WH-800

Fuel filling machine

Summary

WH-800 intelligent integrated high-precision electronic flow meter with voice broadcast is a new type of electronic control system for metering control of liquid flow meter. The product has advanced and mature technology, high metering accuracy, wide range of use, simple installation and convenient use. It can be equipped with and refitted with various on-board fuel dispensers, station machines and other refueling equipment for engineering machinery, motor vehicles and ships, etc.

☆ This set of refueling control and electronic control system has the power-off protection function. If the power is cut off suddenly during the refueling process, the data can still be saved effectively, and the LCD can display the refueling data for more than 2 hours.

☆This set of refueling control and electronic control system can be equipped with small ticket printer, which can print any refueling data after refueling or when querying data.

☆ This set of refueling control and electronic control system can be equipped with AC 380V / 220V relay board power to meet the needs of new construction or modification .

☆ This set of refueling control electronic control system can be equipped with U disk to realize data backup. Check the fueling data on the PC.

Basic working principle

The model WH-800 uses high-performance 32-bit microprocessor as the control core. Through the large-scale LCD screen refueling volume, amount, unit price and various status information, the system automatically measures, displays and stores data by reading the pulse signal directly proportional to the liquid flow output from the flow sensor.

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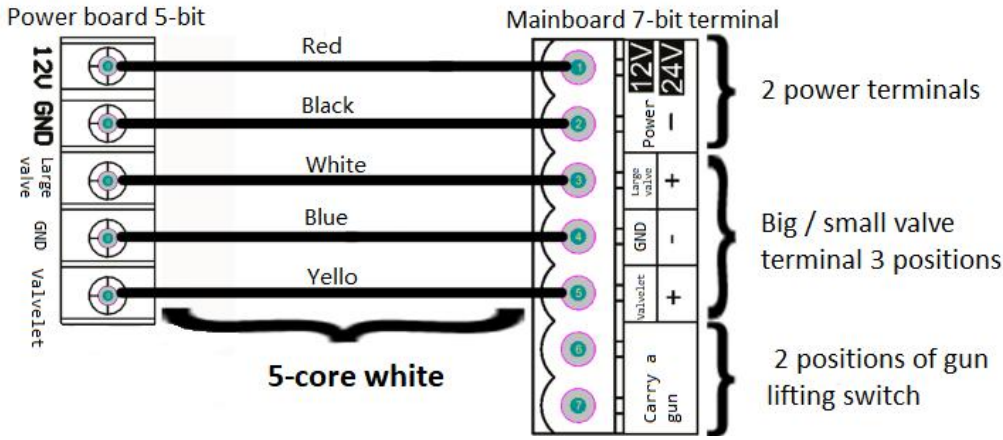
1 . Motherboard wiring



notice：

1.1 2 power terminals：

("12V / 24V" connected to + 12V or + 24V, "-" connected to negative pole） The voltage shall not be higher than 30VDC, and the positive and negative poles shall not be reversed.

1.2 Big / small valve terminal 3 positions：

1.2.1 If 12V / 24V battery is used ("large valve" is connected with positive pole of large valve signal, "public ground" is connected with public ground of large / small valve signal

"Small valve" is connected to small valve signal positive pole). The motor control relay coil is in parallel with the small valve coil, if the large / small valve is not used,

If the large / small valve is not connected, the position of motor control relay will not change. Please refer to figure 1 at the end of the page!

1.2.2 If 220V is used: use 5-core white wire to connect the power board according to the corresponding color in the figure above. Do not connect it wrong. The solenoid valve can be connected to the control port on the power board. Please refer to figure 2 at the end of the page!

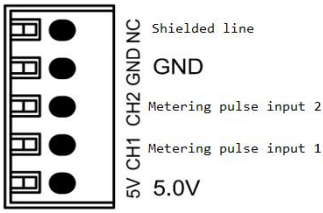
1.2.3 The nominal voltage of solenoid valve and relay coil shall be consistent with the power supply

voltage.

1.3 2 positions of gun lifting switch：

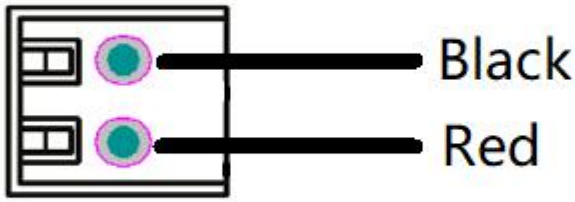
It is directly connected with the gun lifting switch, with no positive and negative poles

Sensor terminals：



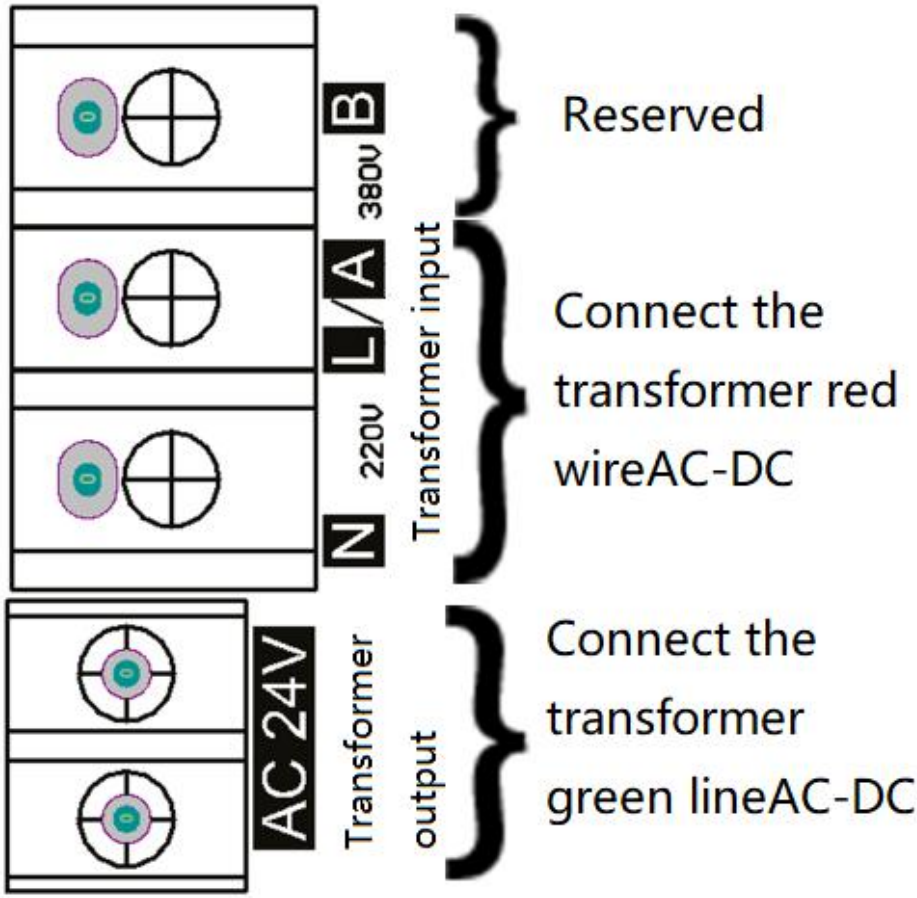
CH3.96mm connector head 5: the plug of the flow meter plug is inserted into the terminal.

Speaker terminals：



CH3.96mmInterface plug-in anode 2 bits

Transformer connection:



2. Power on process and common operation instructions

2.1 Power on process description

After the power switch is turned on, the LCD screen will display "9", "6", "7" and "1" successively for field self inspection, and then display the date and time of the machine. After about 2 seconds, the system

will enter the standby state. After entering the standby mode, the first line of the LCD displays the liters of the last refueling, the second line displays the amount of the last refueling, the third line displays the words "stop" and the current set unit price.

2.2 Basic operating instructions

2.2.1 start-up

Press the start key or turn on the gun lifting switch to enter the refueling state. When the small valve is opened and the oil filling volume reaches the opening delay of the large valve (0.2L by default), the large valve is opened.

2.2.2 Shutdown

After pressing the stop key or closing the gun lifting switch, the large and small valves are closed at the same time to stop refueling.

2.3 Shift operation

In order to simplify the shift handover settlement operation, when the employee is off duty, the administrator can press the shift for a long time in standby mode, input the user password, and carry out shift handover. After the handover is successful, the LCD screen will display the total number of promotions and the total amount of fuel for the current shift. Convenient for checking shift data. At this point, the shift handover is completed, and the refueling data thereafter will be recorded in the next shift.

2.4 Locking and unlocking

In standby mode, press the "set" key and then press the stop key three times, and the host will enter the locked state. At this time, the host will lock all functions to prevent others from operating.

In the locked state, enter the unlocking password (default "123456"), the host will unlock and enter the standby state.

2.5 Print small ticket

In standby mode, press and hold the print key for 2 seconds, and the latest refueling details will be printed automatically.

2.6 Clear display data

In standby mode, press and hold the clear key for 2 seconds to clear the display.

3 Refueling instructions

3.1 Any refueling

Press the start key or lift the gun to enter the refueling state. Start refueling, at the same time, the LCD screen displays the current number of liters and amount of refueling, the words "refueling" and the unit price of refueling in real time.

Press the stop key or hang the gun to exit the refueling status. At this time, the LCD screen displays the number of liters and amount of refueling, the words "stop" and the unit price of refueling after refueling.

Note: due to the limitation of the screen, the maximum data display is 999999.99 yuan and 999999.99 liter at the same time. In order to ensure the validity of the data, when the amount reaches 999999.99 yuan or the liter reaches 999999.99 liter, the refueling will be stopped automatically. If you need to continue to refuel, you can start again.

3.2 Preset oil filling

According to the ascending key, select the way of preset "liter". Liquid crystal display "lift" means preset the next refueling way to add fuel to the fixed number, enter the number of oil that needs to be refueling, confirm the number of preset refueling, press the "confirm" button, and display the number of preset fuel lift and "liter". Press the "start" key or lift the gun to enter the refueling state. When the fuel quantity is equal to the preset liter, the small valve is closed and the fuel is stopped

3.3 Preset “yuan “refueling

Press the "Yuan" key to select the preset "Yuan" refueling mode. The LCD display "Yuan" means that the preset next refueling mode is fixed amount refueling. Enter the amount of refueling needed, press the "OK" key to determine the preset refueling amount, and the LCD screen displays the preset refueling amount and "Yuan". Press the "start" key or lift the gun to enter the refueling state. When the refueling amount reaches the preset amount and the closing advance of the large valve, the large valve will be closed. When the refueling amount is equal to the preset amount, the small valve is closed and refueling is stopped.

Note: the preset quantity is 1-999999.99 yuan or 1-999999.99 liter. The preset amount and the preset liters are related to the unit price. The maximum value of both cannot exceed 999999.99 yuan and 999999.99

3.4 Amount integer shutdown

In the process of refueling, press the integer key, the refueling amount reaches the next integer amount, and then the machine will stop automatically. Press the 10 yuan key, the amount reaches the next integer of 10 yuan, and the machine will stop automatically, and the whole amount will be refueled.

3.5 Volume integer shutdown

In the process of refueling, press the whole liter key, and the oil will stop automatically when the number of liters reaches the next whole liter volume. After pressing the 10 liter key, the oil will stop automatically when the oil quantity reaches the next whole number of 10 liters, and the volume will be rounded for oil filling.

4. Description of protection and leakage prevention

（1） After the start of refueling, after the oil gun does not discharge oil for the timeout protection time (default 5 minutes), the main control panel will automatically close the large and small valves to end the refueling. If you need to continue refueling, please press the start key or lift the gun to start the next refueling。

（2） In the standby state, or in the state of preset refueling but not starting refueling, the controller will give an alarm, display the word "alarm" and buzzer will give an alarm when the oil output reaches the oil leakage alarm amount (2 liters by default) due to various reasons. Press the cancel key to cancel the alarm.

（3）If the gun lifting switch is not turned off after refueling is stopped, the buzzer will give an alarm. Turn off the gun lifting switch to contact the alarm.

（4）In the refueling state, if the system suddenly loses power, refueling is stopped. At this time, the screen displays the current fueling liters and amount, and stores the fueling data.

5. Setup operation

In standby mode, press "set" key to set parameters. In the process of parameter setting, if the parameter input is wrong, you can press the cancel key to cancel the modification. The user password is factory ("123456") ("000000"), and you can modify it yourself.

5.1 Set machine No【F-01】

Machine number is used for self identification between different machines of the same user. Mainly reflected in the printing of small ticket, data backup.

In standby mode, press the "set" key to display the word "set" on the LCD screen. When the third line displays F-01, input the user password and press the "OK" key to enter the [set machine No.].

At this time, the first line of the LCD displays the currently set machine number,

The second line shows "0". Enter the new machine number "0-255" and confirm to save the new machine number.

5.2 Ticket printer setting【F-02】

(optional printer module required)

Printer description

"0" means turn off the printer

"1" means to print a piece of fueling data for fueling users

"2" means to print two fueling data, one for the bottom and one for the user.

Press the **"set"** key continuously, the LCD will display the word **"set"**, and the third line will be displayed until f-02 stops. Enter the user password and press the **"OK"** key to enter **【small ticket printer setting】**

The first line of LCD displays the currently set value (default is 1)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Setting range of small ticket printer (0-2)

5.3 Oil filling display delay setting【F-03】

After refueling, when the refueling volume exceeds the set value, the LCD starts to display the actual refueling data.

Press the "set" key continuously, the LCD will display the word "set", and the third line will be displayed until F-03 stops. Enter the user password and press the "OK" key to enter [refueling display delay setting].

The first line of LCD displays the currently set value (default is 0) setting range (0-99.99l)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Oil filling display delay setting (0-99.99l)

5.4 Large valve opening delay setting【F-04】

After the start of oil filling, when the oil filling amount reaches the opening delay of the large valve, the large valve opens.

Press the "set" key continuously, the LCD will display the word "set", and the third line will be displayed until F-04 stops. Enter the user password and press the "OK" key to enter the [large valve opening delay setting].

The first line of LCD displays the currently set value (default is 0.2L)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Setting range of large valve opening delay (0-99.99l)

5.5 Large valve closing advance quantity 【F-05】

When the filling quantity reaches the closing advance of the large valve, the large valve will be closed (only valid in the preset element filling and preset litre filling).

Press the "set" key continuously, the LCD will display the word "set", and the third line will be displayed until f-05 stops. Enter the user password and press the "OK" key to enter the [large valve closing advance].

The first line of LCD displays the current set value (default is 0.30l) setting range (0-99.99)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Setting range of large valve closing advance (0-99.99l)

5.6 Fuel dispenser sensor coefficient 【F-06】

Fuel dispenser sensor coefficient. If 100 pulses of 1 liter sensor are used, each pulse sent by the sensor will be measured as 0.01 liter, which is multiplied by the unit price to convert into the accumulated amount. We usually use a pulse factor of 1000.

When the error of the mechanical measuring instrument is more than 3 ‰, it is necessary to adjust it

by changing the pulse coefficient. The method of fine adjustment is: reducing the pulse coefficient is to give more oil, increasing the pulse coefficient is to give less oil.

Press the "set" key continuously, the LCD screen displays the word "set", the third line displays to f-06 stop, enter the user password and press the "OK" key to enter the [fuel dispenser sensor coefficient].

The first line of LCD displays the currently set value (default is 1000)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Fuel dispenser sensor coefficient setting range (1 - 9999)

5.7 Oil leakage alarm setting 【F-07】

Press the "set" key continuously, the LCD screen displays the word "set", the third line displays to f-07 stop, enter the user password and press the "OK" key to enter the [oil leakage alarm amount setting].

The first line of LCD displays the currently set value (default is 2.0L)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Setting range of oil leakage alarm volume (0-100)

5.8 Voice broadcast volume setting 【F-08】

（optional horn required）

Press the "set" key continuously, the LCD screen will display the word "set", the third line will be displayed until f-08 stops, enter the user password and press the "OK" key to enter the [voice broadcast volume setting].

The first line of LCD displays the currently set value (default is 100)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Volume setting range (0-100)

5.9 Unit price setting【F-09】

In standby mode, long press the "unit price" key, enter the user password and press the "OK" key to enter the stand-alone modification settings. You can also press the "set" key to F-9 continuously.

The first line of LCD displays the current set value (default value is 5.0 yuan)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Unit price setting range (0.01-999.99)

5.10 Timeout protection time setting【F-10】

Press the "set" key continuously, the LCD screen will display the word "set", the third line will display to F-10 stop, enter the user password and press the "OK" key to enter the [timeout protection time]. No signal is received to start the alarm within the set time after the start of refueling

The first line of LCD displays the current set value (default is 300s)

The second line of the LCD displays "0". At this time, enter the new setting value and press the "confirm" key to store the new setting.

Timeout protection time setting range (10 - 9999) seconds.

5.11 reserve

5.12 Data backup and clear, restore factory settings, and update fuel dispenser firmware【F-12】

Back up and clear the refueling data. Please insert the U disk and restart the equipment before backing up the data.

Press the "set" key continuously, the LCD screen will display the word "set", the third line will display to F-12 to stop, enter the user password, and press the "OK" key to enter.

The first line of error reporting LCD displays 0

The second line of LCD displays "0",,

a)、Data backup

Enter the password "81" and press it to confirm the daily accumulated data. If the first line shows that 81 is successfully backed up, 0 is failed to back up (please check whether the U disk is inserted properly).

Enter the password "82" to confirm the monthly accumulated data of backup. If the first line shows that 82 is successfully backed up, 0 is failed to back up (please check whether the U disk is inserted properly).

Enter the password "83" and press to confirm the total accumulated data to be backed up. If the first line shows that 83 is successfully backed up, 0 is failed to be backed up (please check whether the U disk is

inserted properly).

Enter the password "84" to confirm the backup of shift tired data. If the first line shows that 84 backup is successful, 0 backup is failed (please check whether the U disk is inserted properly).

Enter the password "85" to confirm the backup details. If the first line shows 85 backup succeeded, 0 backup failed (please check whether the U disk is inserted properly).

Input the password "86" to back up all the refueling data. If the first line shows that 86 is successfully backed up, 0 is failed to back up (please check whether the U disk is plugged in properly).

b)、data dump

Enter the password "91" and press OK to clear the daily accumulated data. If the first line shows that 91 is cleared successfully, 0 backup fails.

Enter the password "92" and press OK to clear the monthly accumulated data. If the first line shows that 92 is cleared successfully, 0 backup fails.

Enter the password "93" and press OK to clear the total accumulated data. If the first line shows that 93 is cleared successfully, 0 backup fails.

Enter the password "94" and press OK to clear the shift tired data. If the first line shows that 94 is cleared successfully, 0 backup fails.

Enter the password "95" and press OK to clear the detailed data. If the first line shows that 95 is cleared successfully, 0 backup fails.

Enter the password "96" to clear all refueling data. If the first line shows that 96 is cleared successfully, 0 backup fails.

c)、Restore factory settings

Input the password "854394" to restore the factory settings according to the confirmation, restart the system, and restore all the refueling data and setting parameters to the factory settings (use caution).

d)、Firmware update

Download the latest firmware on our website. (file name wh800. Bin), put it in the root directory of the U disk. Plug in the USB port of the motherboard.

Enter the password "132211" and press OK to restart. If the nixie tube displays 12345678 in the first line and the second line, the update fails. If the third line shows 00-99 indicating that the firmware is being updated, do not power down or unplug the USB stick at this time.

If the update fails, please check whether the U disk is plugged in and whether there is updated firmware in the U disk. After the update, you can view the software version number by viewing the system

information (use caution).

5.13 Modification time【F-13】

Press the "set" key continuously, the LCD screen will display the word "set", the third line will be displayed until f-13 stops, enter the user password and press the "OK" key to enter the [modify time].

LCD first line display date

LCD second line display time

Press "clear" and "rounding" to move left and right.

Press "OK" to exit after modification.

5.14 Set and restore user password【F-14】

The user password is used to set the machine sub number, modify the single machine, set the printer, backup and clear the data, lock and unlock the machine, upgrade the firmware, etc.

Press the "set" key continuously, the LCD screen will display the word "set", the third line will display to F-14 stop, enter the user password and press the "OK" key to enter [modify user password]

At this time, the first line of the LCD displays the current user password. Enter the new 6-digit user password and press the "confirm" key to save the new user password.

Force the user password to be restored to the default value. This function is to prevent the user from forgetting the user password, resulting in the failure to use the host normally.

When the host is powered off, press and hold the set and stop keys at the same time, and then power on. Wait for the buzzer to beep three times, and the user password will automatically recover to "123456".

6. Query operation

Tip: long press "◄" and "►" to quickly change to the next data.

After entering the query data, you can directly press "daily tired", "monthly tired", "total tired", "shift tired" and "details"

But change different query items, do not need to exit and re-enter.

6.1 Query daily accumulated data

Press "query" to display "C" on the LCD screen, and press "daily accumulation" to enter the daily accumulation item.

Enter the default display of the latest daily cumulative information.

Press "time" to display the fueling date and daily accumulation sequence number of the current day

Then press "time" to display the refueling time of the first refueling data and the total number of refueling transactions of the current day.

You can check the detailed fueling information and the total number of fueling in each day through this daily tired information and the previous and next information.

Press "◄" and "►" to replace one or the next daily accumulated data. Long press for quick view. Press cancel to exit query mode and return to standby mode.

Note: only 7300 daily cumulative queries can be recorded. The oldest data is automatically overwritten when it is exceeded.

6.2 Query monthly accumulated data

Press "query", LCD screen displays "C", press "monthly tired" to enter the monthly tired item.

Enter the default display of the latest monthly cumulative information.

Press "time" to display the fueling period and monthly accumulation sequence number of the current month

Then press "time" to display the refueling time of the first refueling data accumulated in the current month and the total number of refueling transactions accumulated in the current month.

You can check the detailed fueling information and total fueling number of each month with the previous and next information.

Press "◄" and "►" to replace one or the next monthly cumulative data. Long press for quick view. Press cancel to exit query mode and return to standby mode.

Note: only 240 monthly cumulative queries can be recorded. The oldest data is automatically overwritten when it is exceeded.

6.3 Query total accumulated data

According to the "query", the LCD screen displays "C" and enters the total query item according to "total fatigue".

Enter the default display of the latest total cumulative information.

According to "time", the total number of refueling months and the total sequence number are

shown.

Press the "time" to show the time of the first refueling data and the total number of fuel filled at present.

6.4 Query shift accumulated data

Press "query" to display "C" on the LCD screen, and press "shift accumulated " to enter the query of shift accumulated item.

Enter the default display of the latest shift accumulated information.

Press "time" to display the fueling period and shift tired sequence number of the current shift

Then press "time" to display the refueling time of the first refueling data and the total refueling number of the current shift.

The detailed fueling information and total fueling number of each shift can be checked through the accumulated information of this shift and the previous and next information.

Press "◄" and "►" to change to one or the next piece of shift accumulated data. Long press for quick view.

Press cancel to exit query mode and return to standby mode.

Note: only 500 records can be recorded for shift accumulated query. The oldest data is automatically overwritten when it is exceeded.

6.5 Query / print details

Press "query", the LCD will display "C", and press "details" to enter the query details.

Enter to display the latest details by default.

Press "time" to display the current refueling time

Press "◄" and "►" to replace the detailed data of one or the next. Long press for quick view.

Press cancel to exit query mode and return to standby mode.

Note: only 60000 items can be recorded in detail query. The oldest data is automatically overwritten when it is exceeded.

(printer module shall be selected for printing details and printer function shall be enabled)

After refueling, press "print" for 2 seconds to print the refueling details

Press "print" for 2 seconds after entering the query details to print the current refueling details data

6.6 Query system time

Press and hold the "time" key in standby mode to display the current system time, and exit the display after release.

When the system time is displayed, press the "confirm" key to lock the display time.

After the display system time is locked, press the "Cancel" key to exit the display.

6.7 Query system information

Press "query" and then press "time" to query system information parameters

The first line shows the current software version

The second line shows the current hardware production time

The third line shows the system number of the main board

7. Shortcut keys

（1）Voice broadcast fast on / off

Press and hold in standby mode to quickly start or turn off voice broadcast.

（2）LCD backlight fast on / off

Press and hold in [standby mode] to quickly start or turn off the backlight display.

8. Main technical parameters

supply voltage	+12V or +24V DC
Working current	Standby state 30mA working state < 1500mA
Operating temperature range	-20℃-+60℃
Relative ambient humidity	30%-80%
Maximum flow rate	300L/min
Measurement accuracy	±0.1%

9. Common alarm description

Trouble code	Reason	Resolvent
E1	Oil leakage	Press the "Cancel" key to check the

		tightness of the oil circuit
E2	No gun hanging	Hanging gun
E3	overtime	Press cancel key
E4	Low voltage	Charging the battery

10. Routine maintenance

（1）Keep the inside and outside of the fuel dispenser dry and clean, and wipe it regularly.

（2）Once every two months, the computer board and power relay board shall be subject to dust removal by soil blowing. During dust removal, the hot air source shall not be used, and the cloth shall not be used for wiping. Keep the circuit board intact.

Common faults and troubleshooting

Fault phenomenon	Judgement phenomenon	Troubleshooting		Solution
Power failure of main board	Check whether the power board indicator is on	yes	1. Wrong connection or poor contact of connecting wire	(1). Reconnect wires
			2. Main board problems	(2).Replacement motherboard
		no	1. Check the input power supply and connecting wire	(1). After checking that the power supply is stable, reconnect it.
			2. Check fuse	(2). After troubleshooting the short circuit, replace the fuse.
			3. Whether the transformer has output	(3). If there is no output, change the transformer.
			4. Power board output short circuit	(4). Troubleshooting short circuit
		yes	1. The wiring between the main board and the power board is in bad contact.	(1). Rewiring

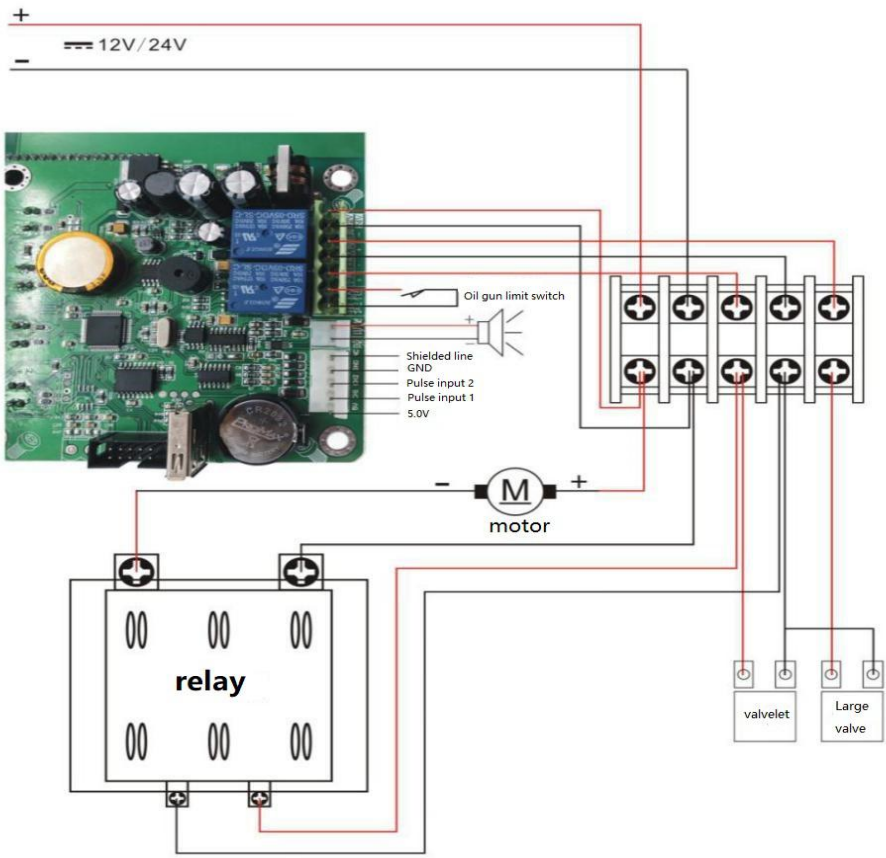
Motor does not start	Whether the main board can be started		2. Relay damaged	(2）. Replace relay
			3. Wrong connection of motor connecting line tag number	(3). Rewiring
			4. Motor damage	(4). Replace motor
		no	1. Main board problems	(1). Replace main board
			2. Main board protection due to short circuit at control end	(2). Troubleshooting short circuit
Reduced oil output	Whether the motor works abnormally and makes abnormal noise	yes	1. Long time wear and damage of motor impeller	（1）. replace Impeller
			2. Supply voltage too low	（2）.Check the power supply and power cord
			3. Motor coil burnt out	（3）. Replace motor
		no	1. Whether the oil pipe of oil storage tank is too long	（1）. Check tubing length
			2. Too much oil impurities, clogged filter screen	（2）. Clean filter screen and oil drum
			3. Tubing blockage	（3）. Cleaning pipeline

Warm reminder: in case of any problem, please carefully check the above table one by one according to the fault phenomenon. When the fault cannot be eliminated by itself

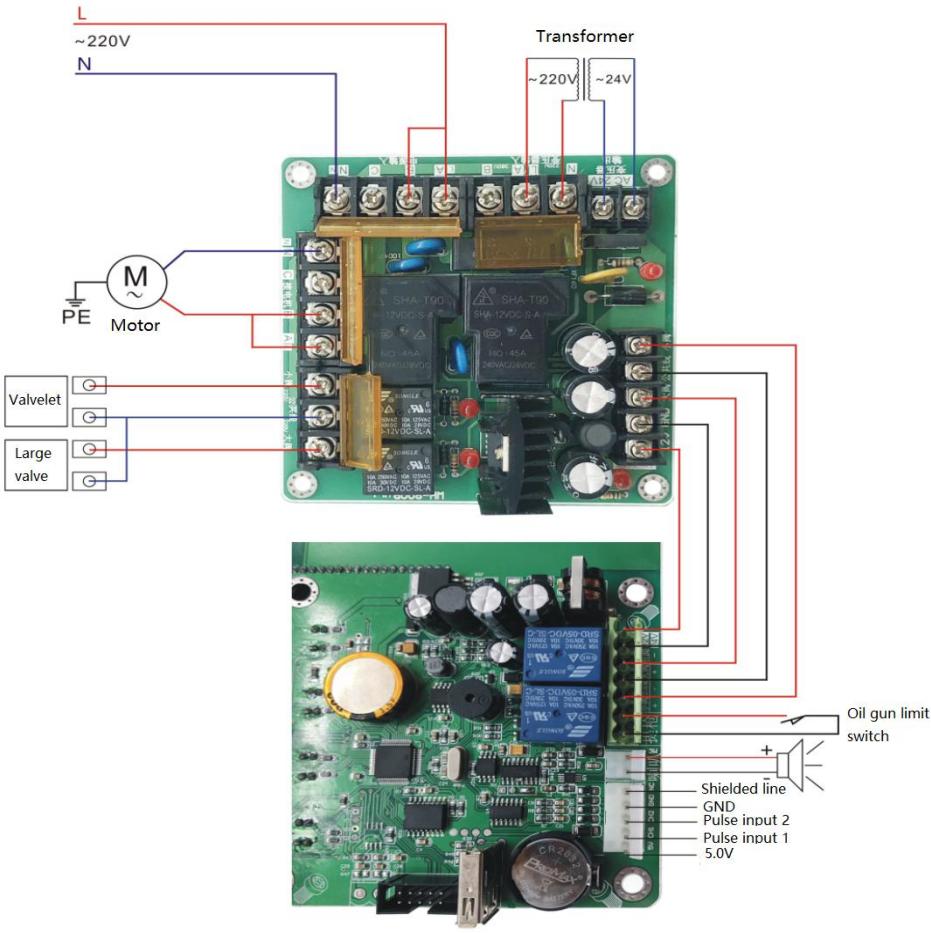
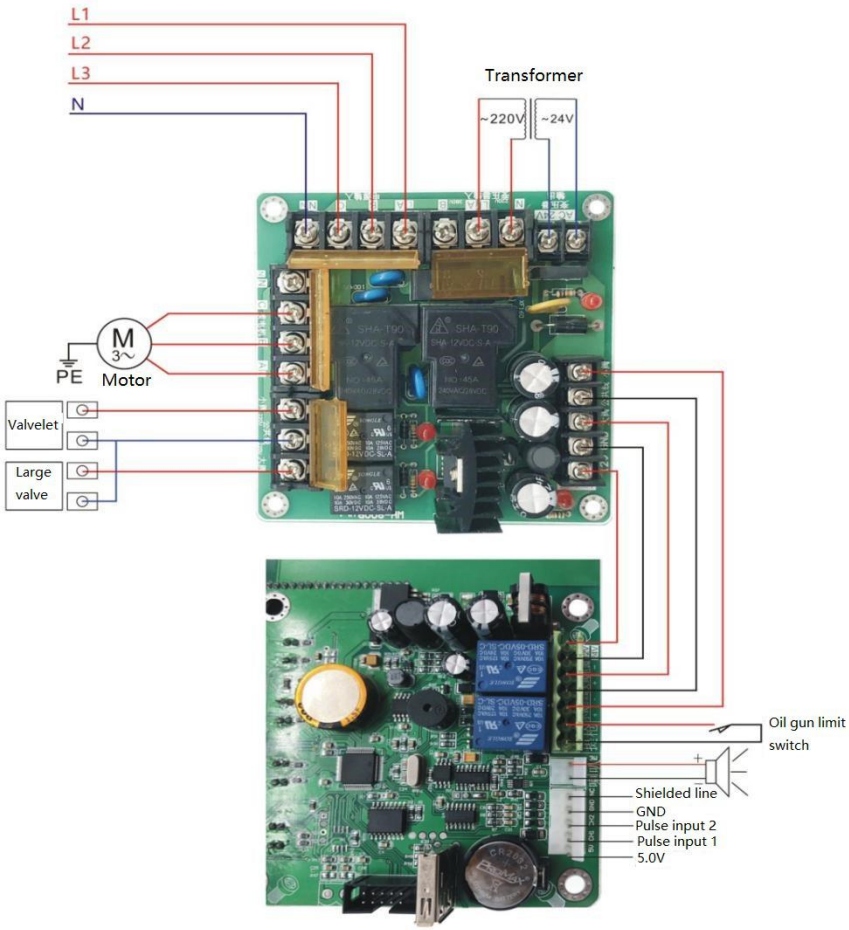
Please contact us, do not repair blindly without permission, to prevent unnecessary losses caused by the expansion of fault points.

11. Wiring diagram

12V/24VElectrical wiring diagram:



220VElectrical wiring diagram:



380VElectrical wiring diagram: