



## **WB-SE100 Explosion-proof Smart Console**

# **USER MANUAL**

**V1.0 August 2015**

**ZHENGZHOU WINDBELL MEASUREMENT AND CONTROL  
TECHNOLOGY CO., LTD**

## INTRODUCTION

Welcome to choose Automatic Tank Gauging (ATGs) System of Windbell. The products of our company have passed strict inspection and test before they go out. You are strongly recommended to read this manual before installation.

Please properly keep the user manual, so that you can timely access to it when you need it. Hope you can get help from it

### ◆ Safety instruction

The products are mainly installed at the mobile station and other places, so installation must be seriously comply with the relevant safety and explosion-proof standards.

Power must not be switched on before installation & maintenance!

Any incorrect installation could bring dangerous to the Installation personnel. Installation personnel must understand the requirements of the safety devices of the system, and strictly carry out instructions in the manual to ensure safety

### ◆Unpack and check

Please check all the materials according to the list. If anything missed or damaged during the shipping time, please contact us.

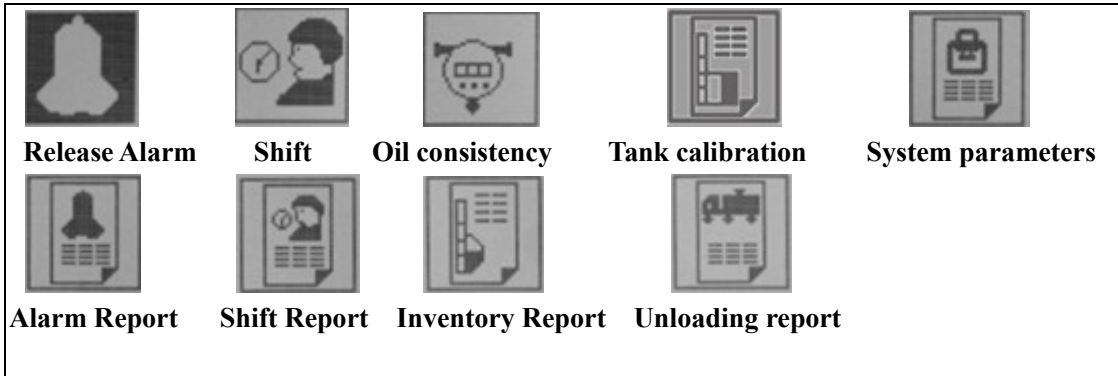
### ◆Warranty card

After installation, please post the Warranty Card to Service Department of Windbell for fast and right service. Thank you very much!

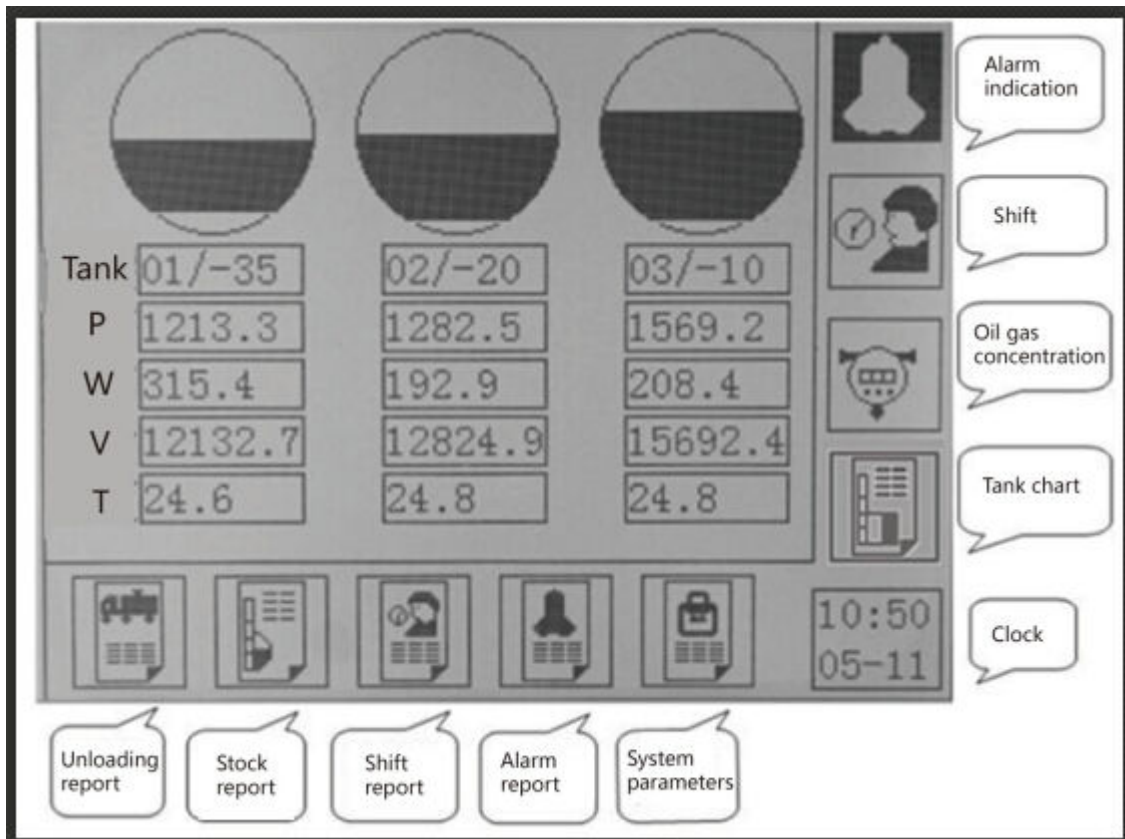
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## COMMON ICONS



## MONITOR SCREEN



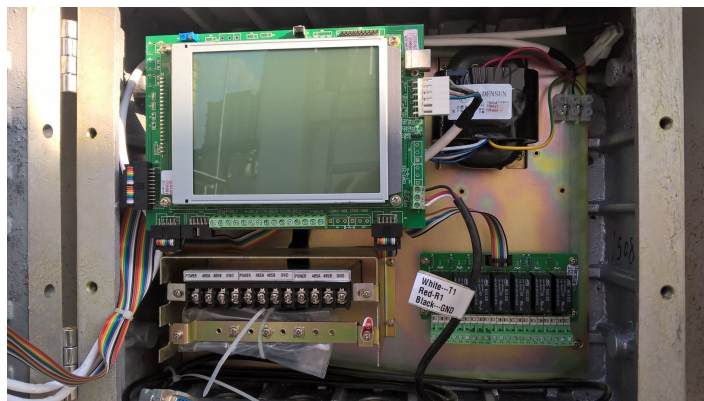
## 1、SUMMARY

### 1.1 Smart Console

WB-SE100 Explosion-proof Smart Console is a new product of our company which is specifically for mobile station, and can be installed directly without other protective facilities. This console is processed with intelligent microcontroller technology and combined with sophisticated electronic technology. It has advantages of beautiful display, simple operation, long service life, etc.



Its main components include: display, CPU, safety barriers and power module. The display is black and white LCD screen, size is 320×240, which is use for real-time display and related inquiry of report parameters. The main board which is composed of advanced ARM processor and peripheral chips is the control center of the whole tank gauges system. The safety barrier is protection parts, offer safety power to probe. The power module is for reliable power supply to the whole system.



## 1.2 Features and technical parameters

### ◇ System feature

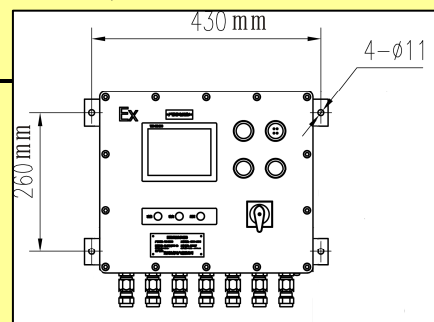
- 6 " LCD graphical display, clear and intuitive
- Real time monitoring of 1-3 tank at the same time, Visually display the oil level, water level, volume and temperature.
- Automatic alarm and release alarm, also can be manually release alarm, and generate alarm report.
  - It can realize high- low liquid level alarm, high -low temperature alarm and high water-level alarm
  - It can realize concentration of oil and gas detection alarm
- Can be manually shift, and generate shift report and inventory report .
- Can automatic monitoring oil unloading situation, and generate Unloading report
- System data is displayed in real-time display and won't be lost when power is off
- Oil and gas concentration around the tank can be monitored.
- With standard 7 road relay to control the system.



### ◇ Technical parameters

- Power: AC220V 0.2A 50Hz
- Working temperature: -20°C~60°C
- Display resolution: 320×240
- Display size: 6"
- 1 RS-485 communication serial ports: connect to probe
- 1 RS-232 communication serial ports: connect to PC
- Relay output: 7 groups; node capacity AC250V/10A,DC30V/10A
- Safety barrier: WB GSB03

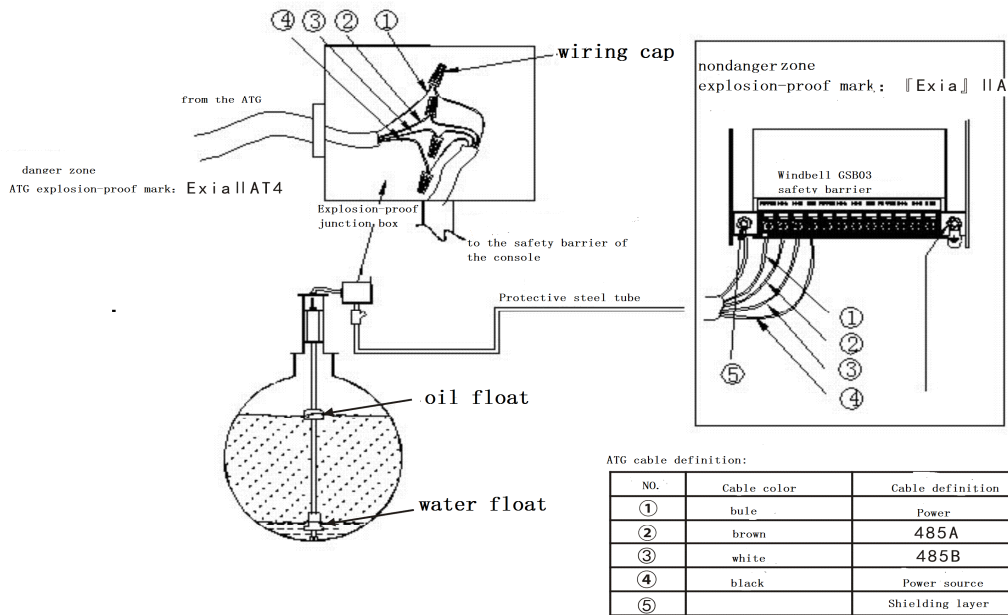
- Explosion proof mark: Exd[ia] II AT4 Gb
- Dimension: 40×34×16cm
- Weight: 30kg



## 2. INSTALLATION

### 2.1 Electrical wiring diagram of ATGs system

The cable from probe must be correctly coupled into relevant safety barrier inside console. The shielding of cable must be coupled into PE of safety barrier. The safety barrier also must be coupled into earth reliably. As fig. below



#### Safety warning

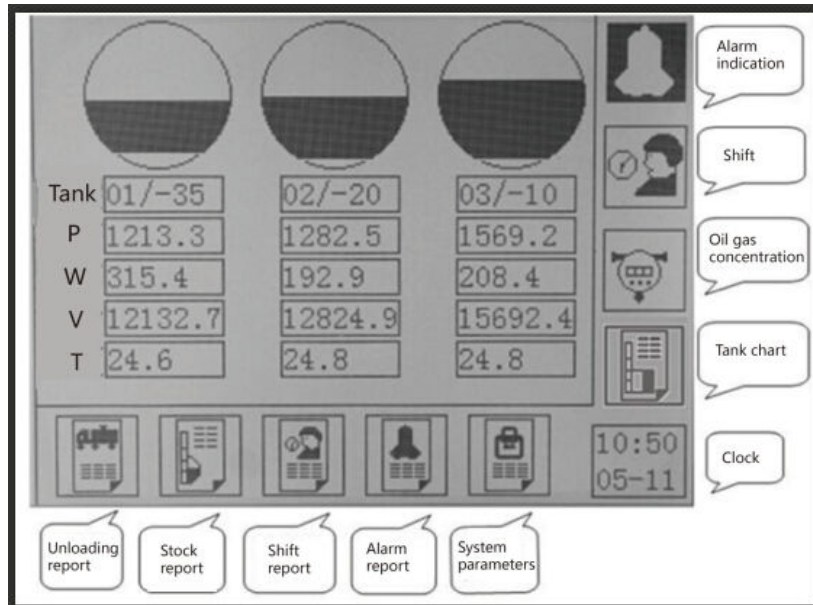
- Earth terminal of safety barrier should be connected to ground reliably by more than 6 mm<sup>2</sup> multi-core copper cable.
- Forbid turning on power for the system before correct couple with cables.

### 2.2 Connection between console and software

After the installation of the smart console and the probe, PC interface line (RS232 serial port) of the console box can be connected to the COM1 port of the smart console. The operating personnel can do the system parameters setting, the tank calibration setting and the real time monitoring through the background software. The setting method can be found in the PDF file PC-REMOTE-300 USSER MANUAL in the attached CD.

## 3. OPERATION

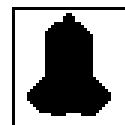
### Monitor screen (Home page)



This monitor screen will be automatically shown after power on console.

1. Monitoring interface mainly display the real-time information of the oil tank and the main function of icon instructions.
2. If initialized operation, the tank information is blank, the system setting shall be done through the background software.

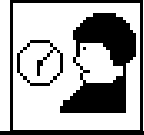
During the operation, if need to implement some functions, through the “function” button to display the corresponding icon and choose the corresponding function and then press the “OK” to realize.



### 3.1 Release alarm

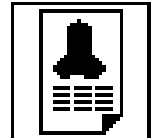
When there is sound and light beep, for example, Product high high (P HH), Product high (P H), Product low (P L), Product low low (P LL), Water high (W H), Temperature high (T H), Temperature low (T L), this alarm icon will change into reverse color. Press the “OK” button at the monitoring interface, alarm will be released, sound and light beep stop. The alarm icon is no longer in reverse color and "alarm message list" will be displayed at the same time. "Alarm message list" prompt the current alarm type, click "back" button to return to the monitoring interface.





### **3.2 Shift**

Choose this icon through the “function” button when shift, when the “Shift Confirm” dialog box shows, choose “Yes” to confirm shift and return to monitor interface directly, the system will create shift report automatically at the same time. Choose "cancel" through "function" icon and press the "OK" button to return to the interface of monitoring.



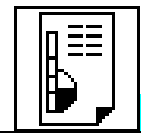
### **3.3 Alarm report**

When the system receives the alarm information, the alarm records will be generated automatically. Click the “function” button to choose this icon at the monitoring interface, then press the "OK" button to query the alarm records. Press the "function" button to turn a page and press the "back" button to return to the monitoring interface.



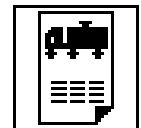
### **3.4 Shift report**

The system will create a shift record automatically after shift. Select “function” button to choose this icon at the monitoring interface, press "OK" button to query the alarm record, press "back" button to return to the monitoring interface.



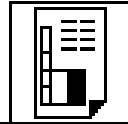
### **3.5 Inventory report**

System will create inventory report automatically after shift. Select this icon through the "function" button at the monitoring interface, press "OK" button to query the alarm record. Press the "function" button to turn a page and press the "back" button to return to the monitoring interface.



### **3.6 Unloading report (Delivery report)**

The system will generate the corresponding record after unloading. Select this icon through the "function" button at the monitoring interface, press "OK" button to query the alarm record. Press the "function" button to turn a page and press the "back" button to return to the monitoring interface.








### 3.7 Tank table

Press "function" button to select the icon at the monitoring interface, press the "OK" button to query the tank table. Press the "function" button can realize tank switch, press "OK" to realize turn pages. Press the "back" button to return to the interface of monitoring.

### 3.8 Infrared remote controller









#### a. Oil and gas concentration alarm value modification






Click  to enter infrared remote control input state, choose Oil And Gas concentration  through the “direction” button, press  to enter parameter modification interface, through the “direction” button to select the parameters need to modify. Use "delete" and " digital " buttons to modify the parameters, use the "save" button  to save. When all operation is done, press  to return the main interface of the system.

Tank table parameter modification




**b. Tank table parameters modification**

Click  to enter infrared remote control input state, choose tank table icon  through the “direction” button, press  to enter parameter modification interface, through the “direction” button to select the parameters need to modify. Use "delete" and "digital" buttons to modify the parameters, use the "save" button  to save. Use  to choose the tank, when all operation is done, press  to return the main interface of the system.

**c. The system parameters modification**

Click  to enter infrared remote control input state, choose system parameters icon  through the “direction” button, press  to enter parameter modification interface, through the “direction” button to select the parameters need to modify. Use "delete" and "digital" buttons to modify the parameters, use the "save" button  to save. When all operation is done, press  to return the main interface of the system.

**d. Delete the report**

Click  to enter infrared remote control input state, through the “direction” button to choose the report icon you want to delete, press  into the report information interface, use the "delete" button  to delete all information in the report, after the completion the system will return to the main interface automatically.

## 4. REPORT

### 4.1 Alarm report

	Index	Warning	Warning Time
01	0031	01Tank: Product height	12-05-07 14: 35
02	0030	01Tank: Water height	12-05-07 14: 32
03	0029	03Tank: Product height high	12-05-07 14: 30
04	0028	02Tank: Product height	12-05-07 14: 28
05	0027	02Tank: Water height	12-05-07 14: 26
06	0026	03 Tank: Water height	12-05-07 14: 23
07	0025	01 Tank: Product height	12-05-07 14: 21
08	0024	02 Tank: Product High height	12-05-07 14: 17
09	0023	03 Tank: Product low	12-05-07 14: 14
10	0022	01 Tank: Product low	12-05-07 14: 11
11	0021	03 Tank: Product low low	12-05-07 14: 07
12	0020	02 Tank: Product low low	12-05-07 14: 02

### 4.2 Shift report

	Tank	Quantity	Shift time	Group
01	01/-35	2320.4	12-05-08 09:38	050804
02	02/-10	3367.1	12-05-08 09:38	050804
03	03/90	7610.9	12-05-08 09:38	050804
04	01/-35	6690.7	12-05-08 09:33	050803
05	02/-10	3412.3	12-05-08 09:33	050803
06	03/90	2240.1	12-05-08 09:33	050803
07	01/-35	5903.5	12-05-08 09:27	050802
08	02/-10	4831.4	12-05-08 09:27	050802
09	03/90	5142.6	12-05-08 09:27	050802
10	01/-35	7122.6	12-05-08 09:23	050801
11	02/-10	6344.5	12-05-08 09:23	050801
12	03/90	1329.8	12-05-08 09:23	050801

### 4.3 Inventory report

	Tank	Volume	Satus	Time
01	01/-35	1324.7	Shift	12-05-08 13: 44
02	02/-10	2311.9	Shift	12-05-08 13: 44
03	03/90	2894.4	Shift	12-05-08 13: 44

04	01/-35	3597.6	Shift	12-05-08 13: 42
05	02/-10	3972.1	Shift	12-05-08 13: 42
06	03/90	4211.7	Shift	12-05-08 13: 42
07	01/-35	4789.2	Shift	12-05-08 13: 37
08	02/-10	4529.5	Shift	12-05-08 13: 37
09	03/90	6012.1	Shift	12-05-08 13: 37
10	01/-35	5937.4	Shift	12-05-08 13: 34
11	02/-10	6327.7	Shift	12-05-08 13: 34
12	03/90	6104.5	Shift	12-05-08 13: 34

#### 4.4 Unloading report (Delivery report)

	Index	Tank	Feed quantity	Feed time
01	0093	01/-35	2317.9	12-05-08 15:54
02	0092	02/-10	1948.4	12-05-08 15:52
03	0091	03/90	2014.8	12-05-08 15:50
04	0090	01/-35	3691.2	12-05-08 15:48
05	0089	02/-10	3325.9	12-05-08 15:46
06	0088	03/90	2109.5	12-05-08 15:44
07	0087	01/-35	4013.7	12-05-08 15:42
08	0086	02/-10	3981.3	12-05-08 15:37
09	0085	03/90	4109.7	12-05-08 15:35
10	0084	01/-35	4231.3	12-05-08 15:32
11	0083	02/-10	2345.8	12-05-08 15:29
12	0082	03/90	4723.4	12-05-08 15:27

## 5. RELAY

With the change of oil and water level, when there is alarm information, the relay will active, the specific actions are as follows:

Corresponding tank	Alarm type	Operating relay	Press the release alarm button
1#Tank	Oil level high	1#、2#relay	1# Relay recovery
	Oil level low	1#、5# relay	1# Relay recovery
2# Tank	Oil level high	1#、3# relay	1# Relay recovery
	Oil level low	1#、6# relay	1# Relay recovery
3# Tank	Oil level high	1#、4# relay	1# Relay recovery
	Oil level low	1#、7# relay	1# Relay recovery

## 6. PROBLEM SHOOTING

- **Problem:** There is no display of oil tank、 oil height、 water height、 capacity and temperature after starting the console.

**Possible reason:** not yet configure system information,

**Solution:**

Solution 1: User can set manually on console by the infrared remote controller,

Solution 2: Configure through PC software, User should install PC Software-300 in PC in advance, connect console to PC by RS232 cable.

- **Problem:** Volume item shows nothing or “0”

**Reason:** Not yet input the tank volume chart,

**Solution:** Input tank volume chart

- **Problem:** Tank item shows “communication broken”

**Solution:** Firstly check whether the probe address is correct, and then check cable connecting between console and probe.

- **Problem:** Oil height or water height items shows “data error”

**Reason and Solution:** The ATG is failure, please contact with the dealers.

- **Problem:** Probe level is inconsistent with the level data measured manually.

**Solution:** Check if probe is installed vertically.

or Recalibrate oil level and water level.

- **Problem:** Volume displayed on console is wrong

**Reason:** There errors in tank volume chart.

**Solution:** Check if the height value and corresponding volume value in console are same as tank volume chart.

## 7.WARRANTY

The warranty period of the product is one year, for failure in normal using; For the loss of the damage caused by natural disasters and abnormal use which does not belong to the warranty scope, the company will provide paid replacement and maintenance.

# WINDBELL

**IS DEDICATED IN PROVIDING SOLUTION TO  
ENVIRONMENT PROTECTION & PRECISION  
MANAGEMENT FOR PETROLEUM RETAIL INDUSTRY**

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**V1.0 AUGUST 2015**