as Manual Disconnector, Grounding-switch, and Temporary Grounding Connector Locking Box

The smart key can display the specific device information under operating while unlocking the mechanical coding locks such as manual disconnector, grounding-switch, and temporary grounding connector, web door, etc. For example, if a user wants to "61E line: Open Breaker", the key can display the following information at this moment:
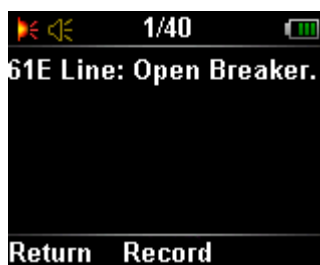

Find the corresponding device matched with the displayed by the key on site, and insert the smart key into the keyhole, if the code is correct, the smart key can ring "beep" or make a voice prompt "Correct, Please Operate." (Available to set in the system) and display as follows:
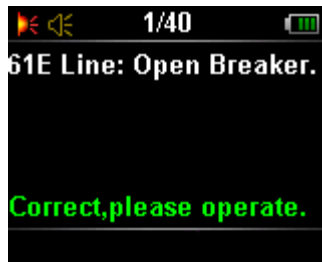
Rotate the smart key to open the mechanical coding lock at this moment and then switch.

When the correct operation is completed, the smart key can ring "beep" and prompt "Operation finished"
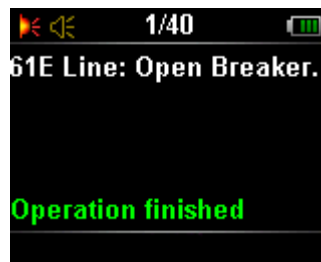
Then the operator can continue the next operation.

Note: for exmaple, in "Confirm 61E Breaker operation", if the inserted lock' code is not consistent with the displayed in the key, the key can ring "beep" three times or make a voice prompt "Error, Please Check." (Available to set in the system) and display below, the above is the same to other types of locks.
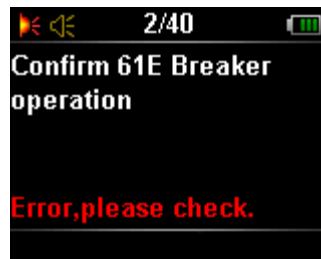
At this moment, the operator can't unlock because the interlocking gear is locked. Please pull out the key and find the correct code before continuing.

● Unlock the Devices Interlocked by Electric Coding Locks Such as Circuit Breaker, Electric Disconnector, etc.

When the smart key displays the device information of circuit breaker or electric disconnector, such as "74E line: Open Breaker", please insert the smart key into the electric coding lock of corresponding device, it can ring "beep " or prompt by voice "Correct, Please Operate." (Available to set in the system) and display "Correct Code, Please Operate!"
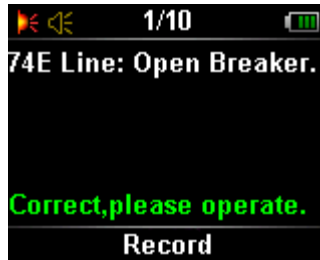
Switch the breaker at this moment, the key rings "Beep" and displays "the operation is completed, please continue!" indicating that the key has detected the completion signal. It is available to unplug the smart key and continue.

If the key is unplugged when it has not detected the complete operation signal within 2 seconds under the operation of electric coding lock, it can show as below:
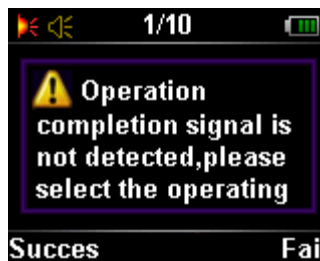
Press and hold down the **"success"** or **"failure"** key (for 2 seconds) to select the operating results, **"success"** indicates that this step is complete, the key can enter the next step; **"failure"** indicates that this step is not completed and will be restarted.

If the key is unplugged when it has not detected the complete operation signal over 2 seconds under the operation of electric coding lock, it can show as below:

Press and hold down the **"success"** or **"failure"** key (for 2 seconds) to select the operating results, **"success"** indicates that this step is complete, the key can enter the next step; **"failure"** indicates that this step is not completed and will be restarted.
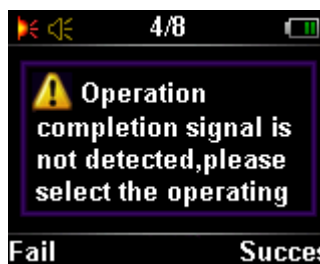
● Unlock the Devices Interlocked by Electric Coding Lock and Mechanical Coding Lock Such as Electric Disconnector.

When the smart key displays the information of the devices to be operated, please insert the smart key into the electric coding lock or mechanical coding lock of corresponding device, it can ring "beep…" or prompt by voice "Correct, Please Operate!" (Available to set in the system) and display "Correct Code, Please Operate."

61E Line: Open Breaker.

Correct,please operate.
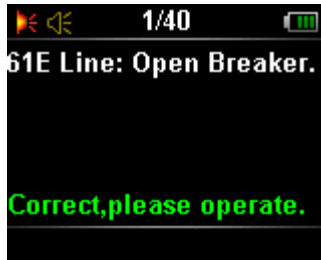
A user can operate electric coding lock or mechanical lock as needed, then the user chose to insert the mechanical locks and Rotate the smart key to unlock, the smart key rings "beep" and displays the following information:

61E Line: Open Breaker.

Operation finished
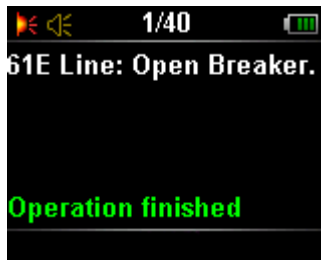
It indicates that the smart key has completed its working; the user can remove the smart key and continue the next operation.
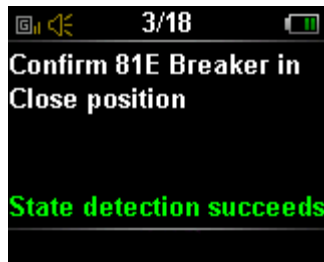
While inserting the corresponding electric coding lock, it is available to operate in accordance with the steps described in "3.4.2 Unlock the Devices Interlocked by Electric Coding Locks Such as Circuit Breaker, Electric Disconnector, etc."

● State Detection

The smart key shows the state of the device to be detected, please find the corresponding connection or disconnection state detectors, electrical switching state detectors in accordance with the device number shown on the smart key, and insert the smart key; the smart key can continue its working only after detecting the correct state. Take Confirm 81E Breaker in close position as an example.

Confirm 81E Breaker in Close position

Return
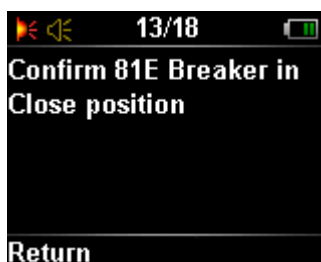
Insert the key into corresponding locks, if code value is wrong, the smart key will beep for continuous three times, or even prompt a voice "Error, please check." If the code value is correct, the smart key will further determine the status of locks and prompt detecting status:

```
┌─────────────────────────┐
│ 🔲◁  3/18        🔋      │
│ Confirm 81E Breaker in  │
│ Close position          │
│                         │
│                         │
│ State detection succeeds│
│                         │
└─────────────────────────┘
```

● Electriferous Detection(electroscope, high-voltage live locking device)

Insert the smart key into the corresponding electroscope for further electriferous detection, when the smart key displays electriferous detection and the next option.if the electriferous detection is correct, and the operation is successful, it is available to enter the next step.

Taking "Verified that 73E Breaker has no voltage" as an example:



```
┌─────────────────────────┐
│ ▶◁  1/8         🔋      │
│ Verified that 73E Breaker│
│ has no voltage          │
│                         │
│                         │
│ Return                  │
└─────────────────────────┘
┌─────────────────────────┐
│ ▶◁  3/8         🔋      │
│ Verified that 73E Breaker│
│ has no voltage          │
│                         │
│ Correct,please operate. │
│                         │
└─────────────────────────┘
```
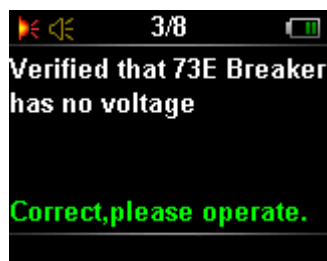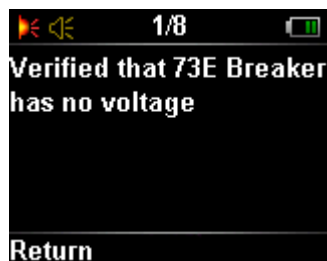
When the smart key displays the following information in the detecting process:


```
┌─────────────────────────┐
│ ▶◁  5/8         🔋      │
│ Verified that 73E Breaker│
│ has no voltage          │
│                         │
│                         │
│ Electrified! Locked out.│
│                         │
└─────────────────────────┘
```
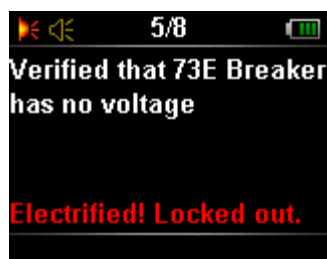
And produces rapid alarm sound "Beep…Beep…Beep…"indicating the circuits are electriferous, and can't enter the next operation.

When the smart key displays the following information, and rings "Beep," it indicates that the circuits aren't electriferous, remove the smart key from the electroscope and enter the next operation.
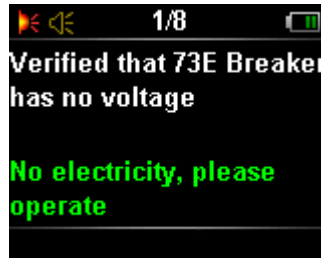

- Lock disconnectors and related equipments with fixed program lock

Locking disconnectors and related equipments with fixed program is mainly divided into three cases according to fixed program lock specific types. Firstly, the fixed program locks can be divided into three types: the first type is fixed program lock (one-way lock), unlock and then lock; the second type is one-way fixed program lock (one-way lock), unlock or lock; the third type is fixed program lock (two-way lock).

As for the first type, fixed program lock (one-way lock), taking "62E Line: Open Breaker" as an example. Insert the key into the fixed program lock, until the smart key beeps and prompts "Correct, please operate" (available in system settings); and it displays as follows:
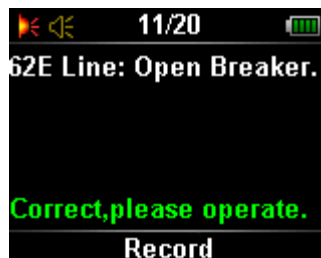
Rotate the smart key to unlock; the smart key prompts the following interface after unlocking is successful; then it is available to operate related devices:
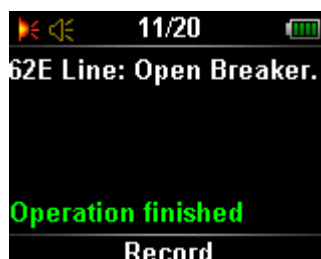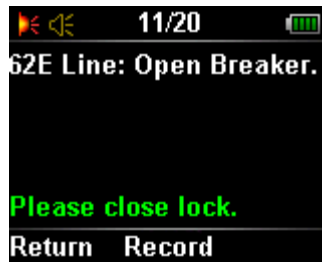
After operation is completed, please lock as prompted by the smart key; insert the smart key. When it prompts the lock code is correct, rotate the smart key to lock:

The above is operation steps for the first type of fixed program lock.

Secondly, as for one-way fixed program lock (one-way lock), taking "62E Line: Open Breaker" as an example. Insert the key into the fixed program lock, until the smart key beeps and prompts "Correct, please operate" (available in system settings); and it displays as follows:
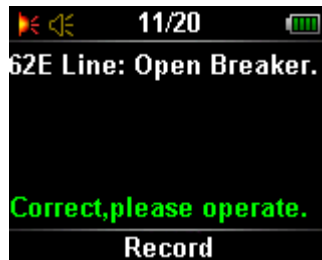
Rotate the smart key to unlock; the smart key prompts the following interface after unlocking is successful; then it is available to operate related devices:

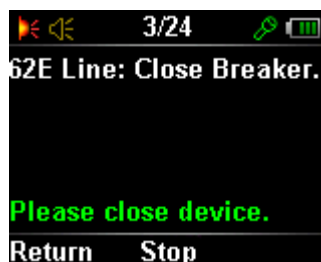The above is operation steps for the second type of fixed program lock.

Thereinto:

The operating procedures for the second type are only half of the first type's. the whole operation can be completed only after unlocking or locking ends.

Finally, as for the third type of fixed program lock (two-way locking), such fixed program lock requires four code values, which are twice more than the first two locks', respectively connecting fixed program locks unlocking code; connecting fixed program locks locking code; disconnecting fixed program locks unlocking code; disconnecting fixed program locks locking code. Take "62E Line: Open Breaker" as an example. Insert the key into the fixed program lock, until the smart key beeps and prompts "Correct, please operate" (available in system settings); and it displays as follows:

In unlocking process of Close Breaker, the first step is disconnecting unlocking, after the lock code is verified as correct, please rotate the key to unlock:
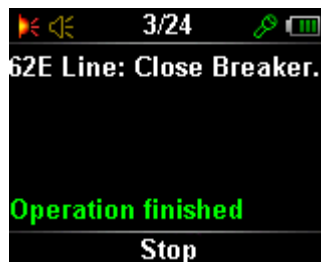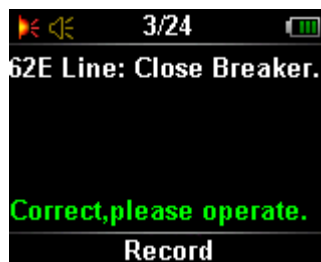
When the disconnecting unlocking is successful, unplug the smart key, and the key prompts:

Operate corresponding switching devices, and after the operation is successful, insert the smart key to lock connecting position. After the lock code is verified as correct, please rotate the key to lock:
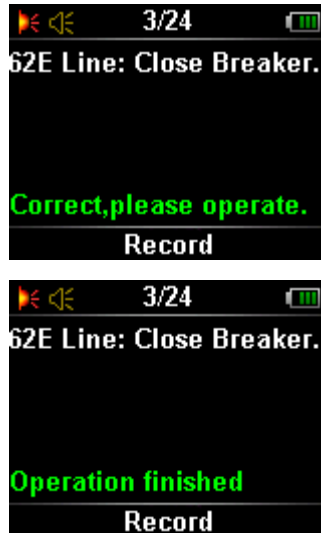
The above is operation steps for the third type of fixed program lock.

The third category of fixed program lock operation is complete.

Thereinto:

As for the third type of fixed program lock, its unlocking is similar with the first type's, the only difference is that the third type of fixed program lock operates twice on two fixed program locks on the same device, while the first type operates a fixed program lock.

Open Breaker's operation is similar with Close breaker's, and the difference is only lock order and operation, connecting unlocking is firstly done, and then the disconnecting locking is performed.

3.2.5 Post Back

The data postback is a transmission process of the operation processes and results and other information from the smart key to the mimic panel, (or integrated operating panel, etc.) When the key completes the current operation order, it will automatically prompt the postback information on the completion of operation. If the key is closed before postback, it can prompt such information again automatically when it restarts; the normal postback interface is shown as follows:

If the operation orders are fully executed, it can put back to the adaptor for posted back, but you also can uses the "function" menu's feature. Select the "**Suspend** "option, it can directly postback data no matter the operation orders finished or what." It is available to execute the postback if the mimic panel (or the integrated operation panel) is being in the postback state. It can return to the main menu automatically;

The suspension postback interface is shown as follows:
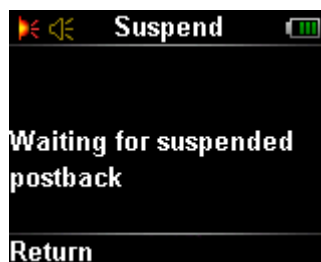
3.2.6 Browse orders

● Browse Order Contents

The order browsing functions as browsing and checking the content of the current operating order in the smart key. Select the Main Menu- "**Browse**" – > "**Current**" Contents to enter the option. If the smart key has not any operating order, it will prompt "No operation order to review", if the smart key has received the operating order, press the Enter key to show the contents on the first item of the current operation order. Press the Down key to show the contents of the next item, press the Up key to select the content of previous item, as shown below. Press the Return key to the previous menu.

● Browse Recall

The option is to browse and check the content of the recalling data in the smart key. Select the Main Menu- "**Browse**" –> " **Previous**" to enter the option. If the smart key did't have any operating order, it will prompt "No operation order to review", if the smart key have the recalling data, press the Enter key to show the content on the first page of the recall records. Press the Down key to select the contents of the next page, press the Up key to select the content of previous page, and press the Enter key to browse the currently-selected page, as shown below.

It displays recalling   order SNs from up to bottom; step number that has been operated under a SN, total step number of operating orders; type of operating orders; ending status of operating order; receiving date and time of operating order.

3.2.7 Function

● Synchronization

See details in the section 3.2.2 Synchronization

● Check Code

The option is to check the code value or RFID value of the current lock. And it is also capable of showing the corresponding device name. Select the Main Menu- **"Function"** –> **"ChkCode"** to enter the option, press the Enter key to read the lock code or RFID code value. The code's equipment name can be shown if exists. If the device name doesn't exist, it can show **"This Dev isn't exist"**. Press the Return key to the previous menu. The interface is shown as follows:


● Advance

In the main menu, select "Function" - > "Advance" to enter the accessibility menu.

◆ Skip

Skip operation can be defined as to skip the option (that has been forcedly operated) currently displayed on the smart key when the lock is abnormal and is unavailable to be unlocked by the smart key, and requires forced unlocking by approval of the director in charge, thus continuing the next operation.
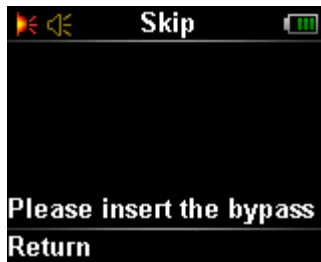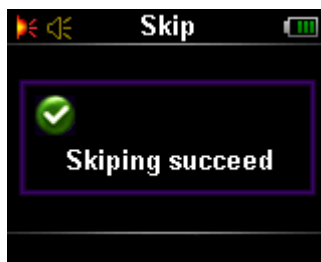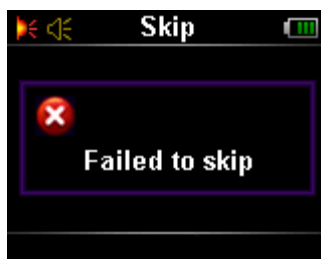
Insert the smart key step into the skipping key, the smart key begins to identify the skipping key and execute skipping.
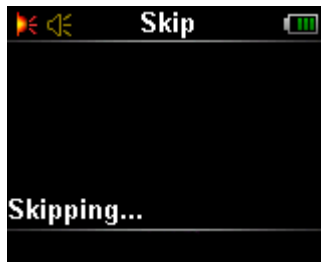
If skip operation is successful 5 seconds later, the smart key displays as follows:

If fails, the key displays:

Please remove the smart key from the skipping key when the skipping operation is successful, the smart key loads the next operation automatically, and continues its operations.

◆ Clear Orders

If doesn't want to operate an received operating order or post the result back, a user can press the Up or Down key to select **"Advance"**-> **"ClearOdr"**, and press Enter key, the key will show the following interface:
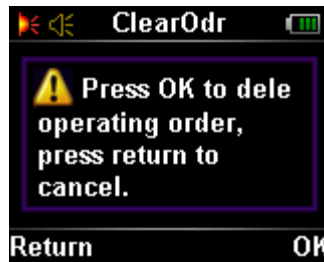
● Press the Enter key to delete the order, the smart key will automatically return to the main menu; or press the Return key to directly return to the main menu, rather than to delete the operation order.

● Deploy

This menu provides a series of debugging programs special for professional test personal, and such test options are unavailable to final users for further safe and reliable operations.

If a user enters the menu, the key will display an interface for inputting password, the user can ignore it, or press The Return key to the previous menu, the operating interface is as shown as below:

● Internal

This menu provides a series of debugging programs special for production personal, and such test options are unavailable to final users for further safe and reliable operations.

If a user enters the menu, the key will display an interface for inputting password, the user can ignore it, or press the Return key to the previous menu, the operating interface is as shown as below:

3.2.8 Settings

● NetWork

This menu provides a debugging tools special for professional deployment user, which is not available for normal use. You have to enter the access password before enter the setting menu for further operation.
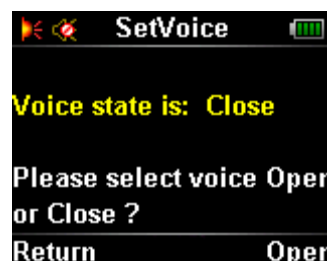

● VoiceFunc

Select "**Settings**" -> "**VoiceFunc**" to enter this menu, and then set voice-related options by operating various sub-menus.

◆ SetVoice

Select "**VoiceFunc**" -> "**SetVoice**" to enter Voice Settings interface, and press the "Close" button or the "Open" button to disenable or enable voice setting state, or check voice setting status by small icons, as shown below:
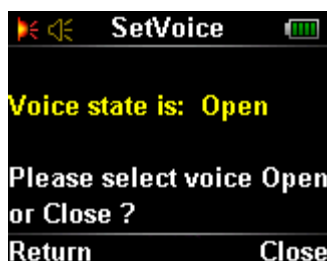
◆ RecSet

Select "**VoiceFunc**" -> "**RecSet**" to enter Recording Settings interfaces, and press the "Close" button or the "Open" button to disenable or enable recording function.

RecSet

Recording set is: Open
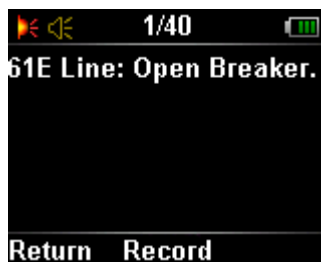
Please select Recording
Open or Close ?

Return   Close

After the recording function is enabled, "record" or " stop" button will appear on the user interface, as shown below,

It is available to start up or stop recording as needed.

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61E Line: Open Breaker.

Return   Record

◆   Recpress

Select "**VoiceFunc**" -> "**Recpress**" to enter Audio compression interface, and press the "Close" button or the "Open" button to disenable or enable the function. After the function is enabled, the system will compress and save recorded audio, thus saving memory space.

Recpress

Compression state:Open

Please select record com
-press Open or Close ?

Return   Close
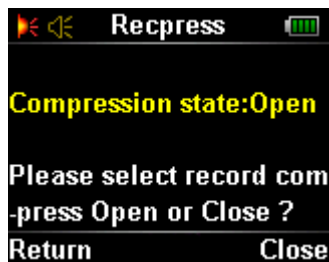
◆   RecCopy

Select "**VoiceFunc**" -> "**RecCopy**" to enter Copy recording interface, and press the "Close" button or the "Open" button to disenable or enable the function. After the function is enabled, connect smart keys to PC via USB cable, a U disk icon will appear on PC, which is read-only, enter the U disk to check REC folder, where the recording files are saved by date and time. It is available to copy and import them into PC.

◆ RecTest

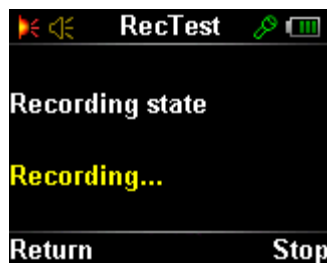Select "**VoiceFunc**" -> "**RecTest**" to enter Recording test interface, and press the "Close" button or the "Open" button to disenable or enable the function. the recording process is shown below:
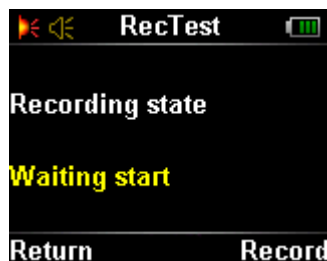
Enter the menu, and wait for recording:


Press the "Record" button to start up recording:

Press the "Stop" button to stop recording, waiting for the next recording or press Back key to return:

◆   PlayTest

Select "**VoiceFunc**" -> " **PlayTest**" to enter Playing test interface, and these audio files are stored in the REC folder directory; a user can select an audio file by the "UP " and "Down" buttons, and then play or delete such a file.
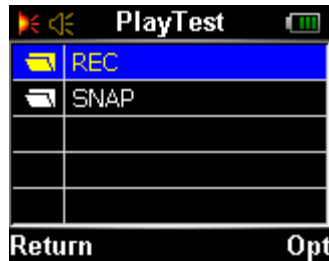
●   Brightness

The menu functions as setting backlight brightness, Select "**Settings**" -> " **Brightness**" on the main menu, to enter the menu. Press the arrow keys to increase or decrease the backlight brightness; press the Enter key to save the current backlight brightness level. Press the Cancel key to the previous menu.
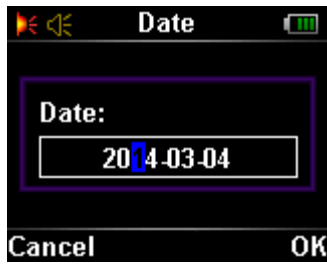

●   Time

The menu functions as setting time and date, Select "**Settings**" -> " **Time**" on the main menu, to enter the menu, as shown as below.

◆   Date Setting

Select "**Time**" -> "**Date**" to enter the option, and then move the cursor by operating the Down button, and adjust the value by the Up button. Press the Enter key to confirm after setting is completed.

● Time Setting

Select "**Time**" -> "**Time**" to enter the option, and then move the cursor by operating the Down button, and adjust the value by the Up button. Press the Enter key to confirm after setting is completed.

● Background

The menu functions as setting the background pattern of the user interface, Select"**Settings**" -> " **Background**"to enter the menu, as shown as below. Press the Up or Down key to select the background image, press the Enter key to set, press the Return key to cancel the operation. The currently available backgrounds are two options as follows (theme 2 is not available currently):

● Language

Select "**Settings**" -> "**Language**" to enter the option, and the optional languages include Chinese and English.

◆ Chinese

Select "**Language**" - > "**Chinese**" to enter, and press the Enter key to select the Chinese.

◆ English

Select "**Language**" - > "**English**" to enter, and press the Enter key to select the English.
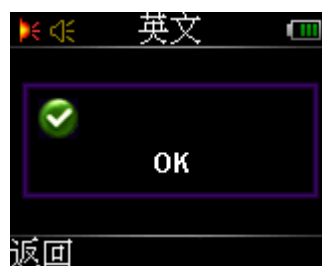
3.2.9 About

Enter this option to check the software version, model number and manufacturer name.

Thereinto:

A user can press the return key directly to the main menu interface.

Chapter 4: Parameter settings

4.1 Auto Power-off

The smart key will automatically power off if continues its standby state for 6 minutes, If it is being charged or fully-charged state, or being under cycle unlocking test for electric-controlled lock or discharging test, the key will cancel the auto power-off, till the above state is canceled.

4.2 Auto sleep mode

If no button is pressed or the key is free of any operation orders or synchronization, the smart key will automatically enter in sleep mode, and its screen will become black and indicator can flashes green periodically. If any button is pressed or the key start receiving operation orders or synchronization, the key will exit the automatic sleep mode, light up the screen, and display interface.

4.3 Interface Brightness

Under default conditions, the screen brightness is 6.

4.4 Display Language

The default interface language is English.

4.5. Interface themes

The default theme is theme 1. Only theme 1 is currently available.

4.6 Speaker status

The default speaker status is enabled

4.7. Recording function

The recording function is defaulted to disenabled

4.8 Audio compression

Under default conditions, the function is enabled.

Chapter 5 Display Descriptions

Under the standby mode, the green indicator flashes every 5 seconds,

The blue backlight lights up under key-operating state,

From start-up, running to normal operation, related prompts show the current state of the key, and part of prompts s are shown in the following table:

Prompt	Description
Hardware fault,format is failed!	iNand mass storage device is damaged
Battery error!	The battery is improperly contracted or the battery is damaged.
Same task number,cannot receive order	The same operating order has existed in the system, and it fails to receive your new receiving order
Memory is full,cannot receive order	Norflash is lack of storage space, unavailable to receive operating order
Without sync, cannot receive order	The key should not receive operating order unless completing synchronization
Creat or open file error!	file system is abnormal
Receive the data error!	Error occurs during order receiving and synchronization, the key will automatically delete incorrect data.
RFID code is not sorted in descending order	RFID sequence isn't correct in synchronous data transmission from misoperation-prevention host to the key
Electrified! Locked out.	The key detects the equipment is live and may cause electric shock, prompts users not to operate the device.
No electricity, please operate.	The key detects the equipment is safe, prompts users to operate the device.

The above content is only part of prompt messages, which may vary under different operating state and different modes. See details in the third chapter of this manual.

Chapter 6 Products Maintenance

6.1 Upgrade maintenance

If need to upgrade and maintain the product, please contact your local service personnel.

6.2 Routine maintenance

Please read the operating manual in details as well as Troubleshooting as shown in the next section to implement routine maintenance.

6.3 Troubleshooting

Troubles	Causes	Solutions
The smart key cannot synchronize , or is abnormal in synchronization.	1. Battery voltage is low. 2. synchronization program is incorrectly operated. 3. Transmission port of the main control equipment is damaged.	1. Charge the smart key. 2. Operate the synchronization program correctly. 3. Renew the transmission port of the main control equipment.
Mechanical coding lock is opened, but unlocking program cannot continue.	1. The internal IRDA device of the smart key is damaged. 2. Unlocking stem is offset.	1. Send the smart key back to Zhuhai Unitech Power Technology Co., Ltd. for repairing. 2. Re-adjust the horizontal position or send it back to our company.
The smart key cannot receive the operation order sent from the transmission port	1. The smart key has an operation order that is out of receiving state. 2. Internal IRDA device of the smart key is damaged. 3. IR transmission cover is blocked badly by dirt. 4. The transmission port of main control equipment is damaged.	1. Clear the smart key, and then insert the transmission port to receive the operation order. 2. Send the smart key back to Zhuhai Unitech Power Technology Co., Ltd. 3. Sweep the dirt and clear the IR transmission cover. 4. Renew the transmission port of operation order.

The smart key shows "Code correctly, please unlock the mechanical lock." But the mechanical coding lock still cannot be opened.	1. The internal components of the lock are unsmooth. 2. The ring is blocked by external components. 3. Battery voltage is low. 4. Internal unlocking components of the smart key do not work. 5. The mechanical coding lock is damaged.	1. Renew the mechanical coding lock. 2. When unlocking, press the "Unlock" key, and then pull the lock lightly manually. 3. Ensure charge adequate power before operating the smart key. 4. Send the smart key back to Zhuhai Unitech Power Technology Co., Ltd. 5. Renew the mechanical coding lock.
When operating the breaker, the breaker can not be connected; though the smart key shows "Electric coding lock can be opened."	1. Internal relay of the smart key is damaged. 2. The battery voltage is low. 3. The smart key is in an improper connection to the electric coding lock.	1. Send the smart key back to Zhuhai Unitech Power Technology Co., Ltd. 2. Ensure charge adequate power before operating the smart key. 3. Clear the conductivity pole of the electric coding lock, and renew the electric coding lock if necessary.
The smart key says "The key has not synchronized, not prepared for normal operation."	The smart key did not synchronized before operating normally.	Please synchronize.
Fully charged in a charger, but the battery runs out in a very short time.	1. The charger is damaged. 2. The battery has been used for such a long time that it causes the battery aging. 3. The detection circuit for power within the battery is damaged.	1. Repair or renew the charger. 2. Renew the battery. 3. Send the smart key back to Zhuhai Unitech Power Technology Co., Ltd.