
PM530—I
Tower Crane Anti-Collision System

User Manual

Disclaimer

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- Fosow has the right to change the hardware and software contents contained in operation instructions at any time, and has no obligation to conduct prior notices. The Company has made every effort to ensure the accuracy and integrity of information contained in operation instructions. If any outstanding issues are found, we would appreciate it.
- This product is composed by the related accessories developed by Fosow, each accessory can only play its product function after installed completely correctly. Before installation and maintenance of equipment, please read through this manual carefully, and make sure to fully understand. In cases that the product components are damaged for human factors, or the system can not function properly, the corresponding responsibilities shall be borne by the responsible person themselves.
- This product is an auxiliary safety device of tower cranes. If safety accidents are caused by the limit problems of tower cranes, the corresponding responsibilities shall be borne by the responsible person themselves; if the safety device of Fosow can not be properly installed due to the limit positions of tower cranes, it's not recommended to install.
- **Note: products are subject to changes without notice, in order to prevail in kind.**

About the Instruction

1. Summary

Thank you for using the tower crane safety monitoring system (monitoring systems, systems, equipments hereinafter refer to the safety monitoring system, the display interface is also known as HMI) developed by our company. This manual provides guidance for tower crane drivers, supervisors and professionals through the concise elaboration of the structural principle, debugging, use, installation and maintenance of the monitoring system; meanwhile, this manual can be used as the reference material of tower crane electrical designers and electrical maintenance personnel of the system.

2. Speed reading guide

| Item | Personnel | Speed reading section |
|------|-------------------------------------|---|
| 1 | Tower crane driver | Product Operation Guide Section 1 Equipment Use |
| 2 | Installation personnel | Installation guide |
| 3 | Technical / Maintenance Engineer | Installation guide, product guide, after-sale service |
| 4 | Tower crane electrical designer | Entire reading |

Note: please read the safety tips carefully.

3. Edition statement

| Version | Revision date | Modified contents | Remarks |
|---------|---------------|-------------------|---------|
| V1.0 | 2016.07.18 | first edition | no |

Safety tips

1. Musts of safety

- This product is the auxiliary safety monitoring equipment to prevent dangerous tower crane operations. The Company shall not assume any responsibilities for accidents caused by violation operations and unprofessional operations of tower crane operators.
- To ensure proper collision alarms of the system, please ensure that tower cranes that have collision relations are installed with safety monitoring systems which communication data is mutually compatible (To ensure effective use of the functions provided by the system, it is recommended to use the same type of product provided by the Company).
- Be sure to carefully read through this manual, and please keep this manual properly for retrieval.
- The installations of all equipments of this product belong to high-altitude operations. During installation, it must be carried out in strict accordance with the operating procedures, and safety measures must be provided to ensure safety.
- Before plugging in or pulling out equipment interfaces or accessory contacts, please cut off power supply first.
- In case of equipment failures, request for repair timely. Do not arbitrarily open or repair, consequences caused by arbitrary open and related responsibilities shall be borne by the responsible party.
- If the following occurs during installation, contact the manufacturer or your dealer for handling:
 - (1) The power cords or the plugs are damaged
 - (2) Liquid permeates into the equipment
 - (3) The equipment does not work properly, or the user can not make it work properly by following the guide of this manual
 - (4) The equipment falls or hurts
 - (5) The equipment has obvious signs of breakage

2. Definition of safety signs

Descriptions about “Dangerous”, “Note” and “Important” signs in the Instruction:



当心危险

Appearing in the Instruction to warn users serious damages to the product or even personal injuries may be caused if do not operate in accordance with the requirements.



注意安全

Appearing in the Instruction to remind users moderate damages to the product or other damages to property may be caused if do not operate in accordance with the requirements.



注意重要

Appearing in the Instruction to prompt users to be sure to comply with and pay special attention.

3. Safety precautions

A. Logistics handling



注意安全

1. This product is of electronic products, gently handle during transportation, or the system is likely to be damaged.
2. Do not store the system in humid environments for a long term, the system shall be stored away from strong electrical environments, or the function of the system will be affected.

B. Installation



当心危险

1. Do not install the system on flammable objects to avoid the risk of fires.
2. Do not arbitrarily remove the monitoring system, data or communication cables, any opening of the monitoring system may cause the system can not work properly.
3. Do not use the monitoring system with damaged enclosure and missing parts, otherwise the system will not play its role, and there is the danger of electric shock.

-
4. The installation and maintenance of the product belong to high-altitude operations, to ensure the safety of installation personnel, shut down the tower crane power, during the installation and maintenance process, hot-line work by staff is strictly prohibited.
 5. To prevent falling objects during installation, be sure to turn tower cranes to non-key operation areas.
 6. Prevent liquid from immersing into the system when the system is in use, otherwise it will cause the system working improperly, and there is the danger of electric shock.
 7. Wiring work must be carried out by qualified personnel to avoid electric shock hazards.
 8. Before accessing the system power supply cables, make sure that the main power of tower cranes is cut off.



1. Install in strict accordance with the specification of the user manual.
2. Power supply connections must be reliably grounded.
3. The system can not be disassembled arbitrarily, or it is not warranted during the warranty period.
4. Lifting operations are strictly prohibited during the installation and maintenance process of the product.
5. The system can only be used normally after proper installation and debugging.
6. Please place the equipment connecting lines at places free from trample, avulsion, abrasion and extrusion to prevent short circuit or open circuit of cables.

C. Use of the system



1. After energized, do not touch the terminals of the monitoring system, otherwise, there is the risk of damages to the monitoring system and the risk of electric shock.
2. The monitoring system exchanges the operating status information of tower

cranes through real-time communications, when the safety monitoring system of one unit or several units of the tower crane group is closed, drivers shall carry out operations in strict accordance with the actual situation at the scene. Otherwise, there may be a risk of collision.

3. The system provides a three-dimensional collision alarm protection, please timely contact technical personnel to modify parameters when the relative height of tower cranes changes, otherwise, there will be false alarms or risk of collision.



注意安全

1. If the system has faults during the use procedure, please contact professionals for timely maintenance.
2. Please check the set parameters before running, or there is the risk of damage to the monitoring system.
3. Do not use wet hands to operate the monitoring system, or there is the risk of damage to the monitoring system.
4. Do not drop screws, washers and foreign objects like metal inside the monitoring system, or there is the risk of damage to the monitoring system.
5. To ensure the normal use of the equipment, operate in strict accordance with the operating instruction, ensure the cooling and drying of the monitor, the host and GPRS equipment, securely mount them. Prevent hard objects from hitting the monitor to avoid damages to the monitor; prevent liquid from infiltrating into the gap between the host and the monitor, liquid intrusion can cause serious damages to the equipment.

D. Maintenance



当心危险

1. If users find that the system has errors during the use procedure, the system must be debugged again.
2. When tower cranes transfer site or the lifting speed changes, the system must be debugged again.

3. Maintenance operations must be performed when the main power is disconnected, otherwise there may be the risk of damages to the monitoring system and the risk of electric shock.

4. Parts must be replaced by professionals. It is strictly prohibited to leave wire joints or metal objects in the monitoring system, otherwise there may be the risk of damages to the monitoring system, the risk of electric shock or fires.

5. Do not arbitrarily transform the monitoring system, or there may be the risk of damages to the monitoring system and personnel safety hazards.



注意安全

1. After the monitoring system is replaced, parameter modification must be carried out, or the monitoring system may work improperly.

2. It is strictly prohibited to plug in or pull out sensor connectors or data connecting cables during the operating process of the system, or it may result in system failures, and there may be the risk of damages to the monitoring system and the risk of electric shock.

3. Please check the system components daily before starting up.

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The first part. Introduction of PM530I system

1. System overview

PM530I is a modularized combined system which is an integration of 5 limits, force and moment, area protection, anti-overturning function, anti-collision function and other functions. The system uses ARM technology and WINDOWS / CE operating system, applies the modularization idea on the basis of the product advantages of the previous generations to achieve lower operating costs of the tower crane, which is with the multi-function multi-purpose, high-cost and high reliability characteristics. The system is designed to address the continuous replacement of safety monitoring devices for tower cranes in different operating environments, which can be applied in multiple complex construction environments, helps tower crane operators to identify potential hazards and gives alarms. The system performance is stable, easy to use and practical, the operation is simple and convenient, no matter one unit or several units, unsafe factors of objects and unsafe behaviors of human can be easily judged through modular components, it has effectively prevented accidents.

1.1 System function

- (1) Conduct real-time detections and display the operating status of tower cranes ;
including weight, moment of force, Height, Radius and wind speed;
- (2) Wire rope weight intelligent computing;
- (3) rope reeving 2/3/4/6 easily switch;
- (4) Remote data transmission (Including the remote platform) ;
- (5) “black box” records and download function, The standard is one million pair of storage space, storage space can be extended to 32G, About thirteen billion records; including Real-time record, Working record, Wind speed record, Sensor status record, Operation record, Calibration record, Running record;
- (6) Types of language: Simplified Chinese, Traditional Chinese, English, Russian;
- (7) U disk import load curve, application upgrades, data download;
- (8) Support sound and light alarm and buzzer alarm;
- (9) Sensor anomaly and not-in-position detection functions;

1.2 System benefits

- Modularization combination, efficient application, saving the cost of tower crane
- Functions selectable, arbitrary combination along with any operating conditions, convenient and practical
- ARM technology and WINDOWS / CE operating system, more stable performance
- Three-dimensional obstacle avoidance algorithm based on the behavior of tower crane increases the structure variables of tower crane.
- Long life design, the working life of core components is at least 8 years
- TOS2.0 system, panoramic vision technology, real-time information at a glance
- Easy and simple to operate, 7-inch touch screen, 640 × 480 resolution, you can easily debug

1.3 System structure

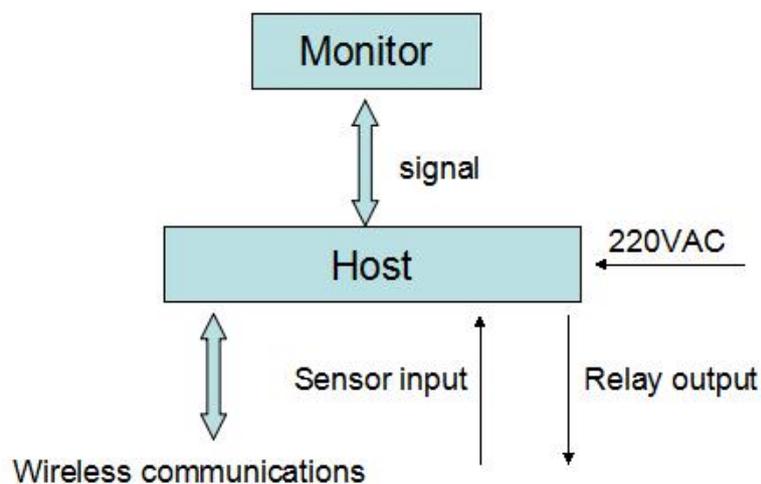
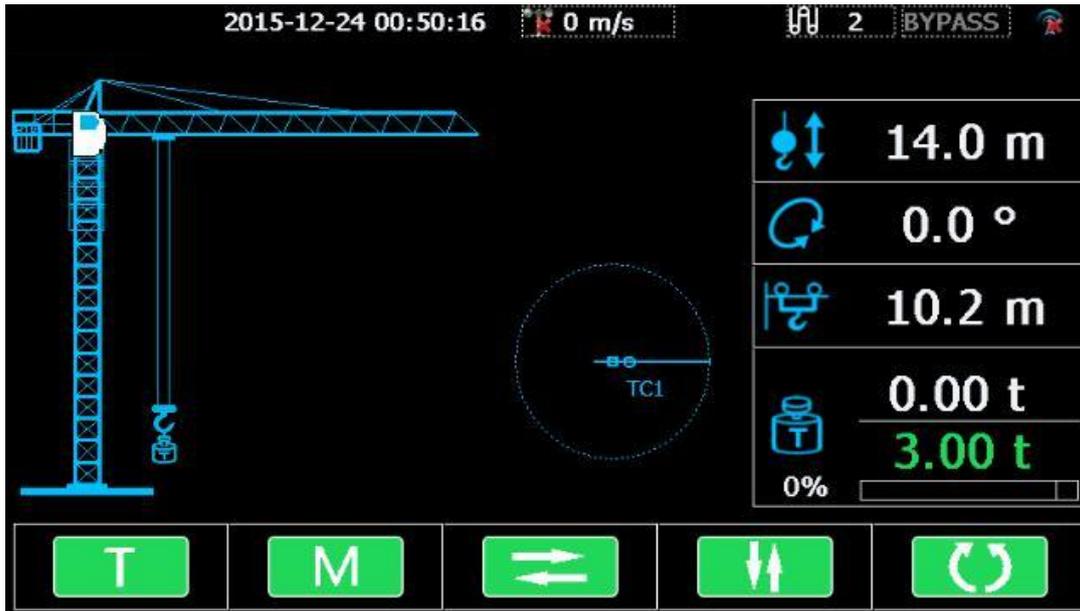


Figure 1.1 Structure drawing of PM530I system

1.4 Technical parameters

| Project name | | Detailed indicators |
|---|-----------------------|--|
| Operating voltage | | 90-264VAC, 50Hz~60Hz |
| Power consumption | | <50W |
| Operating mode | | Continuous |
| Operating log | | 20,002 pieces |
| Tower crane real-time data (black box record) | | 107,280 pieces (64.5 hours) |
| Control accuracy | Lifting weight | <±3% |
| | Luffing / height | 0.2m |
| | Rotation | 1° |
| | Comprehensive error | <±5% |
| Operating environment | Operating temperature | -20 °C ~ + 60 °C (industrial grade) |
| | Storage temperature | -30°C~+80°C |
| | Relative humidity | 5% ~ 95% (non-condensing) |
| Waterproof grade | Master control unit | IP44 |
| | Sensors | IP67 |
| Anti-interference grade | EFT | Grade 4 (4,000V) |
| | Surge | Grade 4 (4,000V) |
| Output and alarm | Control method | Relay output |
| | Control loop | 12-way fixed + 4-way custom |
| | Control ability | 16A/250VAC (30VDC) dry contact, resistive load, inductive load is used by derating 5 times, contact endurance is 100,000 times |
| | Alarm output | Buzzer sounds, display of indicator lights |

1.5. System interface



rope reeving;



BYPASS Open and closed;



The wind speed value;



Height value;



Large arm rotation Angle;



Radius value;



The above is the actual weight, The following is the current biggest safety weight, percent is the Torque percentage;

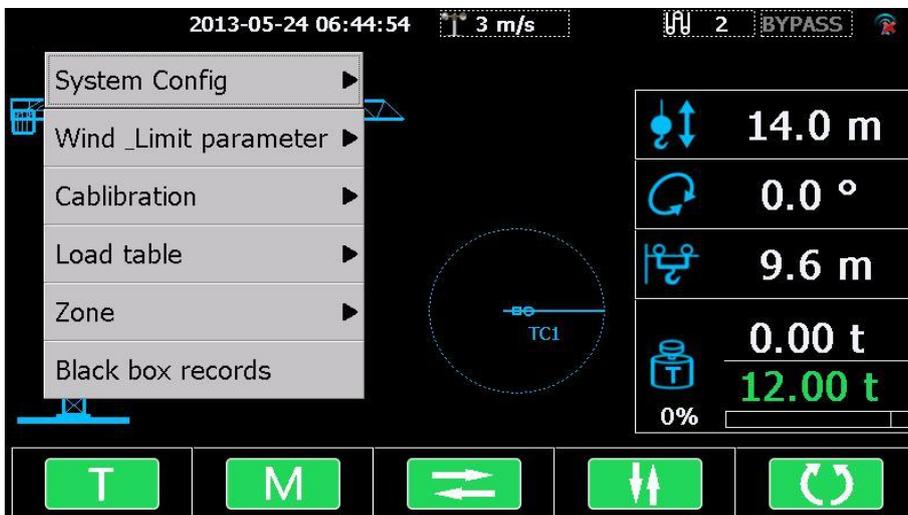
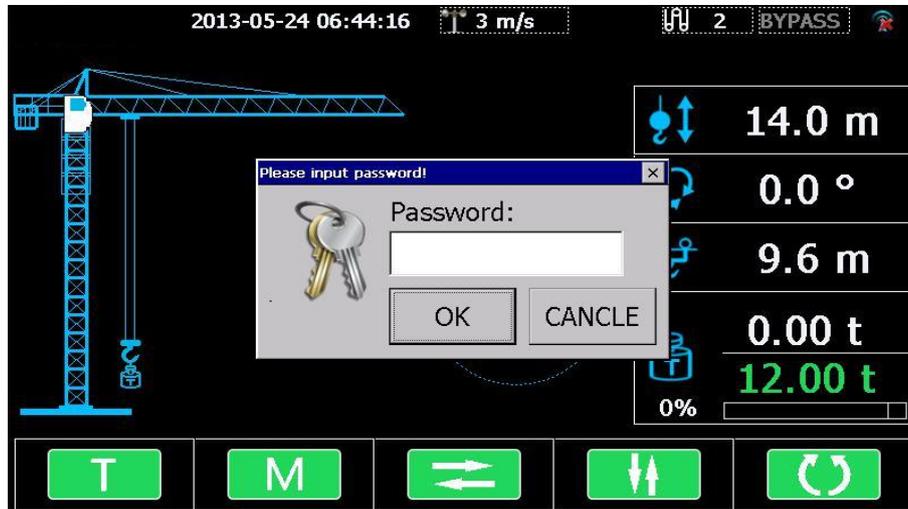


Status indication, Green represents normal, yellow for early warning, red for the police; T1 represents weight percentage 1, T2 represents weight percentage 2, T3 represents weight percentage 3, M1 represents Torque percentage 1, M2 represents Torque percentage 2, M3 represents Torque percentage 3, M4 represents Torque percentage 4;

The car to the tip of the arm, The car to the roots of the arm, load hook rising, load hook falling; arm turn left, arm turn right;

The system password management

System set two levels of password, ordinary user and system debugging administrator; Ordinary user refers to the tower crane driver, the password is 1234;



The second part: System operation

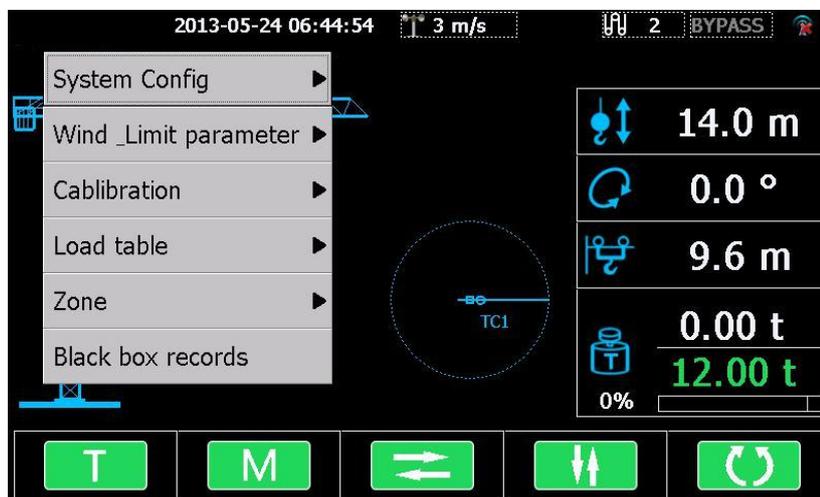
2.1 Installation and debugging

The first step: All the sensors installed on the tower crane.

The second step : Main electric control system connected to 220 v alternating current, Observe whether sensor voltage range is correct;

| No. | Name | voltage range |
|-----|---------------|---------------|
| 1 | Radius sensor | 0.3V ~ 5.0V |
| 2 | Height sensor | 0.3V ~ 5.0V |
| 3 | Load sensor | 0.3V ~ 5.0V |

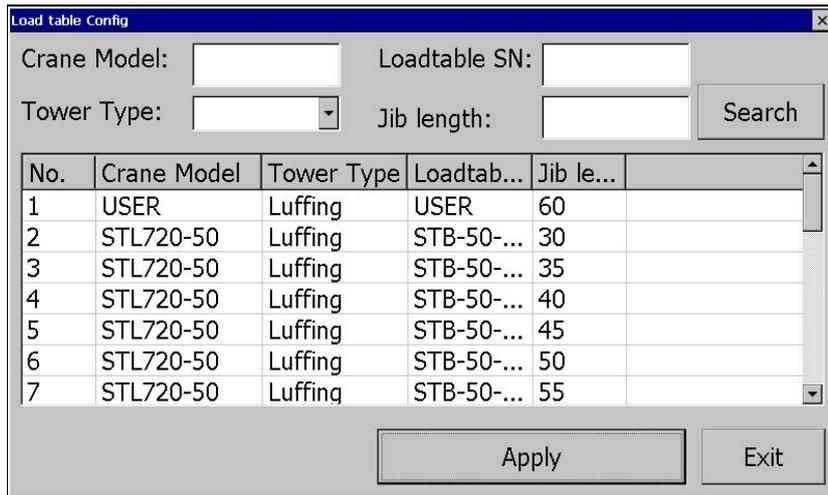
The third step: Enter debug the administrator password (8016) , Observation The system displays is right or wrong.



The fourth step: Test load table, and select the tower crane arm length;



Choose the required arm length, click on the "application of load table", arm length selection is OK.



For lifting load calibration, multi-point calibration, client inputs the required calibration points during calibrations, the selection range is 2-5 points, and the system default is 2 points. For multi-point calibration, select the calibration points.

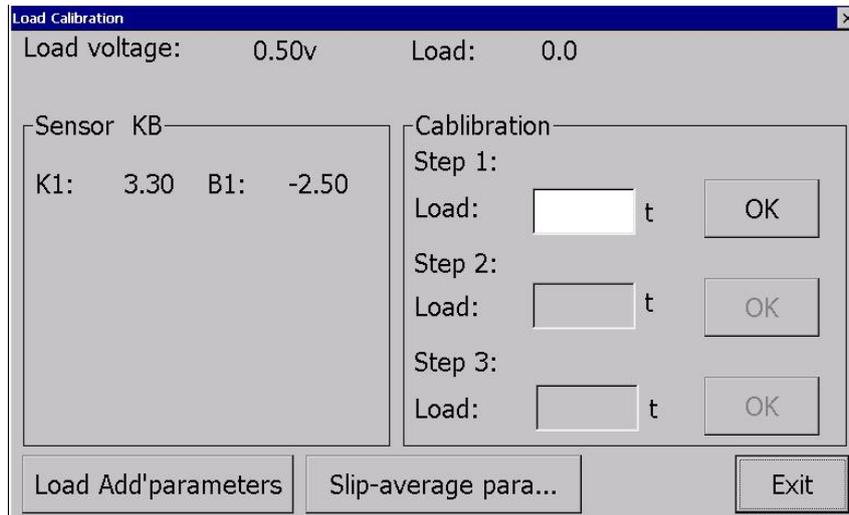


Figure 3.8 Lifting load calibration

Auxiliary parameters include movable pulley weight, 2-magnification hook weight and slip average parameter.

Slip average parameter: which is the lifting load sensitive value, the smaller the value is, more sensitive it is, and the default is 6.

Amplitude and height calibrations: the method for 2 sensors is the same, adopting multi-point calibration, client inputs the required calibrating points during calibrations, the selection range is 2-5 points, and the system default is 2 points.

Specific operation process for amplitude calibration: after adjusted the car to a measurable value, maintain the same position, after the voltage of the first point is stable, fill in the current amplitude value, click on "OK"; then after adjusted the car to

another measurable value, keep the same position, after the voltage of the second point is stable, fill in the current amplitude value, after clicked on “OK”, the system will automatically calculate the values of K and B, and prompt “amplitude calibration success.”

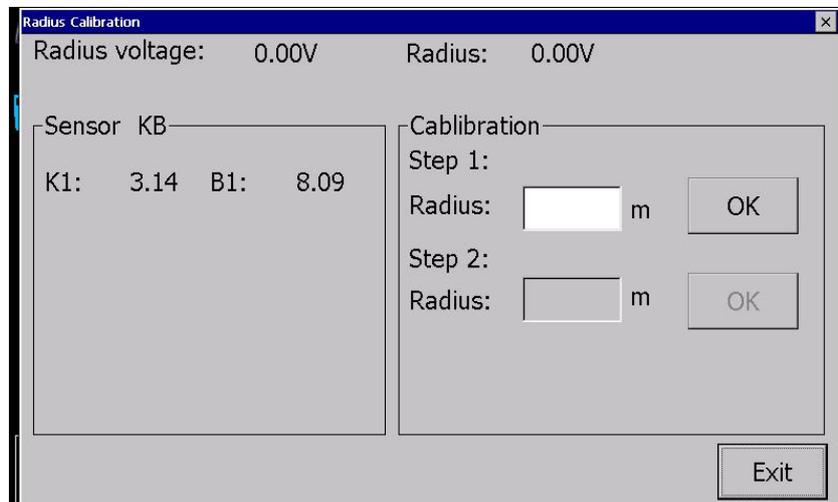


Figure 3.9 Amplitude calibration map

Specific operation process for height calibration: adjust the hook and place it vertically on the ground, after the voltage of the first point is stable, fill in 0, click on “OK”, then lift the hook to the highest point, after the voltage of the second point is stable, fill in the current height value, after clicked on “OK”, the system will automatically calculate the values of K and B, and prompt “height calibration success”. **(Height calibration takes the ground as 0 reference point, and ground is still the 0 reference in tower lifting operations)**

Auxiliary parameters include steel wire density, tower crane height under rated load weight.

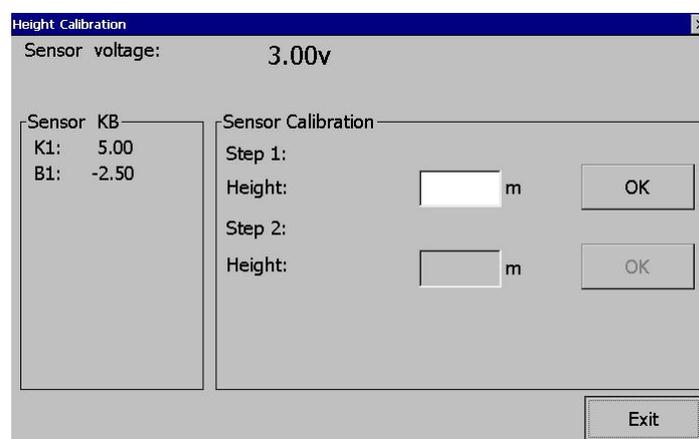
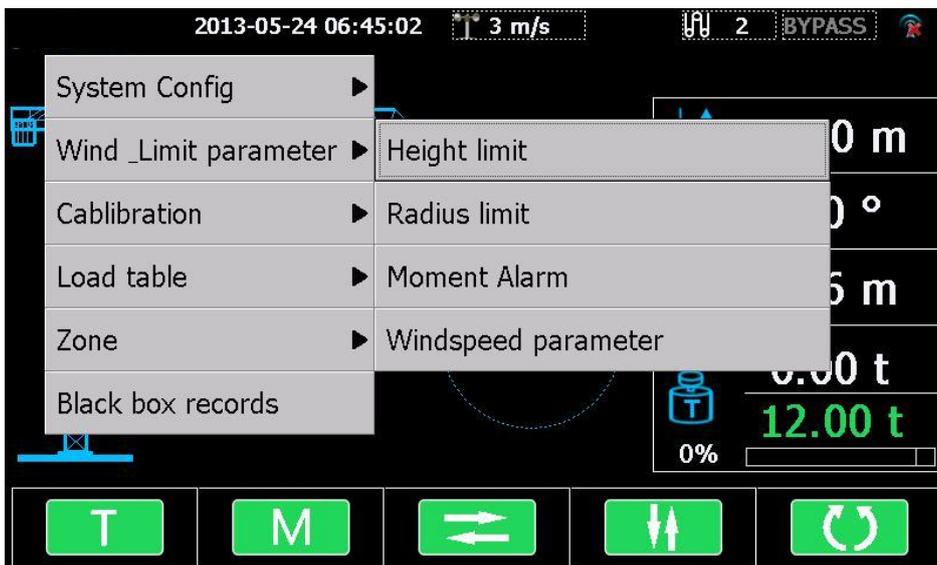
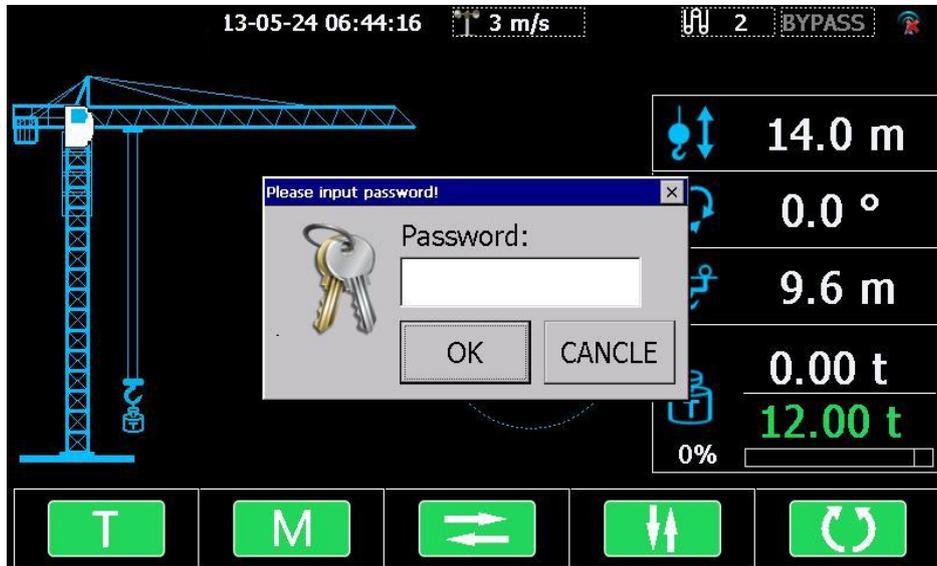


Figure 3.10 Height calibration map

The sixth step: Set the parameters:

1、Click on the "system Settings", enter the password to enter the "parameters" interface, parameter Settings and save:



(1) Height limit parameter Settings:

Height limit

Height Up-Warning: 2.00 m

Height Up-Limit: 2.00 m

Height Down-Warning: 0.00 m

Height Down-Limit: 0.00 m

Note: The parameter is a 2 fall parameter.

Save Exit

(2) Radius limit parameter Settings:

Height Radius Parameters

Trolley out warning: 4.00 m

Trolley out limit: 2.00 m

Trolley back warning: 3.00 m

Trolley back limit: 3.00 m

Save Exit

(3) Wind speed alarm parameter Settings:

Windspeed parameter

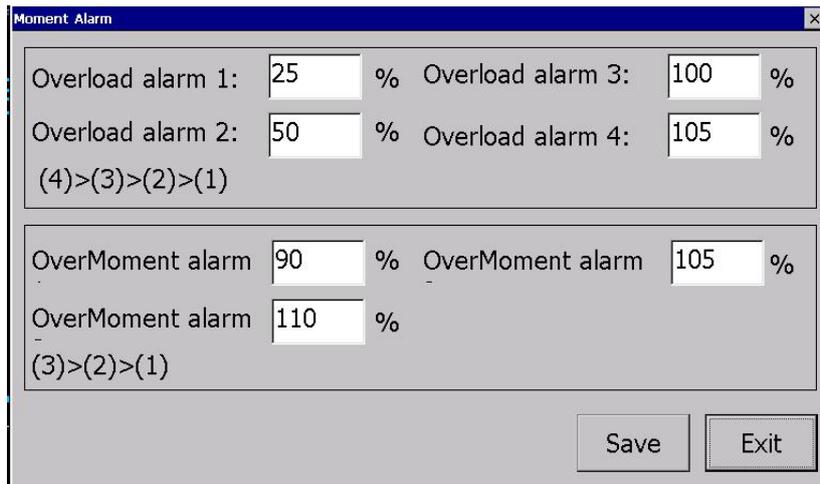
Windspeed Warning: 11.5 m/s

Windspeed Alarm: 20.0 m/s

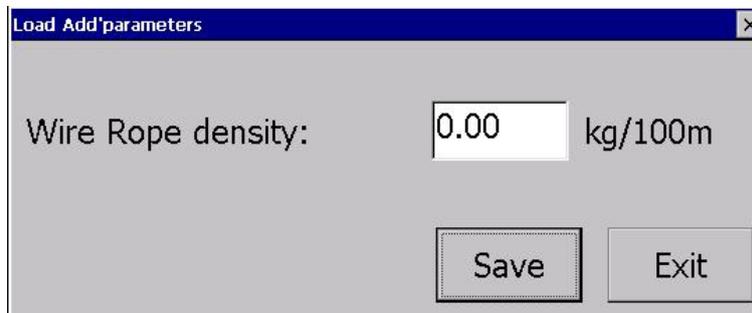
Jacking windspeed Alarm: 0.0 m/s

Save Exit

(4) Overload alarm parameter Settings:



(5) Load additional parameter Settings:



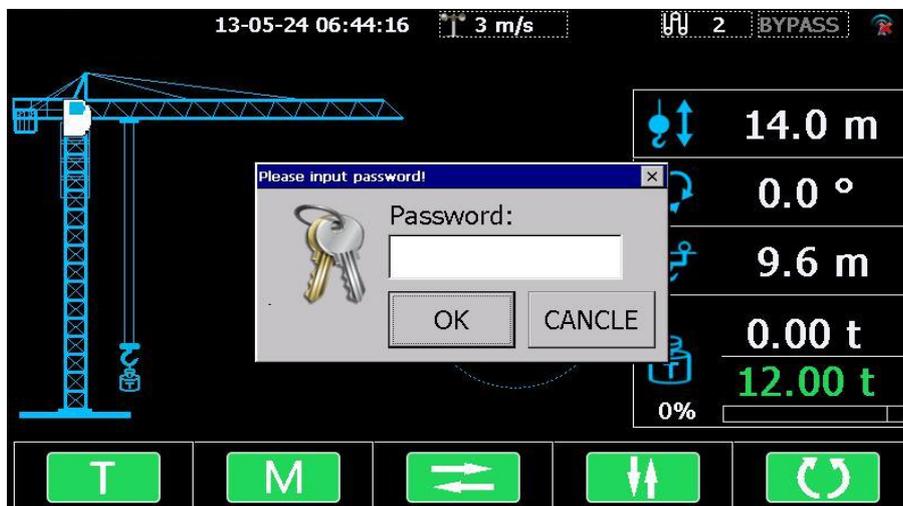
2.2 User guide

Tower crane in use process, There may be height, arm length, ratio of the change, when the tower crane adjusted, need to adjust the parameters of the tower crane monitoring, this function is as follows. Need to enter your user password, for the operation.

(1) Tower crane jack-up adjustment

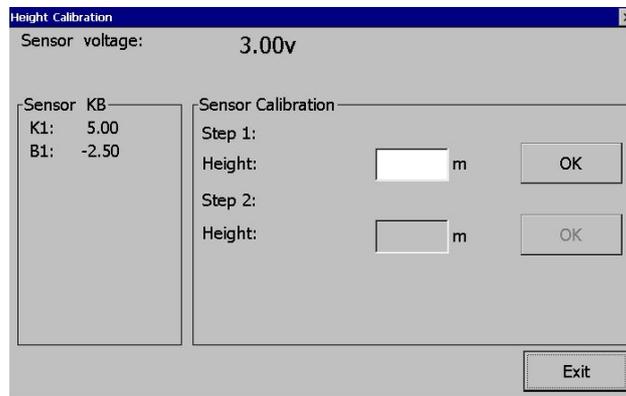
After tower height change, need to highly calibration again:

The first step: Management of landing: click on the "FOSOW", system Settings, enter the password "1234", calibration, insert the key, authentication codes, the next step.



The second step: height calibration

Specific operation process for height calibration: adjust the hook and place it vertically on the ground, after the voltage of the first point is stable, fill in 0, click on "OK", then lift the hook to the highest point, after the voltage of the second point is stable, fill in the current height value, after clicked on "OK", the system will automatically calculate the values of K and B, and prompt "height calibration success".
(Height calibration takes the ground as 0 reference point, and ground is still the 0 reference in tower lifting operations)

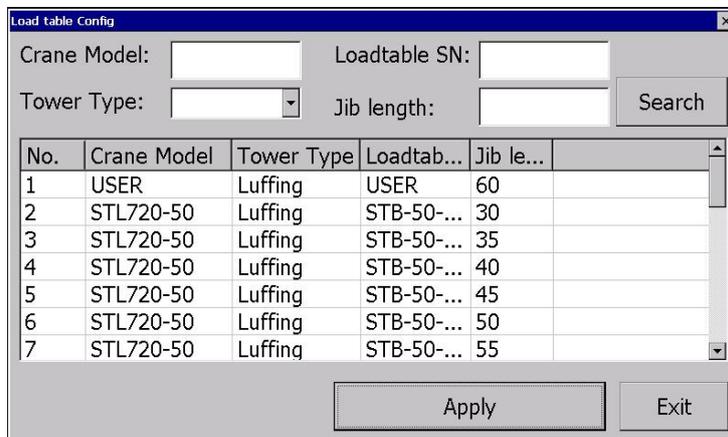


(2) Tower crane arm length adjustment;

When the tower crane arm length change, need to choose the load table;

The first step: Log in reference 2.2.(1)

The second step: Click load table, into the load table selection, automatic searching all the arm length, choose the required data, click on the "application of load table", set up complete.



(3)rate change

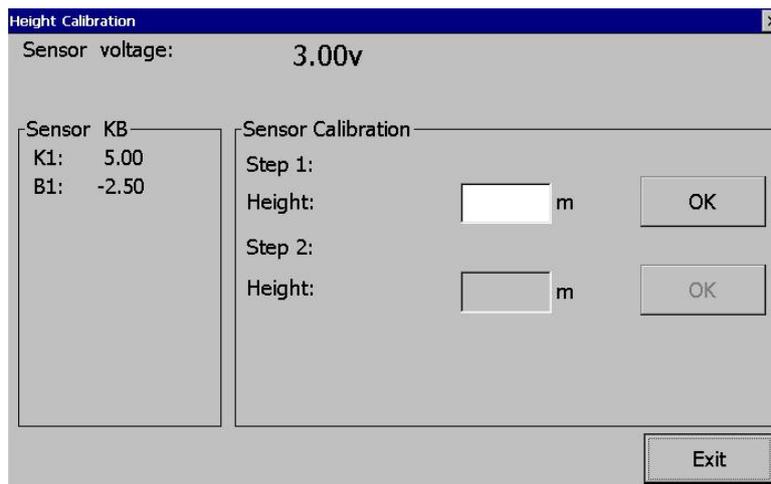
When the tower crane rate change, height of tower crane need to calibration

The first step: Click rate icon, enter the password "1234" in the dialog box, complete switch ratio,



The second step: height calibration Once again;

Specific operation process for height calibration: adjust the hook and place it vertically on the ground, after the voltage of the first point is stable, fill in 0, click on "OK", then lift the hook to the highest point, after the voltage of the second point is stable, fill in the current height value, after clicked on "OK", the system will automatically calculate the values of K and B, and prompt "height calibration success". (Height calibration takes the ground as 0 reference point, and ground is still the 0 reference in tower lifting operations)



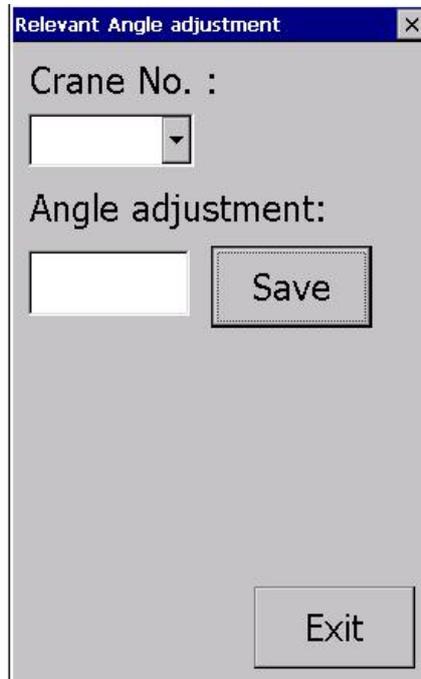
(4)area protection

If you want to use area limit function, please click the following method to set up;

The first step: Login system, system,function-option,area protection,activation;

The second step: Installation Rotation angle sensor;

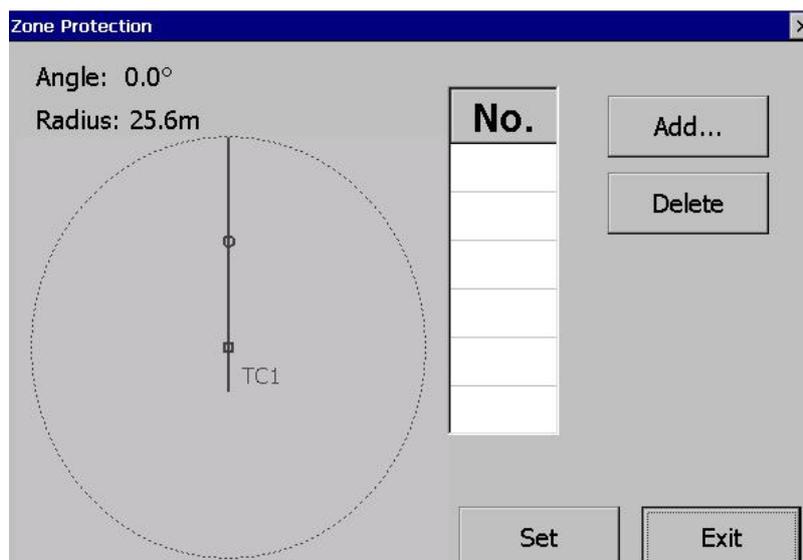
The third step: Adjust the Rotation angle direction;



“Rotation direction”: after the absolute value encoder is installed, when the rotation direction of the large arm is inconsistent with the actual direction, use this function to adjust it to the same direction.

“Actual angle”: when there is a wide gap between the rotation angle and the actual angle, use this function to adjust.

The fourth step: Set area

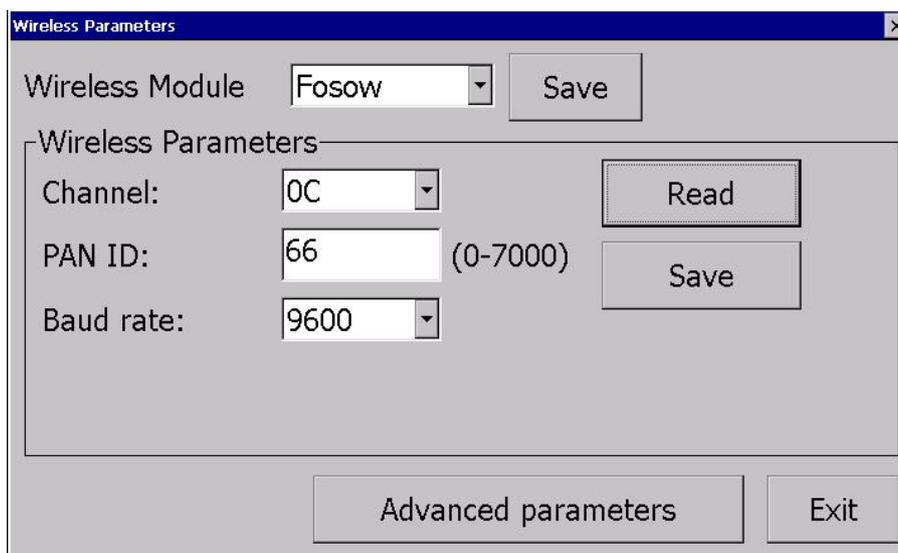


The menu Settings tower crane can not enter the area.Approaching the area which

you set, the system will make a warning or alarm prompt, and execute the corresponding truncation operation. System can be set up to ten regions, each region can be set up to 10 points, the area can be within the area, also can be outside the area; More than ten regions system will give prompt; Set up complete click "Settings" button.

(5) Anti-collision set

Premise: The same site, set the channel number and ID same as each other, when wireless communication module in installation.

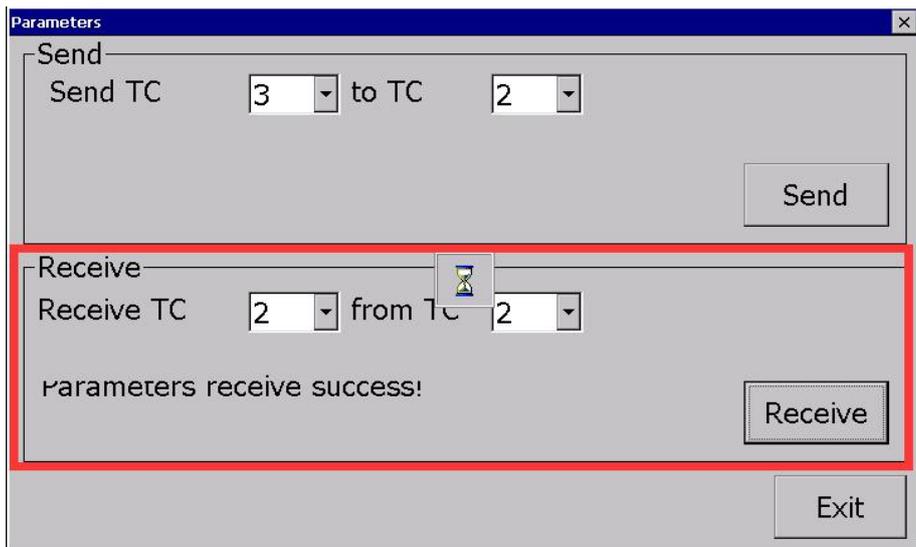
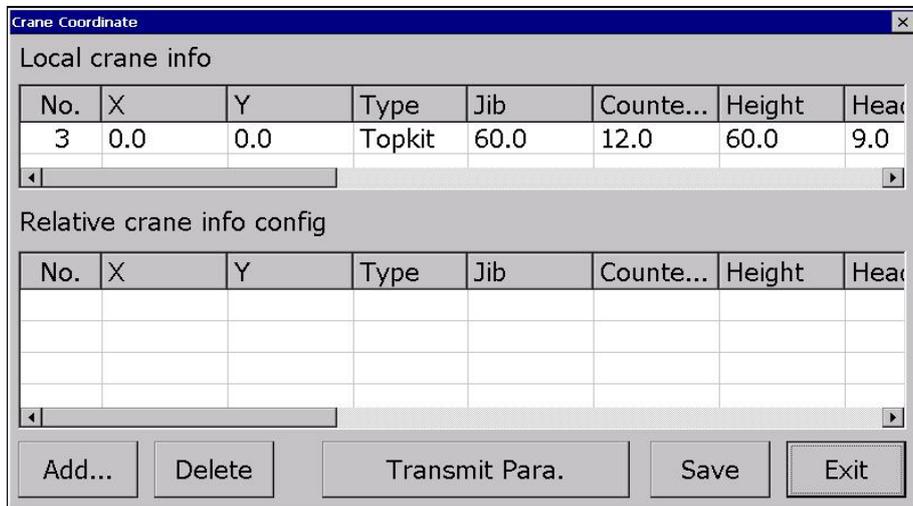
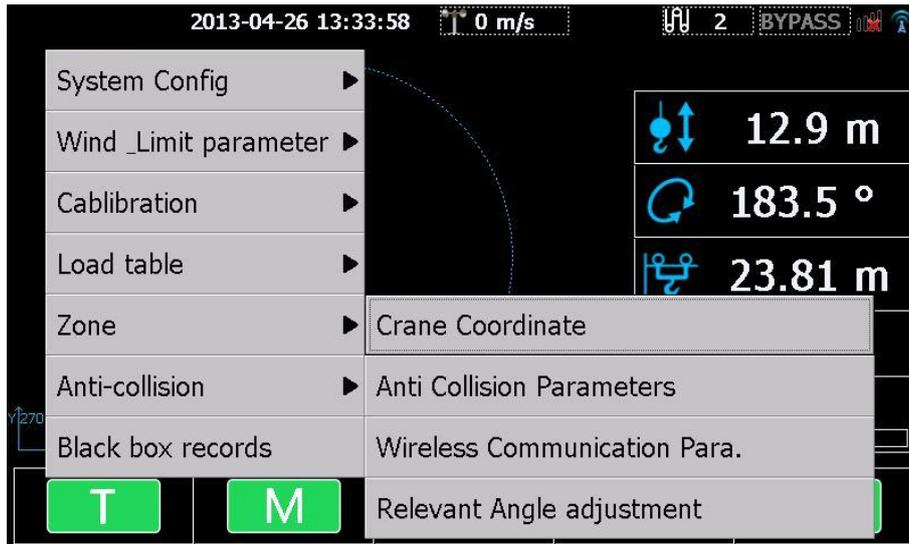


Method One:

Find the coordinates of tower crane in the CAD drawings, please input coordinates into corresponding tower crane, can complete the collision setting.

Method two:

The first step: Into the crane coordinate interface, select any one except own tower crane tower crane for benchmark tower crane, Get the benchmark data to the tower which you on, then into the Coordinate calculation interface, Adjust the arm of benchmark tower crane, point to the tower which you on, Enter the distance of the two sets of tower crane, Click ok and calculation, can calculate the benchmark coordinates, and can be saved.



Local Crane Config

No.

Jib: Counterjib:

Height: Head Height:

X: Y:

Setting the load table to set the arm length and crane type

Coordinate calculate

Calculation Method: Local Status

Primary Crane Angle 183.5 °

Radius 23.8 m

Crane Safety Monitor Manager System

Please adjust the datum tower jib pointing the local tower, after the completion click OK!

Coordinate calculate

Calculation Method: Local Status

Primary Crane Angle 183.5 °

Local and Base distance m Radius 23.8 m

Base Status

Angle °

X: 384.73 Y: -167.37

The second step: sent the benchmark tower data to the benchmark tower ,Adjust the arm of the tower which you on, point to the benchmark tower crane,In rotary calibration interface to adjust two tower crane arm can overlap(If you have more than one operation can in turn, please)

Crane Coordinate

Local crane info

| No. | X | Y | Type | Jib | Counte... | Height | Hea |
|-----|-----|-----|--------|------|-----------|--------|-----|
| 3 | 0.0 | 0.0 | Topkit | 60.0 | 12.0 | 60.0 | 9.0 |

Relative crane info config

| No. | X | Y | Type | Jib | Counte... | Height | Hea |
|-----|-------|--------|--------|-------|-----------|--------|------|
| 2 | 289.2 | -137.8 | Topkit | 60.00 | 12.00 | 60.00 | 9.00 |
| 4 | 90 | 0.0 | Topkit | 50.0 | 11.0 | 100.0 | 7.0 |

Add... Delete Transmit Para. Save Exit

Parameters

Send

Send TC to TC

Send Success!

Receive

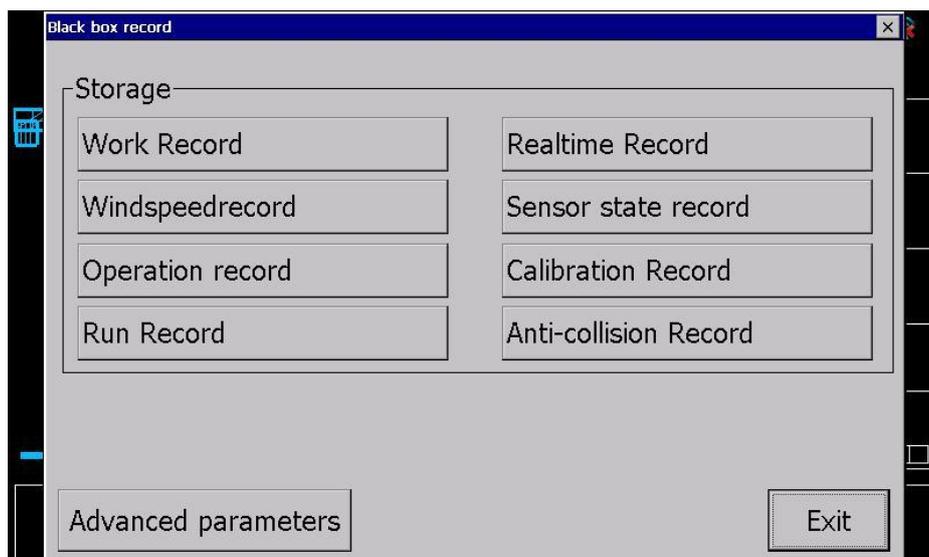
Receive TC from TC

Relevant Angle adjustment

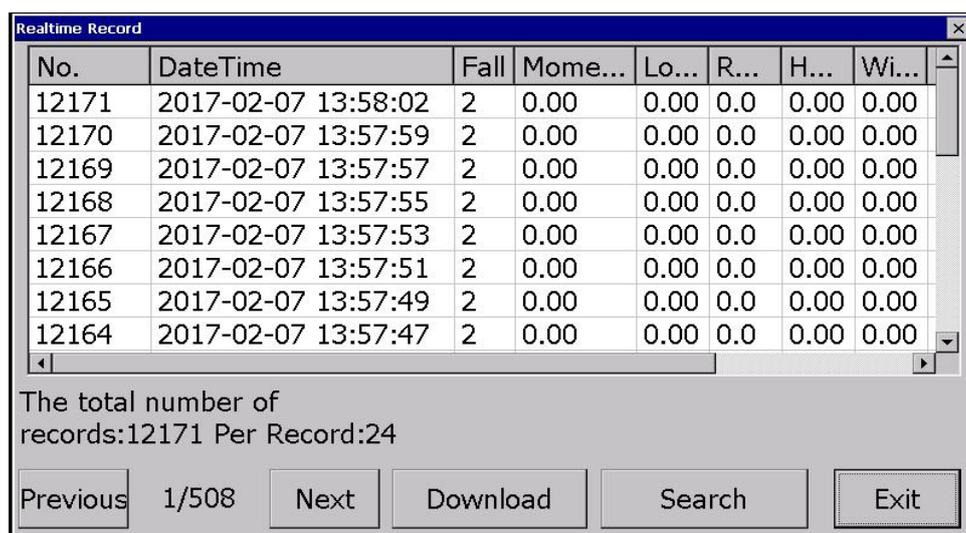
Crane No. :

Angle adjustment:

(6)Data records:



operating cycle records:



The interface is the operating cycle records, recording the related data of tower crane operations and the alarm status of the system in details, insert U disk, click on "Record Download", and then the records can be exported from the equipment.

operating records

| No. | DateTime | Events | fall | Mome... | L... | R... | H... |
|-----|-----------------------|--------|------|----------|------|------|------|
| 11 | 2017-02-07 13:34:08 | UP | 2 | 2.84 | 0... | 1... | 0... |
| | 2017-02-07 13:35:16 | L%MAX | 2 | 262.83 | 4... | 3... | 0... |
| | 2017-02-07 13:35:29 | DOWN | 2 | 0.00 | 0... | 3... | 1... |
| 10 | 46259-181-182 184:... | UP | 5... | -4505... | -... | -... | -... |
| | 1027-05-06 08:09:10 | L%MAX | 1... | 0.00 | 0... | 0... | 0... |
| | 21587-85-86 88:89:90 | DOWN | 3... | 47821... | 7... | 1... | 2... |
| 9 | 2017-02-07 13:32:32 | UP | 2 | 3.62 | 0... | 4... | 0... |
| | 2017-02-07 13:32:50 | L%MAX | 2 | 111.75 | 0... | 5... | 6... |

The total number of records:11 Per Record:24

Previous 1/1 Next Download Search Exit

The interface is the operating records, recording the real-time data under the operating status of the tower crane in details, insert U disk, click on “Record Download”, and then the records can be exported from the equipment.

wind records

| No. | DateTime | Windspeed | Tower Crane st... |
|-----|---------------------|-----------|-------------------|
| 4 | 2017-02-07 13:40:44 | 14.18 | Work Wind Spe... |
| 3 | 2017-02-07 13:40:20 | 15.62 | Work Wind Spe... |
| 2 | 2017-02-07 13:40:05 | 15.84 | Work Wind Spe... |
| 1 | 2017-02-07 13:38:50 | 16.70 | Work Wind Spe... |
| | | | |
| | | | |
| | | | |

The total number of records:4 Per Record:24

Previous 1/1 Next Download Search Exit

The interface is the wind speed early warning records, recording the wind speed values, wind types and alarm time during the operating process of the tower crane in details, insert U disk, click on “Record Download”, and then the records can be exported from the equipment.

sensor in-position state records

| No. | DateTime | Rdius | Load | Height | Winds... |
|-----|---------------------|-------|-------|--------|----------|
| 60 | 2017-02-07 13:49:43 | Error | Error | Error | OK |
| 59 | 2017-02-07 13:49:43 | Error | Error | Error | OK |
| 58 | 2017-02-07 13:49:43 | Error | OK | Error | OK |
| 57 | 2017-02-07 13:49:28 | Error | OK | OK | OK |
| 56 | 2017-02-07 13:49:28 | OK | OK | OK | OK |
| 55 | 2017-02-07 13:49:00 | OK | OK | OK | OK |
| 54 | 2017-02-07 13:28:29 | OK | OK | OK | OK |
| 53 | 2017-02-07 13:27:39 | OK | OK | Error | OK |

The total number of records:44 Per Record:24

Previous 1/2 Next Download Search Exit

The interface is the sensor in-position state records, recording the time and the parameters of the sensor detection status in details, insert U disk, click on “Record Download”, and then the records can be exported from the equipment.

operation records

| No. | DateTime | Item | Status |
|-----|---------------------|--------------|----------|
| 343 | 2017-02-07 13:58:06 | Bypass | OFF |
| 342 | 2017-02-07 13:49:13 | Bypass | OFF |
| 341 | 2017-02-07 13:48:51 | Bypass | OFF |
| 340 | 2017-02-07 13:35:29 | Relay Status | 00020000 |
| 339 | 2017-02-07 13:35:22 | Relay Status | 00029000 |
| 338 | 2017-02-07 13:35:21 | Relay Status | 0002F009 |
| 337 | 2017-02-07 13:35:20 | Relay Status | 0002F00F |
| 336 | 2017-02-07 13:35:14 | Relay Status | 0003F00F |

The total number of records:62 Per Record:24

Previous 1/3 Next Download Search Exit

The interface for the operation of the equipment record, recorded in detail the system BYPASS, choice of arm length, ratio switch state and time, insert U disk, click on “Record Download”, and then the records can be exported from the equipment.

calibration record

| No. | DateTime | Item | Volta... | V... | Vol... | Val... | V... |
|-----|---------------------|---------|----------|------|--------|--------|------|
| 3 | 2017-02-07 13:29:17 | Load1 | 0.64 | 0.00 | 5.00 | 8.00 | 0... |
| 2 | 2017-02-07 13:28:44 | Height | 0.61 | 0.00 | 5.00 | 10... | 0... |
| 1 | 2017-02-07 13:28:08 | Radius1 | 0.60 | 0.00 | 5.00 | 60... | 0... |

The total number of records:3 Per Record:24

Previous 1/1 Next Download Search Exit

The interface is: amplitude, height, hoisting calibration record, insert U disk, click on “Record Download” , and then the records can be exported from the equipment.

system switch records

| No. | Turn On Time | RunTime(S) |
|-----|---------------------|------------|
| 14 | 2017-02-07 13:58:02 | 531 |
| 13 | 2017-02-07 13:49:05 | 16 |
| 12 | 2017-02-07 13:44:11 | 19603 |
| 11 | 2013-07-20 03:55:37 | 178 |
| 10 | 2013-07-20 03:28:55 | 2798 |
| 9 | 2013-07-20 02:22:31 | 275 |
| 8 | 2013-07-20 02:17:48 | 1 |
| 7 | 2013-07-20 02:17:48 | 86 |
| 6 | 2013-07-20 02:16:14 | 510 |

The total number of records:14 Per Record:24

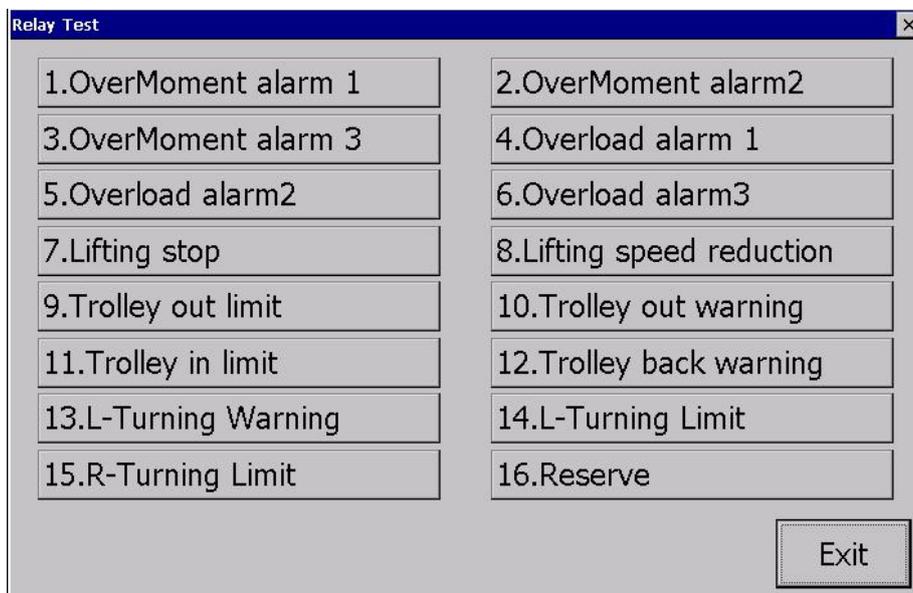
Previous 1/1 Next Download Search Exit

The interface is the system switch records, recording the starting-up time and the operating time of the system each time in details, insert U disk, click on “Record Download”, and then the records can be exported from the equipment.

The third part: Special function

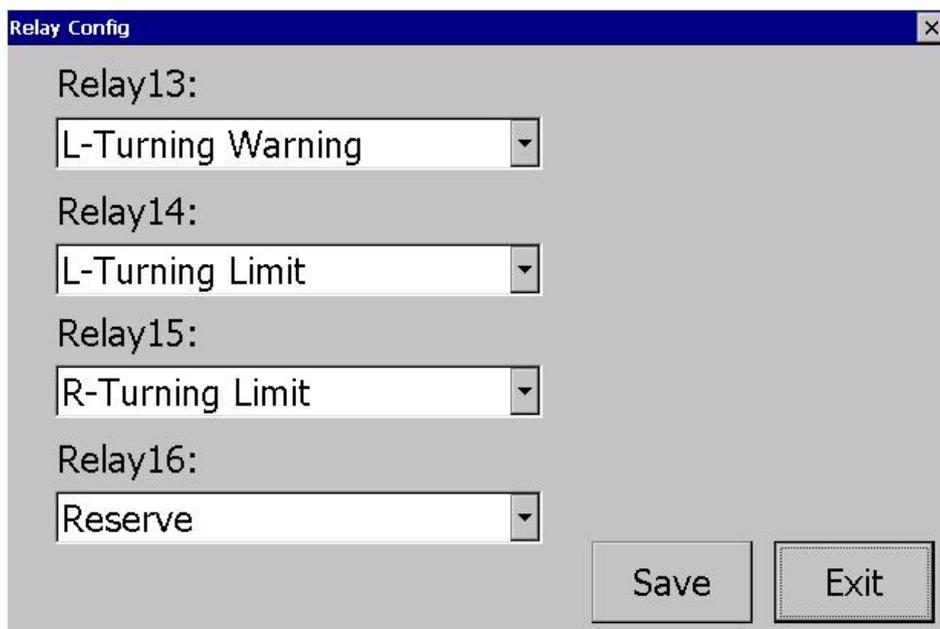
3.1 Relay testing

This feature is mainly used for detecting security monitoring system line connection is correct.



Method of use: click on the need to test the relay, which relay action,

3.2 Relay configuration



Use: when the relay failure, Use the reserved 23, 24, relay instead, reserved set after the restart.

3.3 Wind speed type switch:

Click on the wind speed icon, change wind speed type:



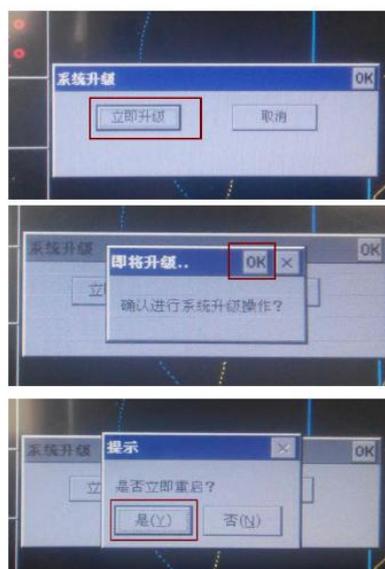
3.4 System Update

Host System Update: the program file of the host shall be named "PM530I-SD.bin", placed in the root directory of U disk, then insert U disk into the host USB port, after clicked on Check Update, version information appears, then click on Download.

Display System Update: first create an Update folder in the U disk, store the screen program file under the root directory of U disk, and make sure the file is named "PM530I-SDAPP.exe", then insert U disk into the USB port at the back of the display, then click on Display System Update.



2. 给屏重新上电，待到主界面，再把U盘插上。如下图：点击立即升级—点击ok—点击是，自动执行重启完成升级。



注意：屏上电后，屏程序只有一次升级机会，再次升级需要重启屏后进行；屏程序目前只支持u盘升级；不支持远程升级和PC套件升级。

3.5 Password and time

The screenshot shows a 'System Setting' dialog box with the following fields and buttons:

- Date/Time:** Date: 2014 - 12 - 02; Time: 17 : 01
- Device:** Device No: 010613059997; User Sn: 010613059997. A 'Set' button is located to the right of the User Sn field.
- Modify Password:** Two input fields labeled 'System Password' and 'User Password'.
- Buttons:** 'Set' (next to User Sn), 'Exit' (bottom right), and 'Set' (bottom center).

3.6 Control instructions

| Output control 1 | | | |
|------------------|------------------------------|---------------|--------------|
| Item | Function | Wiring number | Wiring color |
| 1 | Moment percentage 1 | 1,2 | Red |
| 2 | Moment percentage 2 | 3,4 | Black |
| 3 | Moment percentage 3 | 5,6 | White |
| 4 | Lifting weight percentage 1 | 7,8 | Blue |
| 5 | Lifting weight percentage 2 | 9,10 | Green |
| 6 | Lifting weight percentage 3 | 11,12 | Grey |
| 7 | Lifting stop | 13,14 | Light blue |
| 8 | Lifting deceleration | 15,16 | Yellow |
| Output control 2 | | | |
| Item | Function | Wiring number | Wiring color |
| 9 | Outward luffing stop | 1,2 | Red |
| 10 | Outward luffing deceleration | 3,4 | Black |
| 11 | Inward luffing stop | 5,6 | White |
| 12 | Inward luffing deceleration | 7,8 | Blue |
| 13 | Configurable | 9,10 | Green |
| 14 | Configurable | 11,12 | Grey |
| 15 | Configurable | 13,14 | Light blue |
| 16 | Configurable | 15,16 | Yellow |