SJT-TWCR

Elevator Remote Monitoring Device

User Guide

Version: V1.1

Content

Chapter 1: Main Component and Specification

1.1 Elevator Remote Monitoring Device (one key calling function) (SJT-TWCR)
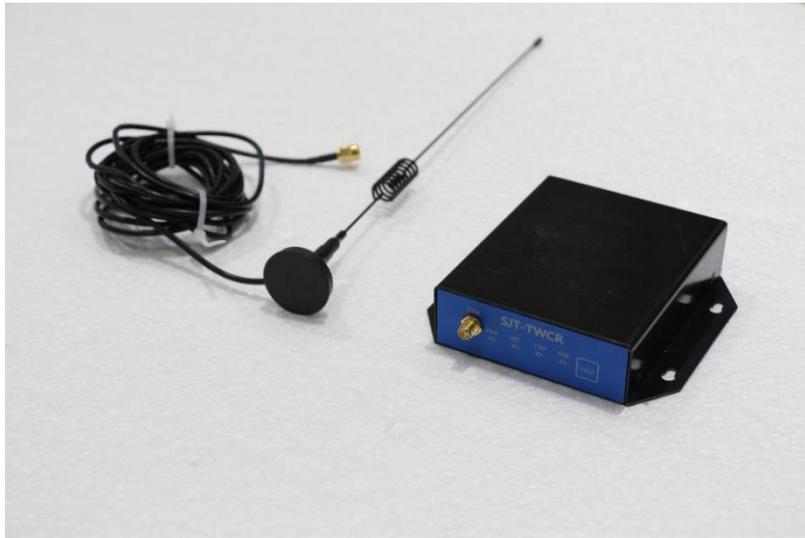
Figure 1.1 Photo of SJT-TWCR

SJT-TWCR device works with compatible control system elevator, to add functions such as Remote Monitoring, One Key Calling and Rescue, Remote Intercom etc.

This device is installed inside of the control cabinet with external antenna. It is wired parallel with the five-intercom system and requires communicating via the microphone and speaker of the cabin intercom device.

- Remote Monitoring: Users can monitor elevator status on the Intelligent Elevator Core System (IECS) platform.
- One Key Calling and Rescue: Users press the emergency call button in cabin for more than 1s, then this device will make phone calls to preset personnel. So, people from off-site can communicate with cabin while answering the phone.
- Remote Intercom: People from far distance can call the SIM card phone number of this device, and then the device will automatically answer the phone call by connecting to elevator five-intercom system. So, people can talk to cabin in far away.

1.1.1 Feature

- ✧ Industrial level MCU, steady performance;
- ✧ Four-layer PCB, high interference resistant and reliability;
- ✧ CAN bus communication, simple connection to join control system;
- ✧ Metal shell;

  ✧ External antenna, stable signal.

1.1.2 Application

  ✧ Elevator remote monitoring, commissioning and maintenance.
  ✧ Elevator one key calling, remote intercom.

1.1.3 Power Supply Character

  ✧ 12V Power: 12V DC ± 15% 1A.
  ✧ 24V Power: 24V DC ± 15% 200mA.

1.1.4 Working Condition

  ✧ Working Temperature: -20℃--70℃
  ✧ Working Humidity: <95%, non-condensing

1.2 Installation Dimension

Length x Width x Height：109x101x27.5mm
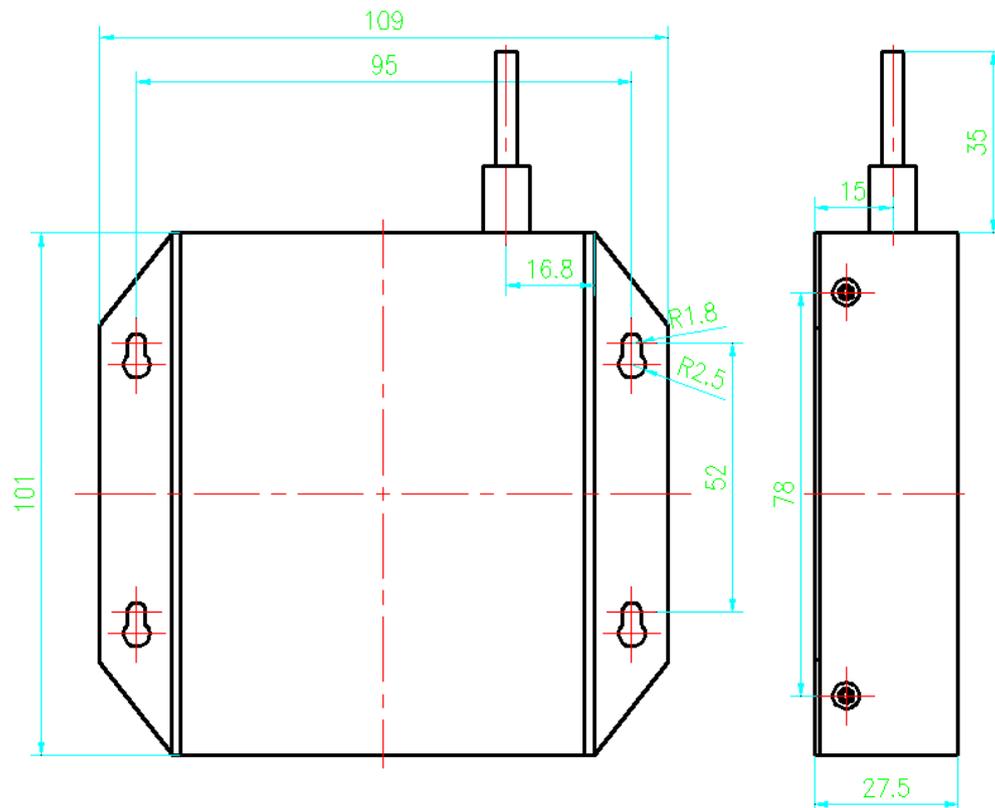
Figure 1.2 Dimensions of SJT-TWCR

Chapter 2: System Installation and Commissioning

2.1 System Schematic Diagram

SJT-TWCR does not come with microphone or speaker, this device must be connected in parallel with elevator five-intercom system wiring and use the microphone and speaker of intercom device (cabin intercom device) to communicate. The system schematic diagram is shown below.
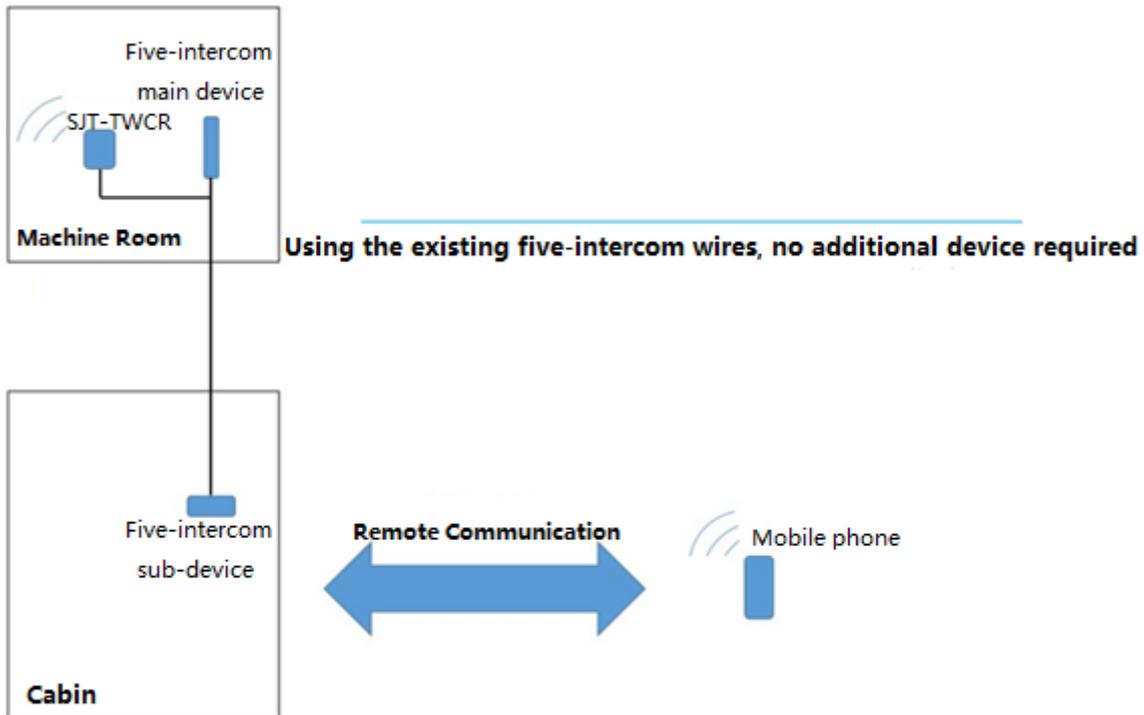
Figure 2.1 System Schematic Diagram

2.2 Wiring Diagram

SJT-TWCR has 8 wires out for connecting. 4 wires connect into five-intercom system, and 4 wires connect into compatible control system. The diagram is shown below.
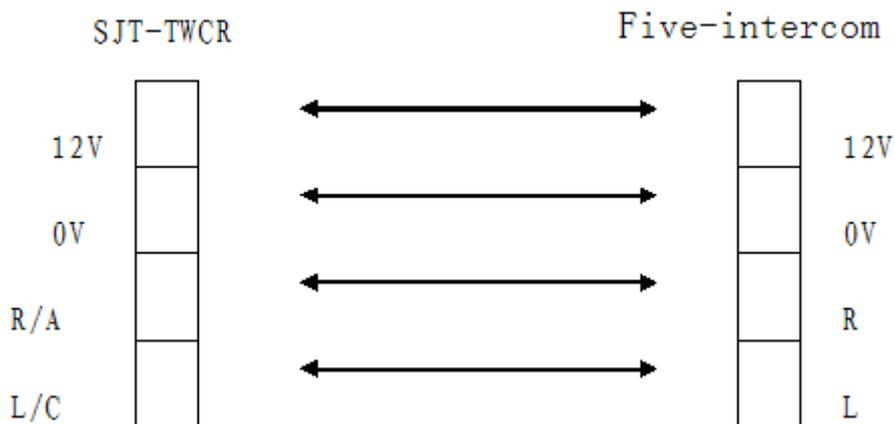
Figure 2.2 Five-intercom Wiring Diagram
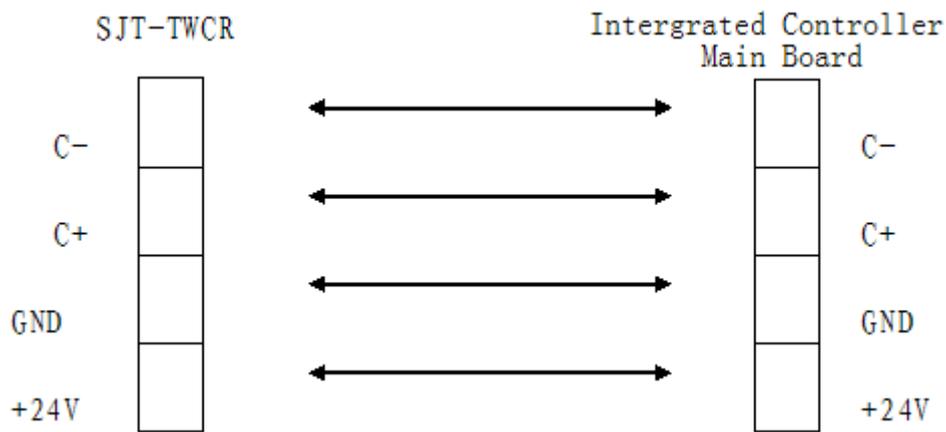
Figure 2.3 Connect with Intergrated Controller Wiring Diagram

List 2.1 SJT-TWCR Wiring Terminal Definition

Terminal	Number	Name	Definition
JP1	JP1-1	+12V	Connect to five-intercom power'+12V'
	JP1-2	0V	Connect to five-intercom ground'0V'
	JP1-3	R/A	Connect to five-intercom'R'
	JP1-4	L/C	Connect to five-intercom'L'
	JP1-5	CANL	Connect to control system'CANL'
	JP1-6	CANH	Connect to control system'CANH'
	JP1-7	MGND	Connect to control system ground'GND'
	JP1-8	M24V	Connect to control system power'+24V'
JP2	JP2	JP2	Connect to digital operator port
SIM CARD	SIM CARD	SIM CARD	SIM card port

2.3 Elevator (integrated controller) Main Board Far Monitor Function Enable Setting

Setting method please refer to *"BL6-U Series Integrated Controller User Manual"*, section **6.23 Remote monitor.**

2.4 Commissioning Method

2.4.1 SJT-TWCR Product Instruction

Picture of SJT-TWCR front and rear panels are shown below
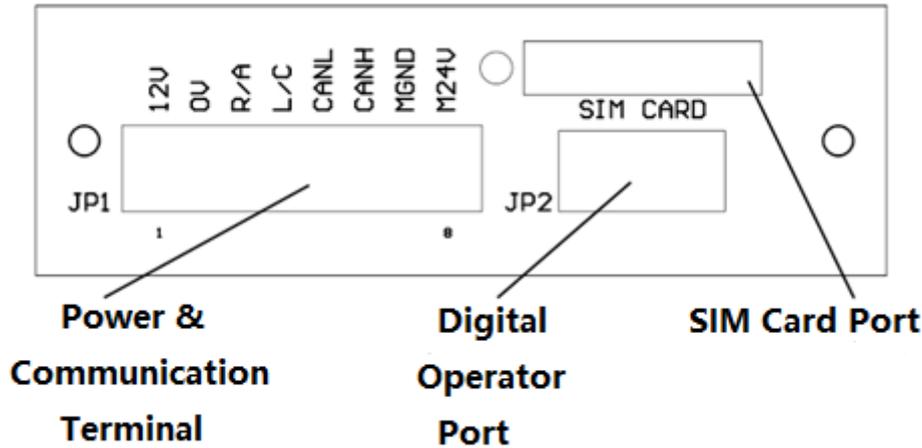
Figure 2.4 SJT-TWCR Rear Panel
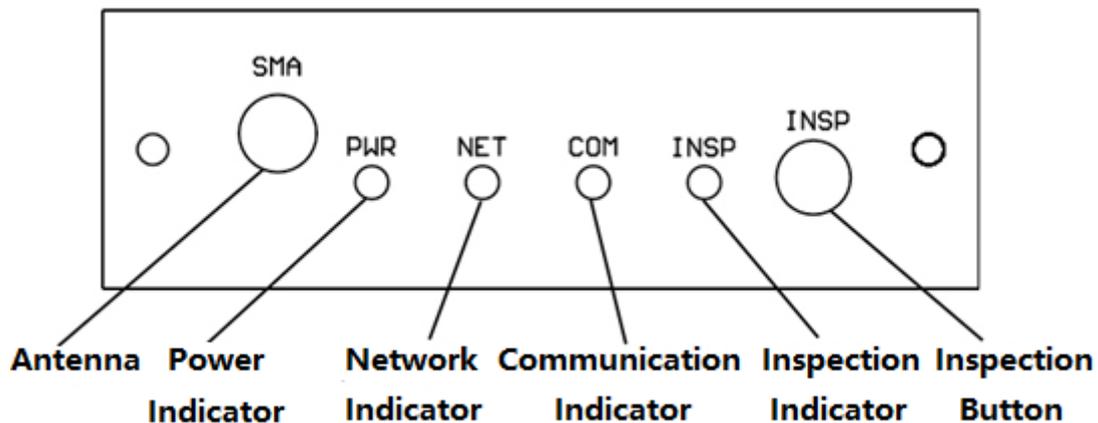
Figure 2.5 SJT-TWCR Front Panel

✧ Power Indicator
   The power indicator light will constant ON while working.
✧ Network Indicator, indicates GSM network status
   Constant OFF: GSM unit is not working;
   Fast Flash 1 (0.1s ON, 0.8s OFF): Searching for GSM network (if device keeps in this state for too long, check the SIM card insertion and signal strength);
   Slow Flash (0.1s ON, 3s OFF): Register to GSM network (initializing);
   Fast Flash 2 (0.1s ON, 0.3s OFF): Register to GPRS network (normal working status).
✧ Communication Indicator
   Flash: SJT-TWCR is remote monitor communicating;
   Constant OFF: No communication;
✧ Inspection Indicator (reserved)
✧ Inspection Button (reserved)

2.4.2 Commissioning Instruction

Initial installation and operation of SJT-TWCR device, please follow the steps below:
● Prepare a SIM card (standard SIM card 25×15m) that supports voice call and GPRS internet (2G network).
● First insert this card to a mobile phone, add 1-5 phone numbers to the SIM card;
● Put SIM card into SJT-TWCR device, make sure wirings are correct, then power on.

Note: If by plugging JP1 terminal to power on SJT-TWCR device, the instant current can exceed 1A. So, this operation should be performed when elevator is not running.

● After SJT-TWCR device power on, check the indicator status. In about 8 seconds, SJT-TWCR enters initializing state:
  Power indicator: Constant ON. If not, power off the device immediately and check the wirings;
  Network indicator: Constant OFF: GSM unit is not working;
  Fast Flash 1 (0.1s ON, 0.8s OFF): Searching for GSM network (if device keeps in this state for too long, check the SIM card insertion and signal strength);
  Slow Flash (0.1s ON, 3s OFF): Register to GSM network, system is initializing, please wait patiently;
  Fast Flash 2 (0.1s ON, 0.3s OFF): Register to GPRS network, initialize complete, system enters normal working state. The indicator keeps this flashing status.

Note: If device cannot enter normal working state, SJT-TWCR will automatic restart.

● When the network indicator is showing as fast flash 2, which means SJT-TWCR is operating successfully, therefor, SJT-TWCR has the following properties:
  Remote Monitoring: Users can monitor elevator status on the Intelligent Elevator Core System (IECS) platform.
  One Key Calling and Rescue: Users press the emergency call button in cabin for more than 1s, and then this device will make phone calls to preset personnel. So, people from off-site can communicate with cabin while answering the phone.
  Remote Intercom: People from far distance can call the IC card phone number of this device, and then the device will automatically answer the phone call by connecting to elevator five-intercom system. So, people can talk to cabin in far away.

In addition, this device features 'multiple numbers calling' and 'incoming call firewall' functions. When calling out, device starts to call the 1st number, if no answer, then it continuous to call the pre-stored numbers 2 to 5 in turns; When there is an incoming call, only from the prestored 1 to 5 numbers the calling is allowed and can be answered it automatically.

SJT-TWCR Product Annotation:

1.   This product features One Key Calling and Rescue, Remote Intercom and other functions, that requires the elevator having five-intercom system (for example model NKT12 series). This product will not interference the use of five-intercom function.

2.   This product does not come with SIM card. User need to prepare it by self. The SIM card (standard SIM card 25×15m)requires supporting voice call and GPRS internet (2G network), it is user's responsibility to maintain the card on service (payment).

3.   If the quality of connection is not desirable, please adjust the volume of MIC and Speaker by using digital operator.

4.   This product transmits and receives radio wave in GSM frequency (800/900/1800/1900Mhz). This product satisfies the current regulations and rules. Moreover, in case of interfering with other electrical devices, it is recommended to use this product according to local advice and restrictions.

5.   When the device loses power supply, it has back up power source that supports device operating shortly. When power indicator completely turns off that means the device is out of work.

6.   When plugging and unplugging the terminal with the power on, the elevator should not be running, or it should be in inspection operation.

7.   The explanation of this product belongs to our company. If there are any changes, please excuse that we will not inform you otherwise.

2.4.3 Monitoring Platform Registration Instruction

Registration on IECS platform is required for every TWCR device, only after successfully registered, the state of elevator can be monitored on IECS platform. The IECS platform registration process is described as below:

Login IECS platform with account name and password, in page "System"->"Elevator" click "Add", then in the add elevator window, select"elevator +WCR"and fill in the BS number and IMSI number of TWCR in the blank box   (refer to 3.3.1 for BS number and IMSI number), then click check. After passing the check, fill in the rest information and click save.

Figure 2.6 Elevator Management Page

Figure 2.7 Add Elevator Window

2.4.4 Platform Monitoring Instruction

After each TWCR is successfully registered to IECS, the state of elevator can be remote monitored on "Monitoring"->"Home Page" on platform.

IECS Remote Monitoring Page:

Figure 2.8 Monitoring Platform Page

Figure 2.9 Target Elevator Monitoring Page

In monitoring interface, user can watch elevator basic states (Auto, Park, Inspection, Fire, Attendant, Error, Safety Circuit State, Overload, Door Lock Circuit State, Leveling) and elevator car call, hall call floors, current floor. Please refer to IECS instruction for detail.

Chapter 3: Digital Operator and Elevator Expert APP

Commissioning Instruction

Users can set SJT-TWCR parameters and monitor data on digital operator or Elevator Expert App. Please make sure the parameters are correct before setting.

Note：Device is in digital operator setting mode by default, if Elevator Expert App setting is preferred, please follow the process below:

1. **Plug the featured Bluetooth module on the port JP2, power on the device.**
2. **Switch on Bluetooth on mobile phone -> Open Elevator Expert App -> Setup -> BL Board Setting -> Switch the mode to ON.**
3. **Click down arrow button over 10 times, until the interface appears on screen.**
4. **This operation is currently supported by Android phone only.**

Menu	——	return to main menu
Enter	——	enter to the next level menu or confirm parameter change
Esc	——	cancel operation or back to the last level menu
＞	——	move right
∧	——	scroll up or +1, Yes, ON
∨	——	scroll down or -1, No, OFF

3.1 Main Menu

```
O K   ■■■□            O K   ■■■□
C a l l i n g   3 8    T a l k i n g
```

State indication: 'OK'
- 00: initializing state;
- C*: communication module initializing;
- D*: network connection state;
- RE*: register platform information;
- OK: connect to platform success (working properly).

Signal Strength: '■■■□'

SJT-TWCR signal strength is indicated by four black squares. Four squares are black represent the signal strength is the highest. Recommend signal strength is not less than 2 squares.

Message: 'Calling 38'

CAN Event:	CAN communication error;
POW OFF Event:	main power (12V) drop;
Calling **:	the device is calling out, calling count down ** second;
Talking:	remote talking in process;
Err **:	SJT-TWCR error code (not the elevator system error code)

3.2 Parameter Setting

On digital operator main menu, press 'Enter' to the setting page.

3.2.1 Connect to Platform Setting Enable

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│B S   E n a b l e   S 0 0│────────▶│B S   E n a b l e   S 0 0│
│          E n t e r      │◀────────│                  Y e s  │
└─────────────────────────┘   Esc   └─────────────────────────┘
                                            ↑   ↓
                                     ┌─────────────────────────┐
                                     │S e t   A u d V o l   P a r a│
                                     │                  N o     │
                                     └─────────────────────────┘
```
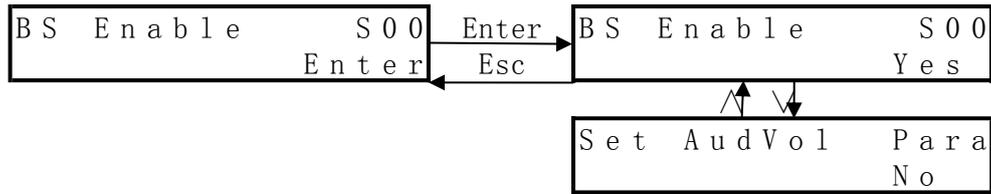
Enable or disable device connection to the monitoring platform. Save parameter operation in parameter saving menu is required after setting (default Yes).

3.2.2 Save Parameter

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│S a v e   P a r a   S 0 1│────────▶│S a v e   S u c c e s s   │
│          E n t e r      │◀────────│                E n t e r │
└─────────────────────────┘   Esc   └─────────────────────────┘
```

Save current parameters setting in this menu. After press Enter, parameters are written into Flash.

3.2.3 Register Platform Information

```
┌─────────────────────────┐         ┌─────────────────────────┐
│R e g i s t e r     S 0 2│   or    │R e g i s t e r     S 0 2│
│N e e d   R e g i s t e r e d│     │H a v e   R e g i s t e r e d│
└─────────────────────────┘         └─────────────────────────┘
```
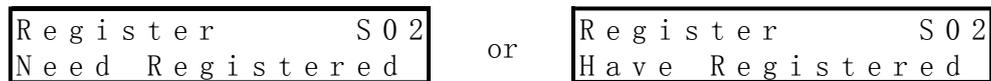
This page indicates whether device has registered to the platform, if not, SJT-TWCR will register automatically.

3.2.4 Read Parameter

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│R e a d   P a r a   S 0 3│────────▶│X X X – X X     X X X X   │
│          E n t e r      │◀────────│                E n t e r │
└─────────────────────────┘   Esc   └─────────────────────────┘
```

In this page, digital operator can read and copy SJT-TWCR parameters, then apply to other devices. It is convenient to commissioning multiple SJT-TWCR devices and increase the commissioning efficiency.

3.2.5 Write Parameter

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│W r i t e   P a r a   S 0 4│──────▶│X X X – X X     X X X X   │
│          E n t e r      │◀────────│X X X – X X     X X X X   │
└─────────────────────────┘   Esc   └─────────────────────────┘
```

In this page, digital operator can write parameters into SJT-TWCR. It is convenient to commissioning multiple SJT-TWCR devices and increase the commissioning efficiency.

3.2.6 Phone Parameter

```
┌─────────────────────┐  Enter  ┌─────────────────────┐
│ P h o n e   P a r a   S 0 5 │ ──────► │ S e t   M i c G a i n   P a r a │
│           E n t e r │ ◄────── │                   4 │
└─────────────────────┘   Esc   └─────────────────────┘
                                          ▲   │
                                        ∧ │   │ ∨
                                          │   ▼
                                ┌─────────────────────┐
                                │ S e t   A u d V o l     P a r a │
                                │                 4 0 │
                                └─────────────────────┘
```
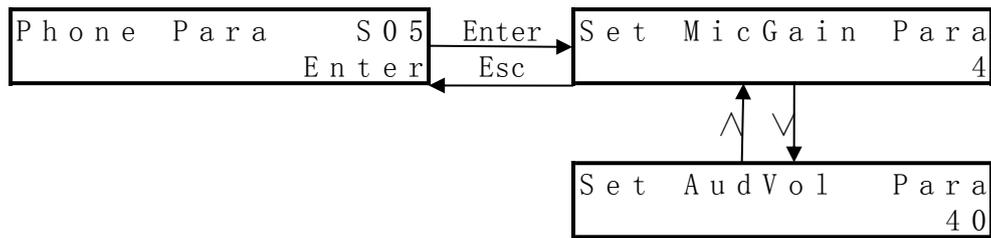
In this menu set Mic and Speaker volume:
Mic volume: 0-9, default 4;
Speaker volume: 00-99, default 40.

3.2.7 Set Platform IP Address

```
┌─────────────────────┐  Enter  ┌─────────────────────┐
│ B S   I P   A d d r .   S 0 6 │ ──────► │ B S   I P   A d d r .     S 0 6 │
│           E n t e r │ ◄────── │ 2 1 8 . 6 0 . 1 3 . 0 0 8 │
└─────────────────────┘   Esc   └─────────────────────┘
```

In this page, check and set monitoring platform IP address. Save parameter operation in parameter saving menu is required after setting (default IECS platform).

3.2.8 Set Monitoring Platform Port Number

```
┌─────────────────────┐  Enter  ┌─────────────────────┐
│ B S   P o r t   N o .   S 0 7 │ ──────► │ B S   I P   A d d r .     S 0 7 │
│           E n t e r │ ◄────── │                 7 8 8 3 │
└─────────────────────┘   Esc   └─────────────────────┘
```

In this page, check and set monitoring platform port number. Save parameter operation in parameter saving menu is required after setting.

3.2.9 Set APN Address

```
┌─────────────────────┐  Enter  ┌─────────────────────┐
│ B S   A P N   S e t     S 0 8 │ ──────► │ B S   A P N   S e t     S 0 8 │
│           E n t e r │ ◄────── │ C M W A P │
└─────────────────────┘   Esc   └─────────────────────┘
```

In this page, check and set APN address. Save parameter operation in parameter saving menu is required after setting. Then carrier operation will calibrate APN address, in normal condition this parameter does not need to change.

3.2.10 Erase Flash Data

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│Eraser  Flash  S09│────────▶│Eraser    Success│
│              Enter│◀────────│Wait   Resert│
└─────────────────────────┘   Esc   └─────────────────────────┘
```

In this menu, erase internal memory data, reset factory setting. After resetting, SJT-TWCR will register to the platform again.

Note: Every time after changing SIM card, please erase Flash data and wait for platform to issue a new BS number. Then edit the BS number and IMSI number on IECS platform or register again.

3.2.11 Special Function Setting

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│Set   Func        S10│────────▶│Set   Func   000│
│              Enter│◀────────│                No│
└─────────────────────────┘   Esc   └─────────────────────────┘
                                          ▲  │
                                       :  ∧  ∨  :
                                       :        :
                                     ┌─────────────────────────┐
                                     │Set   Func   031│
                                     │                No│
                                     └─────────────────────────┘
```
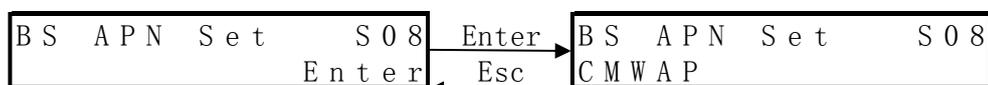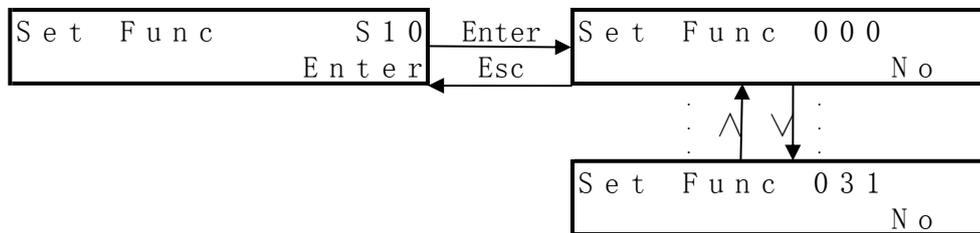
In this page, enable special function by set Yes on respective function and save parameter. The function will be effective after re-start deice.

Featured Special Function:

Function Code	Function Name	Function Description
Func 000	Voice Prompt Function	After enabled, calling out and hang up will have prompt tone；
Func 001	Active Hang Up Function	After enabled, calling out for 3 seconds (default is 3s, can be set), then press calling button again can hang up the call.
Func 002	English Voice Function	Operate with voice prompt function, use English when it is enabled.

3.2.12 Set Calling Time

```
┌─────────────────────────┐  Enter  ┌─────────────────────────┐
│Call  Time        S11│────────▶│Call   Time        S11│
│              Enter│◀────────│                50s│
└─────────────────────────┘   Esc   └─────────────────────────┘
```

In this page, set the calling time when wait for answering, default is 50s. Every call will last for 50s, if no answered in this period, then will call the next number. Save parameter operation in parameter saving menu is required after setting.

3.2.13 Set Hang Up Time
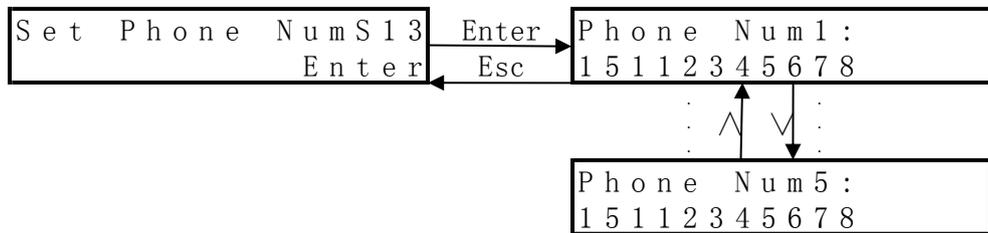
```
Hung  Up  Time  S12 │ Enter │ Hung  Up  Time  S12
          Enter │   Esc  │            03s
```

In this page, set the allowed time to active hang up after calling, default is 3s. When passenger press calling button to make a call, after 3 seconds press calling button again can hang up the call. Save parameter operation in parameter saving menu is required after setting.

Note: This function is not enabled by default, to enable this function, set Func001 to Yes, refer to 3.2.13 for detail.

3.2.14 Set Authorized Phone Number

```
Set  Phone  NumS13 │ Enter │ Phone  Num1:
          Enter │   Esc  │ 15112345678

                                    Phone  Num5:
                                    15112345678
```

In this page, set the authorized phone numbers (store in SIM card) of the SJT-TWCR product. Save parameter operation is not required for this setting.

The authorized phone numbers and consist of 11 digits, or with Zone number for example:: 02423456789 (024-23456789), 041523456789 (0415-23456789) etc.

Calling Out: phone number 1 has the highest priority, if not answered, then call the
            rest numbers 2-5 in turns;

Calling In: only the authorized number can call in and answer the call automatically.

3.3 Check State in Monitoring Menu

On digital operator main menu, press 'V' to the monitoring page.

3.3.1 Platform IMSI/BS Number

```
IMSI/BS  No.   M00 │ Enter │ IMSI  No:
          Enter │   Esc  │ 460029982748680

                                    BS  No:
                                    E0000300010150
```
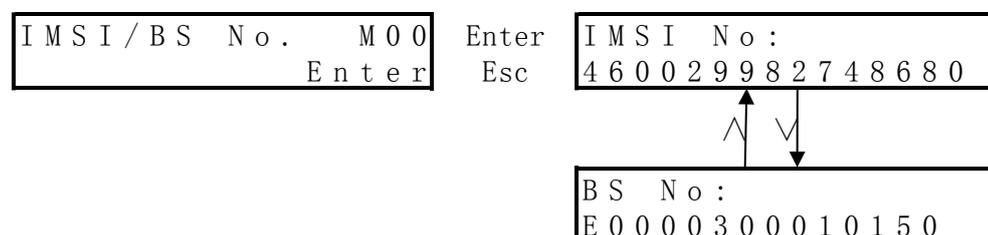
Check platform IMSI number and BS number in this page. These numbers are the unique identification of elevator. When commissioning, write down elevator IMSI number, BS number and elevator location in order to build elevator files on platform.

If the last eight digits of BS serial number are all zeros, which means the system has not released a BS number to the device. In normal condition when device is powered up for more than 2 minutes, it will apply for the number automatically.

3.3.2 Software Version Number

```
S o f t   V e r s i o n   M 0 1 | Enter →|
                     E n t e r |← Esc   | 6 0 5 _ 2 2
```

Check software version number of SJT-TWCR in this page, for example 605_22.

3.3.3 GPRS State Monitoring

```
M o n i G p r s   C o m   M 0 2 | Enter →| E 0 0 0 0 3 0 0 0 1 0 1 5 0
                     E n t e r |← Esc   | E 0 0 0 0 3 0 0 0 1 0 1 5 0
```

In this page, check the GPRS communication data of SJT-TWCR and to indicate whether GPRS communication is working properly.

3.3.4 CAN State Monitoring

```
M o n i C A N   C o m     M 0 3 | Enter →| C A N   R e c   C N T : 0 0 0 0
                     E n t e r |← Esc   | C A N   B a g : ☐☐☐☐☐☐
```

In this page, check the CAN communication data of SJT-TWCR and to indicate whether CAN communication is working properly:

CAN Rec CNT: 0000   CAN communication timeout count.
CAN Bag: ☐☐☐☐☐☐   CAN communication state, flash when it is normal.

3.3.5 Data Usage

```
M o n i G p r s   B y t e M 0 4 | Enter →| 0 0 0 0   G B   0 0 0 0   M B
                     E n t e r |← Esc   | 0 0 0 2   K B   0 3 0 8     B
```
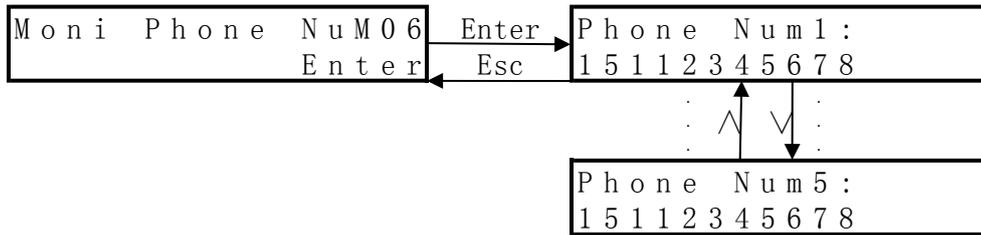
Check GPRS data usage of SJT-TWCR here. It clears to zero when erase the Flash.

3.3.6 Initializing Count (reserved)

```
M o n i   i n i   C N T   M 0 5 | Enter →|
                     E n t e r |← Esc   |         0 0 0 0 0 0 0 0 0
```
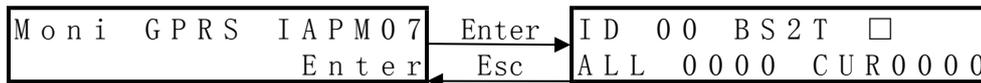
In this page, check initializing count of SJT-TWCR (currently on reserved).

3.3.7 Authorized Phone Number Display

```
┌─────────────────────────┐          ┌─────────────────────────┐
│ M o n i  P h o n e  N u M 0 6 │  Enter │ P h o n e   N u m 1 : │
│              E n t e r │◄── Esc ──│ 1 5 1 1 2 3 4 5 6 7 8 │
└─────────────────────────┘          └─────────────────────────┘
                                              :  ∧  ∨  :
                                              :  │  │  :
                                          ┌─────────────────────────┐
                                          │ P h o n e   N u m 5 : │
                                          │ 1 5 1 1 2 3 4 5 6 7 8 │
                                          └─────────────────────────┘
```

Check authorized phone numbers of SJT-TWCR in this page (store in SIM card),
Calling out: Call number 1 first. If no answer, then call 2-5 in order;
Incoming call: Only authorized numbers can call in, and automatic answers.

3.3.8 IAP Function Monitoring

```
┌─────────────────────────┐          ┌─────────────────────────┐
│ M o n i  G P R S  I A P M 0 7 │  Enter │ I D   0 0   B S 2 T   □ │
│              E n t e r │◄── Esc ──│ A L L   0 0 0 0   C U R 0 0 0 0 │
└─────────────────────────┘          └─────────────────────────┘
```

In this page, check IAP function status of SJT-TWCR:
ID 00:   reserved identification.
BS2T □:   server connection state.
ALL 0000:   total number of data packages that need to be received.
CUR 0000:   number of data packages that are already received.

3.3.9 Received Command Monitoring

```
┌─────────────────────────┐          ┌─────────────────────────┐
│ M o n i  R E C  C M D  M 0 8 │  Enter │ H e r t   A n s w e r   C M D │
│              E n t e r │◄── Esc ──│ H e r t   A n s w e r   C M D │
└─────────────────────────┘          └─────────────────────────┘
```

Monitor the state of received command from server in this page. This is for monitoring the connection state to server.