

MINCO 300V2 genset controller operating instruction manual

The generator-set controller MINCO 300V2 adopt high performance microprocessor and industrial class devices, With high-light LED display. It have the properties of compact structure, marked display and easy install. The controller can control the generator startup or stop , detect and measure the work state of the generator, realize the auto-protect function. When the normal supply is broken-down, it can auto-startup the generator, and provide remote control function.

I Characteristic

1. The measure of real valid value about AD voltage and current.
2. The controller control the generator by either press key, or switch input, or communication interface.
3. With the remote control interface, can set the delay time of start and stop. It can auto start , stop and provide power onload.
4. With control output: idle, acceleration, deceleration, onload and pre-fuel. Idling and ACCeleration/DECeleration are quickly under the control of compatible.
5. Have two velocity source : frequency input or speed sensor input
6. Auto record the start times and run time of gen-set.
7. With protect function include high coolant temperature, low oil pressure, over speed, emergency stop and over crank.
8. With RS232 communications port, attaching remote control program.



II The front-panel function explain

The front panel of MINCO 300V2 controller have 3 set of ten together high-light LED, 6 press-keys and 23 LED lights. The press-keys control the generator, the indicator lights combine the LED screen indicate the parameter, state and failure of gen-set.

1. The control key explain

RUN: When press this key, the above green LED always bright, indicate controller is be placed in "start state", directly manual start generator, and has been keep running.

AUTO: When press this key, the above yellow LED always bright, indicate controller is be placed in "automatic state", the controller receive the "remote start" switch signal, if this switch is close, then postponing starting the generator; Otherwise will delay stop machine. To realize the auto-start control of gen-set, "Remote start" switch signal can be provided by the detect module of the normal supply. If the gen-set are reset by the "remote reset" switch, then after the switch of the " remote

reset" is opened, the controller is placed in automatic state.

RESET: When press this key, the above red LED always bright, indicate controller is be placed in "STOP/RESET" state, if at this time generator just in the running, press this key will shut down immediately.

+ 、 **-**: The button is used to be sure to change the LED display content and to change a parameter under setup circumstances.

MENU: Entrance or withdraw from the parameter setup state

2. Explain of the LED light

The front-panel of the controller has 23 indicator LED light, they denote the state or alarm of controller and generator:

Four display switch LED lights:

Press **+** 、 **-** key, will be sure to change display in 4 indicator lights, corresponding every indicator lights , 10 high-light LED demonstrate different content:

- 1) A (AB) VOLTage / CURRENT / COOLant TEMPerature (Unit: V/A/°C)
- 2) B (BC) VOLTage / CURRENT / OIL PRESSure (Unit: V/A/KPa)
- 3) C (CA) VOLTage / CURRENT / OPION input (Unit: V/A/option)
- 4) FREquency / SPEED / BATTery VOLTage (Unit: HZ/RPM/V)

If "Display change mode" being set "Auto" (see communication agreement and remote control program) , every is separated by approximately 10 seconds, the display content being sure to change the LED arrives at one page down , is equal to having pushed down the **-** key.

Five indicator light of statement:

LOAD, REMOTE RUN, RESET/stop, AUTO, RUN.

Ten failure indicator light :

EMERGENCY STOP, OVERCRANK, HIGH COOLant TEMPerature, LOW oil PRESSure, OPTION input ALARM, LOW BATTery VOLTage, OVER/LOSS SPEED, VOLTage/FREquency LIMIT, OVERLOAD, CONTACT FAIL etc.

III Parameter setup

All parameters can read and write through the communication port, the detailed parameter circumstance is written in communication protocol agreement. The front face button by MINCO 300V2 controller can only set a few parameter being in the cards being changed by general operation personnel under the environment in different usage. When pressing down the **MENU** key, first row of LED demonstrates "H— genset running time ", press **MENU** key again according to the once , enter a parameter setup state, the three LED display "P00- P11" provides twelve

parameter codes on the first rows of the left now, four LED flicker on the right to demonstrate corresponding parameter content , the parameter increase by or cut down one according to press **+** or **-** key once. press **MENU** key again, preserving a parameter then and demonstrating next parameter , the parameter codes add one. Continue press **MENU** key , after thinking that all parameters all finish setup , withdraw from setup state then, returning to normal shows. Under setup state circumstances, do not press any button ten seconds if exceeding, the general also withdraws from interposing state , the measurement returning to normal shows.

- | | |
|-----------------------------------|----------------------------------|
| P00— genset voltage upper limit; | P01— genset voltage lower limit; |
| P02— current upper limit; | P03— coolant temp upper limit; |
| P04— oil pressure lower limit; | P05— option input limit; |
| P06— battery voltage lower limit; | P07— current CT rate; |
| P08— flywheel tooth number; | P09— coolant temp adjust; |
| P10— oil pressure adjust; | P11— option input adjust; |

System parameters explain:

P00— genset voltage upper limit: In genset three-phase voltage, any exceeds this upper limit each other may lead to an genset protect closing down.

P01— genset voltage lower limit: In genset three-phase voltage, any may lead to an protect closing down each other lower than this lower limit.

P02— current upper limit: In genset three-phase loads electric current, any exceeds this upper limit each other may lead to an genset protect closing down.

P03— coolant temp upper limit: If “coolant sensor select” setup being “analog signal”, coolant temperature exceeds this upper limit will lead to an genset protect closing down.

P04— oil pressure lower limit: If “oil pressure sensor” select setup being “analog signal”, oil pressure is lowered the lower limit will lead to an genset protect closing down hereof.

P05— option input limit: Be that upper limit give an alarm or the lower limit gives an alarm and stopping genset machine or not be set by remote control program.

P06— battery voltage lower limit: Battery voltage will lead to warning lower than this lower limit , if genset protect closing down interposes from remote control program.

P07— current CT rate: The generating set outside connection electric current sensor (transformer) responds to the generating set can that the maximal electric current providing adapts to each other , needs ability to interpose correct transformer rate makes the MINCO 300V2 controller reflect actual electric current. When interposing CT rate, parameter every increases by or cuts down five according to press the **+** or **-** key once.

P08— flywheel tooth number: Being a parameter's turn is only effective to the application gaining the freewheel rotation rate from being located in the neighbour engine freewheel location magnetism sensor . If the MINCO 300V2 controller setting frequency from genset voltage gains the engine rotation rate (Leave the factory default interpose) , is the parameter's turn to invalidate ;

P09—coolant temp adjust , P10—oil pressure adjust , P11—option input adjust: Measurement error , MINCO F1 may come into being to the water temperature , oil pressure , option input have provided 10%'s adjustment range. Need especially explanatory: being the coolant or oil-pressure sensor maybe positive modulus (be that sensor output enhances with importing

enhanced) , also minus modulus (be that sensor output enhances but diminishes with importing) .
The essential points increasing or diminishing the effect adjusting the adjustment that value leads to decides from reality since.

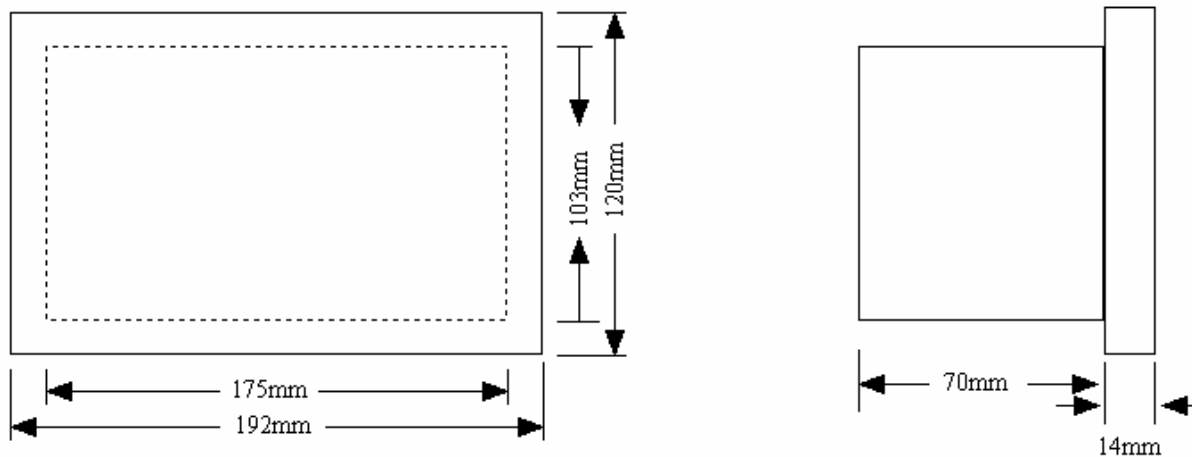
Other parameter must be set by communication port, detailed parameter content sees communication agreement.

IV. The illustration of controller's port

1. The input port of rotate speed sensor (magnetic pickup)
 - Port 35- the single input of rotate speed.
 - Port 36- GND (connect with battery cathode)
2. The input port of switch signal (attached optoelectronic isolator, effective work when connect with GND)
 - Port 34- Emergency shut-down
 - Port 33- remote start
 - Port 32- remote reset
 - Port 31- high Coolant temperature
 - Port 30- low oil pressure
 - Port 29- Option input
 - Port 28- ACCeleration limit
 - Port 27- DECeleration limit
3. Relay output port (relay isolation, touch dot tolerance 2A/250V)
 - Port 26- start output
 - Port 25- fuel output (fuel when ETR /stop machine when ETS)
 - Port 24- common shutdown
 - Port 23- pre-fuel
 - Port 22- ACCeleration
 - Port 21- DECeleration
 - Port 20- emergency(gen-set) supply on load
 - Port 19- common port, except for idle speed all output relay have one touch dot connect to the common port.
 - Port 17, Port 18- idle speed output (it is sole touch dot).
4. Provide power (range: 8~36VDC)
 - Port 1- Connect to the positive of battery. When control work normally, the current of power is less than 300mA.
 - Port 2- Connect to the battery cathode (GND).
5. Analog input (the range of input voltage:0~4.0VCD).
 - Port 3- analog ground(AGND), connect to battery cathode inside.
 - Port 4- option input
 - Port 5- oil pressure input
 - Port 6- coolant temperature.
6. Three-phase voltage input of gen-set (voltage transformer isolated inside the controller,0-300V AC)
 - Port 7- A phase voltage of gen-set
 - Port 8- B phase voltage of gen-set
 - Port 9- C phase voltage of gen-set
 - Port 10- zero line

7. Three-phase current input of load (current transformer isolated inside the controller, 0-5A AC)
 Port 11, Port 12- A phase current of load
 Port 13, Port 14- B phase current of load
 Port 15, Port 16- C phase current of load

V Size of form and outside wiring diagram

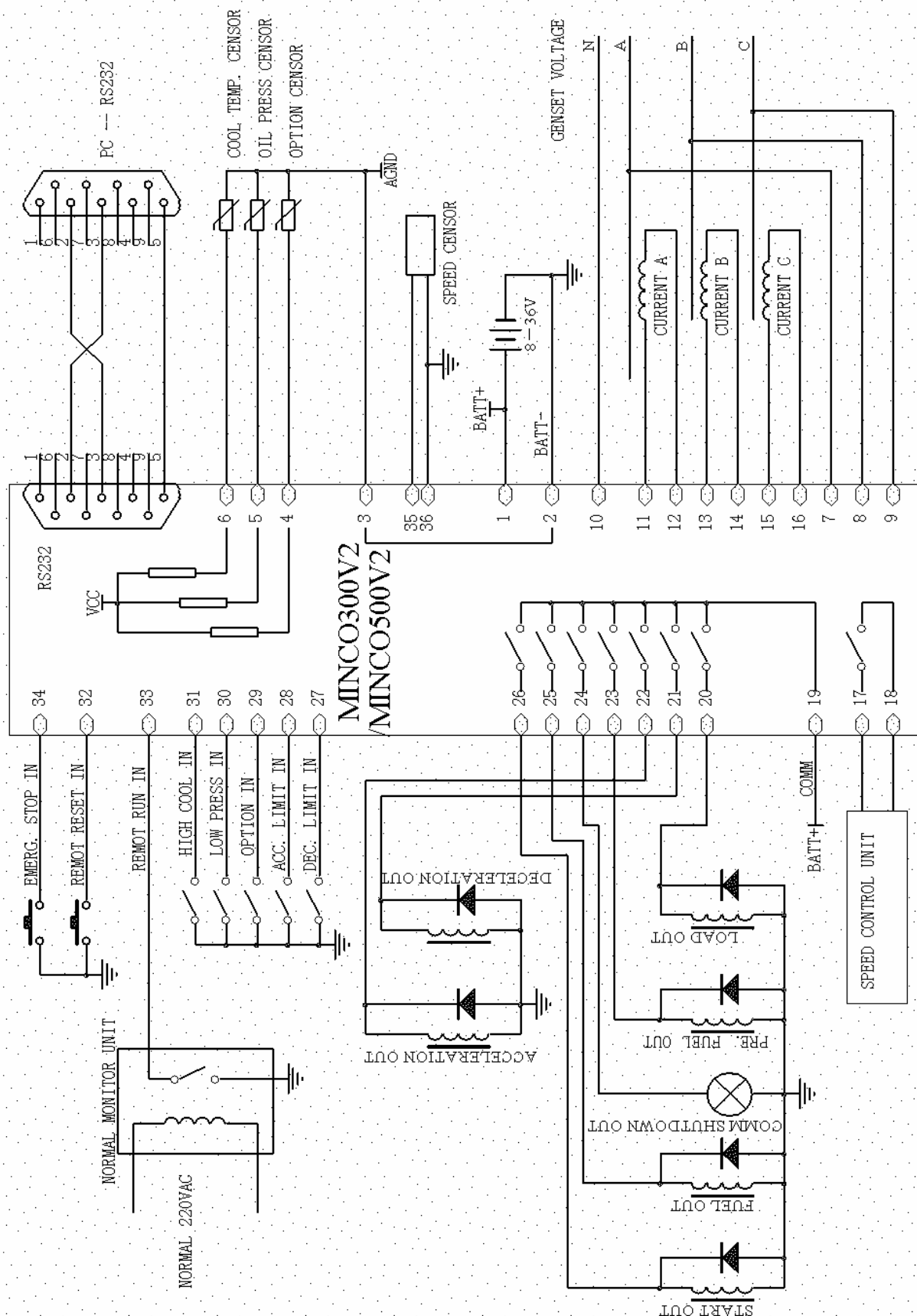


Size of form: 192 mm (Wide) × 120 mm (High) × 14mm (Deep) (front panel)

175 mm (Wide) × 103 mm (High) × 70 mm (Deep) (back shell)

Hole size of panel: 176 mm (wide) × 104 mm (high)

Outside wiring diagram (auto start, Auto Transform Switch state):



MINCO300V2/MINCO500V2 GENSET CONTROLLER LINE CONNECTION

Explanation::

1. When output to connect the inductance property load (such as RL), you need to plus the current absorption electric circuit in outside wiring, otherwise will probably influence controller to work normally.
2. Compatible ACCeleration/DECeleration and idle controls way two kinds. If using idling way, must connect the "ACC limit" and "DEC limit" this two input switch with "GND", the MINCO 300V2 will skip acceleration and deceleration control; If using ACCeleration/DECeleration way, does not think that idle exports, only requires setting up the delay of "idle acceleration" and the delay of "idle deceleration" to be OK then.
3. If using ACCeleration/DECeleration way, require cut-over to "ACC limit" and "DEC limit" two import switch. But under some condition, position-limit protection is to be used for on ACC/DEC organization but not be had the position-limit signal to provide with MINCO 300V2. Now, MINCO 300V2 also can carry out regular ACC/DEC of speed controls, be only job giving an alarm, only not affecting regularity of the genset that can appear to "ACC failure" and "DEC failure".
4. The input port of "remote start" can also connect to the timer or other devices, to realized time start machine automatically and others.
5. That if engine take is loaded with is to decide from "remote start" switch input, if the engine is to get it in gear according to press START button, the engine is to be not automation being loaded with as long as the "remote start" switch input is no closure. therefore the consumer wants to pay attention to this one point specially if having no need of automation starting engine when applying, require that hand movement starts an engine as well as being loaded with, definitely being asking to short circuit that GND with "remote start" switch input only.
6. The input sensor's allotted resistance of coolant temperature. Oil pressure. Option input have differently hinder value to mate differently machine sensor (refer to communication protocol). The inside of MINCO 300V2 controller have had three 150 Ohm allotted resistance, so not need to connect the allotted resistance outside.
7. The speed sensor (magnetic pickup) put to near the flywheel to pickup the machine rotate speed, if the MINCO 300V2 controller set "speed source" was "genset frequency" (the factory default set) and not need connect the sensor.

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Appendix 1 : The simple explain of setting MINCO 300V2

I. Debugging mode: Please use our company provide the “mcviewer-500 genset Control System” software to set and adjust controller ,and through the computer’s RS232 communication port .

II. Link method: Follow the subsidiary controller communication line to connect the computer and MINCO 300V2; and install the “mcviewer-500 genset Control System” in computer. After installation success , running “mcviewer-500 genset Control System”, entrance monitor program select the used serial port (default for serial port 1) , if the communication is right, "Comm State " red light turn to green light, monitoring software begin normal receive data from MINCO 300V2 controller. If the communication incorrect, " Comm State " light is yellow. Needing to check at this time is what reason cause of the communication fail(select communication port mistake, the string line is tottering, etc.), if can’t be certain the reason of the MINCO 300V2 controllers, please connect with manufacturer technologist .

III. Menu explain: While monitoring software and MINCO 300V2 controller switch normal, it could monitor MINCO 300V2 controller’s all of parameter, and operating some settings. Click "system parameter setting" monitor window, all the MINCO 300V2 controller’s control parameters is divided. Be marked " delay set 1","delay set 2","analog adjust ", " parameter", " control set", "alarm set " etc. Several window body in this constitution, easy to setting for correspond. Each window body has four buttons : "Read Module", "Write Module", "Read Disk", "Write Disk".

" Read Module ": Press this button, should limit MINCO 300V2 controller parameter to monitoring software, and show in the monitoring software .

“Write to module”: Press this button, MINCO 300V2 controller data biography is arrived at monitoring the software and display .

" Write Module ": Press this button, Deliver to monitoring the data hair that the software demonstrates to the MINCO 300V2 controller.

"Read Disk": Press this button, Playback and demonstrate the data that this locality preserves on monitoring software.

" Write Disk ": Press this button , The data will monitor software display is preserved to local place.

Especially attention: Initial stage starting linking the MINCO 300V2 controller, "system parameter setting" page display the data is blank space. Ask the first pieces of thing composing to it is to strike "Read Module", under the control of parameter that being really showing on the monitor routine now biography to over in the inside of MINCO 300V2.

IV. Parameter settings: The MINCO 300V2 controllers have already set parameter at factory, most parameters are in general use, don't need to set again. Only have a little amount parameter of "CT rate", "phase/ line voltage select", "voltage upper limit", " voltage lower limit", " current being over load " etc, require that the consumer carries out corresponding adjustment according to concrete electricity allocation. Change some's parameters with delivering to monitoring the data hair that the software demonstrates to the MINCO 300V2 controller , being page of all face parameters's turn to be going to write in the MINCO 300V2 controller now setting up last strike "write module " button. **So suggestion customer click "Read Module" button first before changing a certain parameter, have read MINCO 300V2 controller parameter out first , have changed in order to avoiding changing some's parameter time mistake other parametric.**

Suggest that change the parameter, to click a " write module " button each time, send the parameter to MINCO 300V2 controllers. The MINCO 300V2 controllers save the parameter to RAM, it need certain time . If the parameters changed too many, it is too late probably that MINCO 300V2

controllers save the parameter to RAM. Although the MINCO 300V2 controller at present for the time being not likely works, once the MINCO 300V2 controller blackout and power on again, may possibly make mistakes since the parameter does not preserve to the RAM. So, as one assure method, suggesting customer after doing all parameter set, closed the power of controllers, wait for several ten seconds, again give power. Enter into the supervision software to click" read module " button, read the data of the MINCO 300V2 controllers to the supervision software, check all parameter set whether is consistent with prepare to think of. If inconformity (smallest possibility), set again until right.

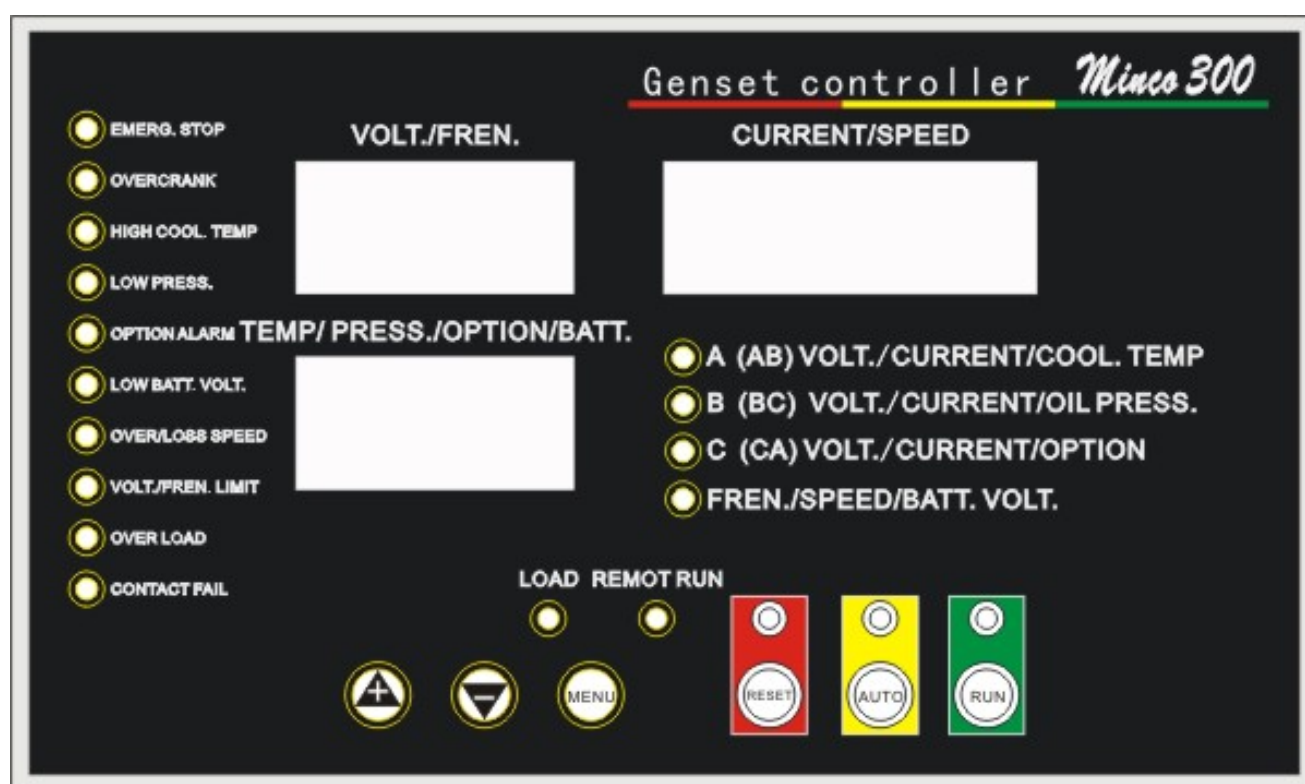
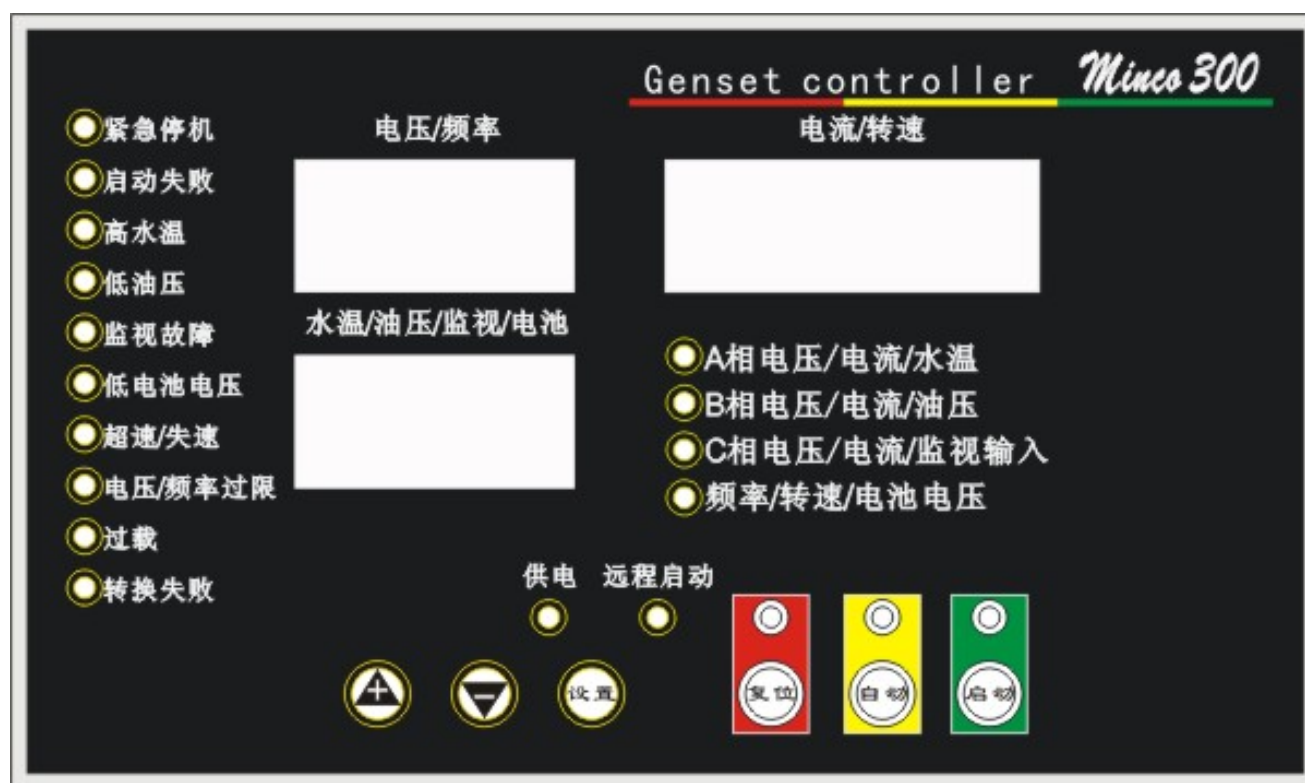
V. Data adjust: The MINCO 300V2 controllers have already carried on data adjust at factory (three phase voltage, three phase current, the battery voltage), but in practice environment, that may have the certain deviation. If measuring the value deviation with reality within error range, suggest that the consumer does not carry out data calibration, especially the three phase current. The adjust of the three phase current has little trouble, because of the set be related to "CT rate". The current measurement principle is that value pro rate basis varies shifts the electric current becoming 0 ~ 5 Amp with electric current transformer with actual electric current, the MINCO 500 controllers measures the 0 ~ 5 Amp accurately, Take advantage of that again with current transformer ratio, be OK to get actual electric current value. The MINCO 300V2 controllers have already adjusted 0-5A current value in the factory, the customer only need to set "CT rate" actual usage ratio, thus can display right current value.

If voltaic measure value and actual electric current value deviation is bigger, maybe is that electric current transtormer deviation brings about more, suggest customer to set "CT rate" parameter little big or small to actual parameter value, so the current measured value would also increase or reduce in ratio, it will correspond to the value current value, do not adjust electric current calibration to the full.

If must adjust electric current calibration, the consumer can only carry out calibration according to actual electric current value so under scene environment, now has to shift the electric current becoming 0~5 Amp by the value secretly scheming against with actual electric current, then it is possible correct, that is actual electric current value gets rid of with "CT rate". For example, suppose current "CT rate" is 200:5, if the A phase current is 100A that is actual measure value, but MINCO 300V2 display is a 80 A, need calibration. When calibration, that need the actual measure current value divide CT rate, Current gets 2.5A. Click" Adjust" button at the side of the " current A " shows value item, under the "read analog" page of supervise and control software, will open "adjust" frame, write in the "2.5 " into the data frame, click" OK" button can immediately complete the adjust of A phase current. The current measure value of the MINCO 500 controllers will change into 100 A, it is consistent with actual value.

Attention: Because the MINCO 300V2 controllers measure the three phase current, three phase voltage have certain lag, so at the adjust of three phase current & three phase voltage, have to in the stable state of voltage and current, otherwise measure values probably have larger deviation.

Appendix 2 : MINCO 300V2 front panel diagram Chinese & English contrasts



Appendix 3: MINCO 300V2 back paster diagram Chinese & English contrasts

