DC7x MK3 GENSET CONTROLLER
USER MANUAL

DC70x MK3



DC72x MK3



Software Version

No.	Version	Date	Note
1	V1.0	2025-04-02	Original release.
2			
2			

Chongqing Mebay Technology Co.,Ltd
Add: No6-2,Building 4, Gangan Rd, Jiangbei District, Chongqing.
Tel:+86-23-6869 3061
Fax:+86-23-6765 8207
Web:http://www.mebay.cn
http://www.cqmb.cn
E_mail:sales@mebay.cn

Controller models to which this manual applies:
DC70D MK3
DC72D MK3
DC70DR MK3
DC72DR MK3
DC70MR MK3
DC72MR MK3

Symbol Description

Symbol	Description
 Note	Remind operators to operate correctly, otherwise it may cause the equipment not to work correctly.
 Be care	It is indicated that potential hazards can damage equipment without proper precautions.
 Warning	It is indicated if appropriate preventive measures are not taken, potentially dangerous situations may result in death, serious personal injury or significant property losses.



Warning

1.The installation of this equipment must be carried out by professionals.
2.When installing and operating the controller, please read the entire instruction manual first.
3.Any maintenance and commissioning of the equipment must be familiar with all the equipment.
4.t, safety standards and precautions in advance, otherwise it may cause personal injury or damage to related equipment.
5.The engine must have an over-speed protection device independent of the controller system to avoid casualties or other damage caused by engine out of control.
6.After the installation of the controller is completed, please verify that all protection functions are valid.



Be Care

1.Please keep the good connection of the power supply of the controller. Do not share the connection lines of the positive and negative electrodes of the battery with the floating charger.
2.During the operation of the engine, do not disconnect the battery, otherwise it may cause damage to the controller.

Catalogue

1. Summary 6
2. Main Features 6
3. Parameters Display 7
4. Protection 7
5. Parameters 8
6. Overall Dimension and Wiring Diagram 9
7. Installation instruction 17
8. Panel and display 18
9. Control and operation instruction 19
10. Setting Menu instructions 23
11. Warnings and Shutdown Alarms 26
12. Parameters setting 36
13. Communication Ports 63
14. Fault finding 65

Notes:

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1.Summary

This series controller is specialized for Diesel / Gasoline / Gas Genset Start, Stop, Parameters monitoring, faults-checking as well as data setting.

4.3inch colorful LCD screen display with brand new UI design is adapted in this controller that the relative failures can be displayed directly. All the parameters can be displayed by simulated indicators and words. Besides, LCD screen can display various faults in the same time that the genset will be stopped once it can't work smoothly.

There are Chinese/English interface options, more language can be set according to user's request. All the parameters can be configured through the front face buttons or use programmable interface by RS485 or USB or ETHERNET interface to adjust via PC. It can be widely applied for all kinds of auto control system of gensets.

2.Main Features

There are six Models under DC7x MK3 series.

Model	USB	CAN	ABF	AMF	RS485	ET	-40°C
DC70D MK3	●	●	●	—	—	—	—
DC72D MK3	●	●	●	●	—	—	—
DC70DR MK3	●	●	●	—	●	—	—
DC72DR MK3	●	●	●	●	●	—	—
DC70MR MK3	●	●	●	—	●	●	●
DC72MR MK3	●	●	●	●	●	●	●

The main features are as follows:

◆32bit high performance single chip microcomputer.
◆4.3inch TFT colorful big screen LCD, Available in 16 languages, user's language set if necessary.
◆Wide temperature working range (-40-70℃), suitable for harsh working environment.
◆Indicator and number display through UI surface.
◆Acrylic material is adapted to protect the screen.
◆Silicone panels;
◆Standard USB Port: parameters can be set even without power through USB port to monitor in real time.
◆With RS485 communication port, support Modbus-RTU communication protocol.
◆The standard ETHERNET communication interface can be connected to the GSCLOUD generator cloud control platform, and the status of the generator set can be monitored remotely through the WEB platform and mobile APP; the ETHERNET interface supports the Modbus-RTU protocol, and the controller parameters can be set through the PC;
◆Standard CAN communication port, built-in J1939 protocol, has matched more than 40 kinds of engines;
◆Standard ABF function: automatically starts and stops the genset by monitoring the backup battery pack;
◆Collects and displays various parameters.
◆Input/output function, status can be shown directly.

◆Real time clock inside: preset time operate and auto maintenance is available. Genset working plan can be set as per week or month.
◆Three class protection countdown function, which can set the maintenance time or date.
◆With event recording function, it can save 100 groups of alarm records, including relevant parameters of the unit in case of fault alarm; 5000 system logs can be saved to find the cause of failure;
◆Totally 7 relay's output, among which 5relay output can be self-configurable, each relay can be set as max 100 functions, besides, there are 4 groups as non-contact terminals.
◆With 5 switches input, up to 50 functions optional;
◆4 sensor simulation input connectors, the oil pressure sensor is compatible with resistive，voltage and current signal input, Oil level sensor compatible with resistance and voltage signal input and various display units can be configured.
◆Battery charging control function,which can protect the battery according to battery voltage status.
◆Sensor can be self-defined by front face button or PC software.
◆Adapt to 3P4W,1P2W,2P3W(120V/240V,50/60HZ)
◆Various of crank conditions (RPM, Frequency, Oil Pressure) can be chosen.
◆Control Protection: Auto Start/Stop of genset, load transfer (ATS control) and perfect failure display and protection.
◆Standard water-proof rubber gasket. The waterproof can reach IP65.
◆Module design: All the connections are adapted with European connectors so that installation, connection, repair and replacement can be more easily.

3.Parameters Display

- Engine RPM
- Engine oil pressure
- Engine water temperature
- Engine fuel temperature
- Engine cylinder temperature
- Engine Tank temperature
- Engine fuel level
- Engine battery voltage
- Charging voltage
- ECU related parameters.
- Cloud control related parameters
- Mains Frequency
- Mains phase voltage L-N
- Mains phase voltage L-L
- Generator 3 Phase voltage L-N
- Generator 3 Phase voltage L-L
- Generator Phase Sequence
- Generator 3 phase current A
- Generator Frequency Hz
- Generator Power Factor COS φ
- Generator active power KW
- Generator apparent power KVA
- Generator reactive power KVar
- Real-time load rate %
- Current consumption KWH
- Total consumption KWH
- Total Crank times
- Module temperature (only for DC7xMR MK3)
- Current running time
- Total running time
- Maintenance notice
- Input status display
- Output status display
- Current time
- Networking in progress

4.Protection

- Emergency stop
- Over speed
- Under speed
- High Box Temp-A
- High Box Temp-D
- BT sensor open

- Over frequency
- Under frequency
- Over voltage
- Under voltage
- Low oil pressure sensor
- Low oil pressure switch
- Oil pressure sensor open
- High WT sensor
- High WT switch
- WT sensor open
- High OT switch
- OT sensor open
- High CT sensor
- High CT switch
- CT sensor open
- Low water level switch
- Crank failure
- RPM Signal lost
- Stop failure-RPM
- Stop failure-Oil pres
- Stop failure-Oil pres
- Fuel level sensor open
- Low fuel level switch
- Low oil level switch
- Instant load switch
- Instant alarm switch
- Non-balance of current
- Over power
- Reverse phase sequence
- 1st maintain end
- 2nd maintain end
- 3rd maintain end
- ECU Alarm
- ECU Comms. fail
- Shades open abnormal
- Stop failure-D+
- Stop failure-Hz
- Over current
- Low fuel level sensor
- Host Comms. Fail
- Pumping failure
- Alternative config conflict

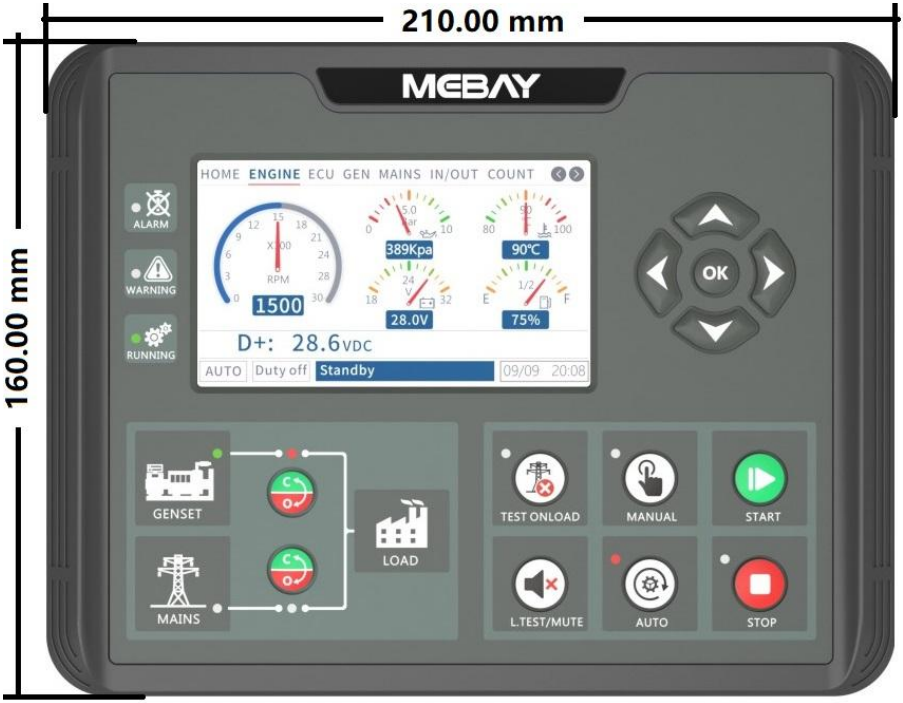
5.Parameters

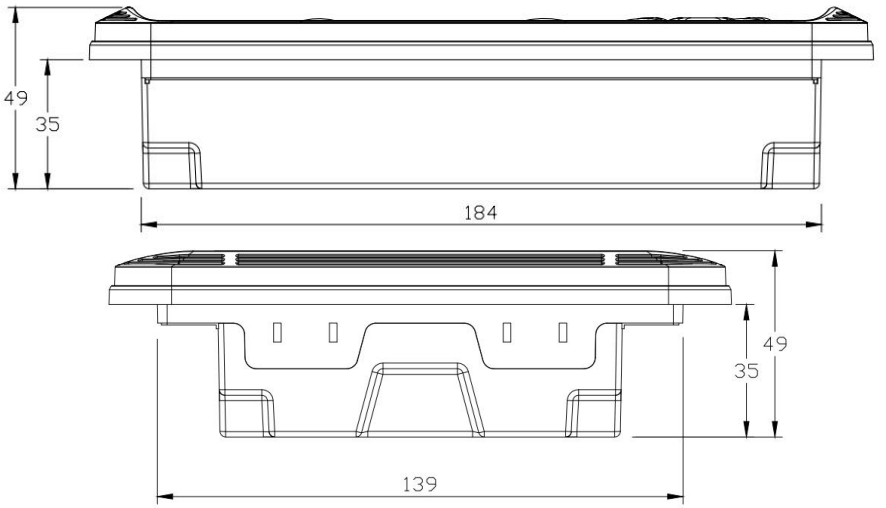
Options	Parameters
Working voltage	DC8V---36V Continuous
Power consumption	Standby:24V:MAX 2W ; Working:24V:MAX 5W;(Heating<15W)
AC Voltage Input	1P2W 30VAC-360VAC (ph-N)
	2P3W 30VAC-360VAC (ph-N)
	3P4W 30VAC-360VAC (ph-N)
Rotate speed sensor Frequency	50-10000Hz
MAX Accumulating Time	99999.9Hours(Min Store time:0.01H)
Fuel Relay Output	Max 16Amp DC+VE Supply voltage
Start Relay Output	Max 16Amp DC+VE Supply voltage
AUX. OUTPUT 1	Max 5Amp DC+VE Supply voltage
AUX. OUTPUT 2	5AMP Non-contact normal open&normal close output
AUX. OUTPUT 3	10AMP Non-contact normal open output
AUX. OUTPUT 4	10AMP Non-contact normal open output
Excitation output	DC+VE supply voltage
Switch value input	Available if connecting with Battery -
USB	Type-B
RS485	Isolated Modbus-RTU protocol

ENTHERNET	J45 10Mbps adaptive network interface; Built-in GSCLOUD cloud Protocol, SNMP protocol and TCP/IP Modbus protocol.	
LCD display	Under the condition of -40℃, the controller can display normally within 10 seconds after power-on; the response speed of dynamic display is normal after 2 minutes of power-on.(Only for DC7xMR MK3)	
Working condition	DC7xD MK3	-30ºC ~+70 ºC
	DC7xMR MK3	-40ºC ~+70 ºC
	Display Heater	-10ºC turn on; -5ºC turn off
Storage condition	-40-80℃	
Protection Level	IP65:when waterproof rubber gasket is added between controller and its panel	
Insulation strength	Apply AC2.2kV voltage between high voltage terminal and low voltage terminal; The leakage current is not more than 3mA within 1min.	
Overall dimension	210mm*160mm*50mm	
Panel cutout	186mm*142mm	
Weight	1.2Kg	

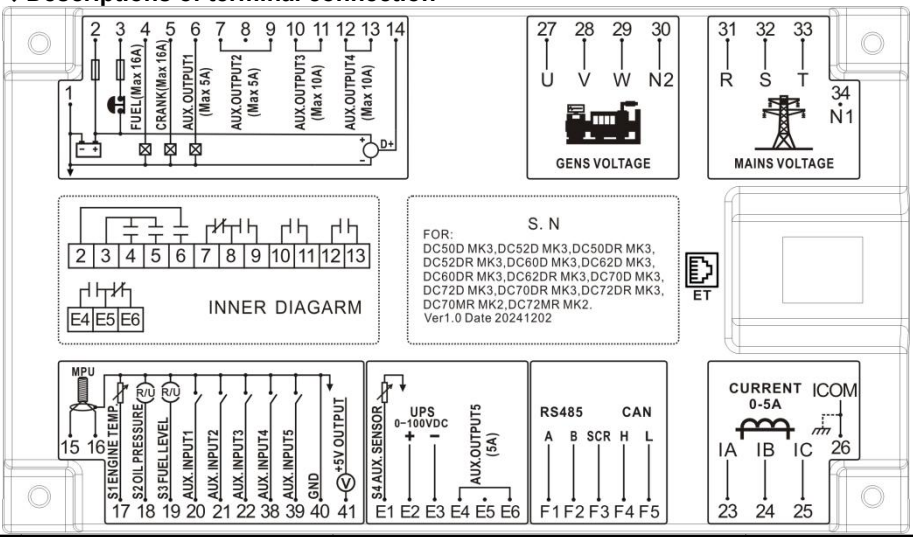
6.Overall Dimension and Wiring Diagram

◆**Overall Dimension:**





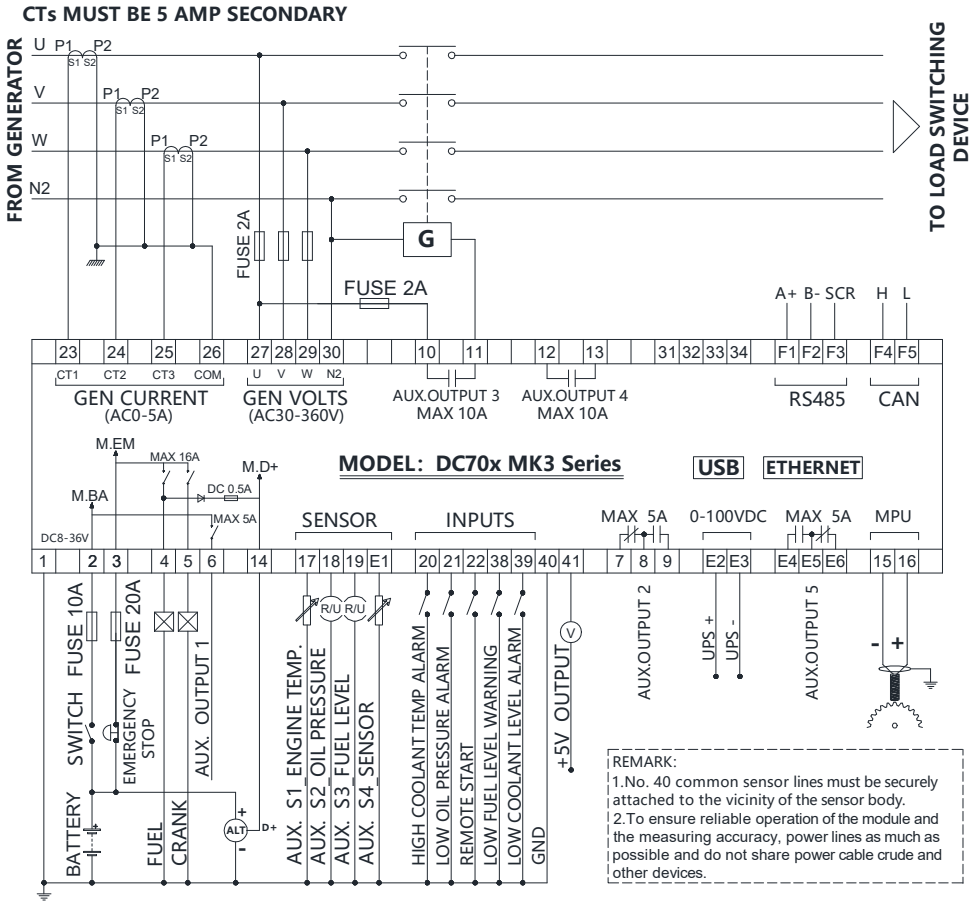
◆Descriptions of terminal connection



No.	Function	Description	Cable cross sectional area
1	Battery Negative Input B-	Controller power supply input B-.	2.5mm²
2	Battery Positive Input B+	Controller power supply input B+.	2.5mm²
3	Emergency Stop Input	B+ voltage input is active, and connected to emergency stop normal closed button.	2.5mm²
4	Fuel Output	+VE output, Max 16Amp	1.5mm²
5	Crank Output	+VE output, Max 16Amp.	1.5mm²
6	Aux. Output 1	+VE output, Max 5Amp.	1.0mm²
7	Aux. Output 2 Normal close	Passive Output, Max 5Amp.	1.0mm²
8	Aux. Output 2 Common		1.0mm²

9	Aux. Output 2 Normal open		1.0mm²
10	Aux.Output 3	Passive normally open output, Max 10Amp.	1.0mm²
11	Aux.Output 3		1.0mm²
12	Aux.Output 4	Passive normally open output, Max 10Amp.	1.0mm²
13	Aux.Output 4		1.0mm²
14	Charging excitation output	DC+VE supply voltage.	1.0mm²
15	Speed sensor -	Use a shielded wire to connect the speed sensor.	1.0mm²
16	Speed sensor +		1.0mm²
17	AUX.Sensor 1 Temperature	Connect sensor input. Oil pressure sensor compatible with resistance/voltage/current sensors. Fuel level sensor compatible with resistance/voltage sensors.	1.0mm²
18	AUX.Sensor 2 Oil pressure		1.0mm²
19	AUX.Sensor 3 Fuel level		1.0mm²
20	Aux. Input 1	The grounding is valid according to the function selection switch input.	1.0mm²
21	Aux. Input 2		1.0mm²
22	Aux. Input 3		1.0mm²
23	Load CT Secondary L1	Current Transformer Secondary Rated 5A.	1.5mm²
24	Load CT Secondary L2		1.5mm²
25	Load CT Secondary L3		1.5mm²
26	Load CT Secondary ICOM	Connect to the common.	1.5mm²
27	Generator Voltage U	Connected to the power generation output R phase.	1.0mm²
28	Generator Voltage V	Connected to the power generation output S phase.	1.0mm²
29	Generator Voltage W	Connected to the power generation output T phase.	1.0mm²
30	Generator Voltage N2	Connected to the power generation output N phase.	1.0mm²
31	Mains Voltage R	Connected to the mains U phase.	1.0mm²
32	Mains Voltage S	Connected to the mains V phase.	1.0mm²
33	Mains Voltage T	Connected to the mains W phase.	1.0mm²
34	Mains Voltage N1	Connected to the mains N phase.	1.0mm²
38	Aux. Input 4	The grounding is valid according to the function selection switch input.	1.0mm²
39	Aux. Input 5		1.0mm²
40	Sensor common GND	Connect the battery negative or outer.	1.0mm²
41	+5V Output	Connect the power supply of the oil pressure sensor with the output voltage signal, with a maximum of 50mA.	1.0mm²
E1	AUX.Sensor 4	Connect sensor input.	1.0mm²
E2	UPS battery pack positive	Connecting the UPS battery pack positive	1.5mm²
E3	UPS battery pack negative	Connecting the UPS battery pack negative	1.0mm²
E4	Aux. Output 5 Normal open	Passive Output, Max 5Amp.	1.0mm²
E5	Aux. Output 5 Common		1.0mm²
E6	Aux. Output 5 Normal close		1.0mm²
F1	RS485 A	A 120 Ω shielded wire and good grounding are recommended.	1.0mm²
F2	RS485 B		1.0mm²
F3	RS485 SCR		1.0mm²
F4	CAN H	Connected to the can communication port of ECU.	1.0mm²
F5	CAN L		1.0mm²

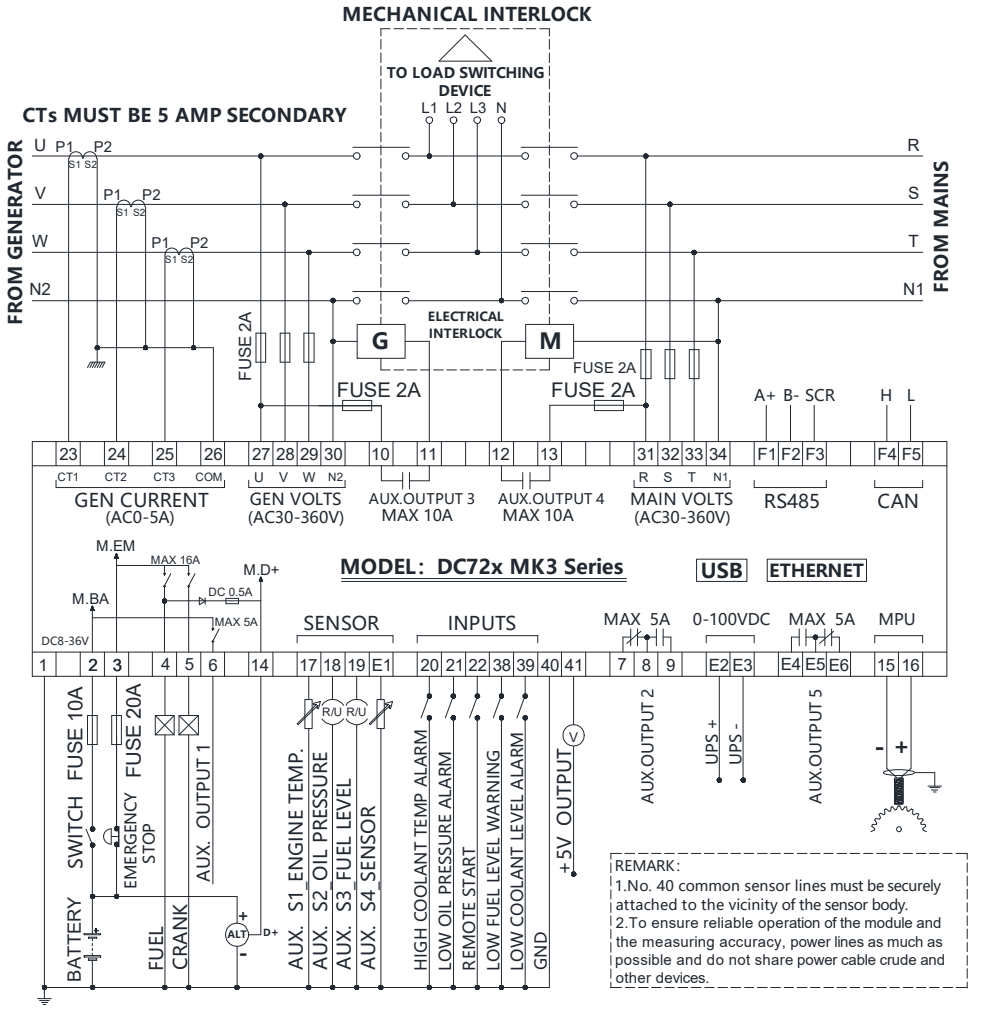
◆DC70x MK3 Series 3-phase 4-wire Typical Wiring Diagram



Note: Please don't move battery during running status or it may cause the controller broken!

WARNING: When generator is on-load, C. T. secondary must not be open circuit, Otherwise, the high voltage generated will pose a danger to personal safety.

◆DC72x MK3 Series 3-phase 4-wire Typical Wiring Diagram

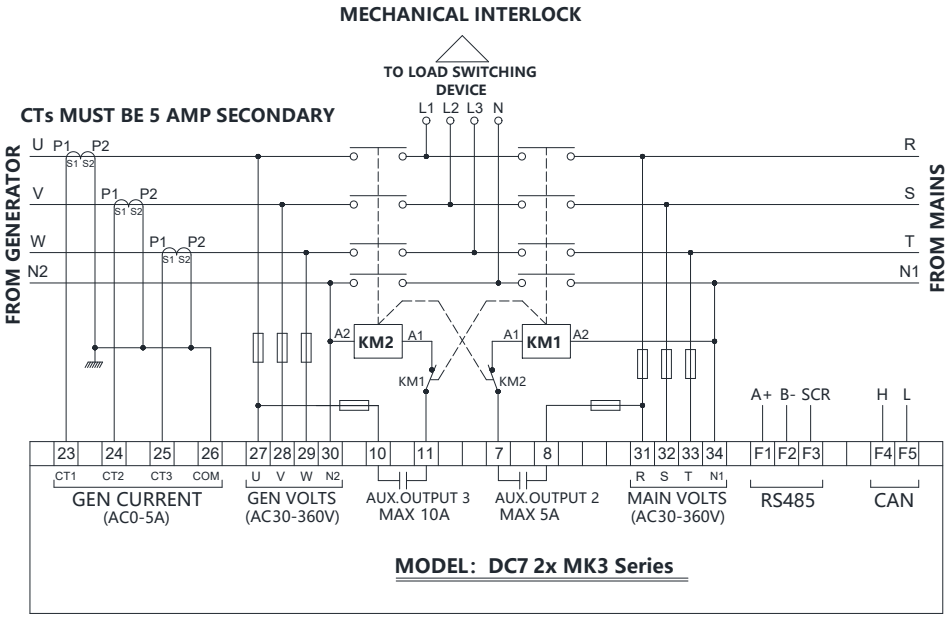


Note: Please don't move during running status or it may cause the controller broken!

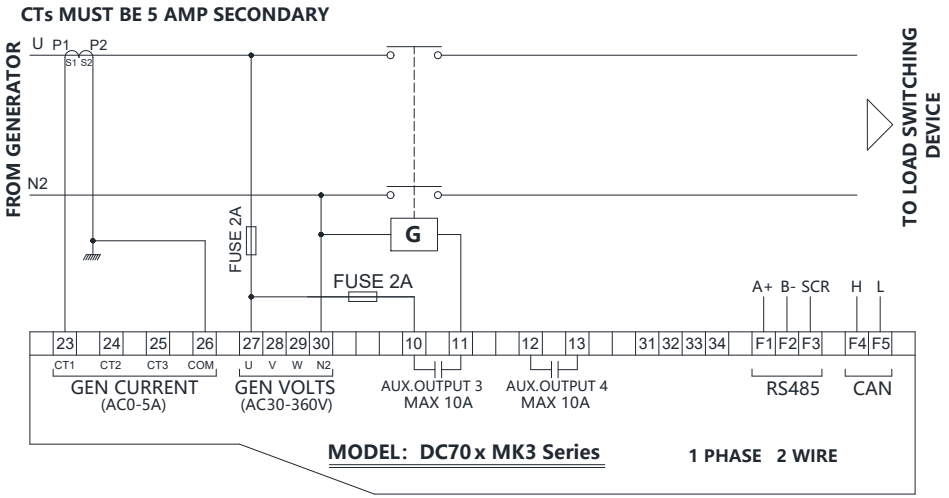
WARNING: When generator is on-load, C. T. secondary must not be open circuit, Otherwise, the high voltage generated will pose a danger to personal safety.

◆DC72x MK3 Series AC contactor application wiring diagram

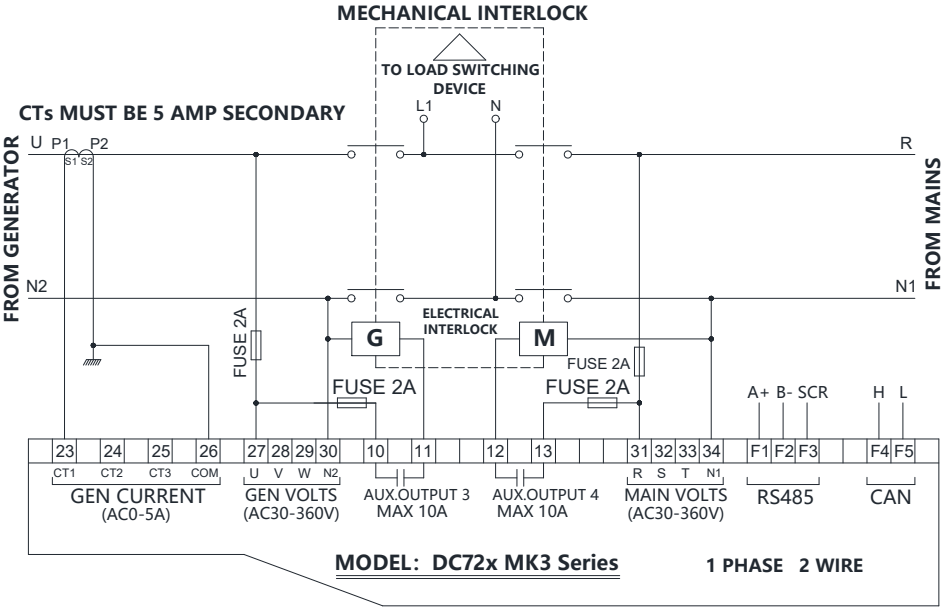
Parameters Setting			
1	AUX.OUTPUT 2	**72:Mains load/unload**	The relay(Normal Close)not in action; **【Mains load】**; Relay output when normally closed point is broken **【Mains unload】**
2	AUX.OUTPUT 3	**21:Gens load**	The relay(Normal Open)not in action; **【Gens unload】**; Relay output when normally open contact is closed **【Gens load】**
3	Opening/Closing output time	**10.0S**	Pulse output when set to 0.1 to 9.9 and continuous output when set to 10S;
KM1；KM2: AC Contactor			



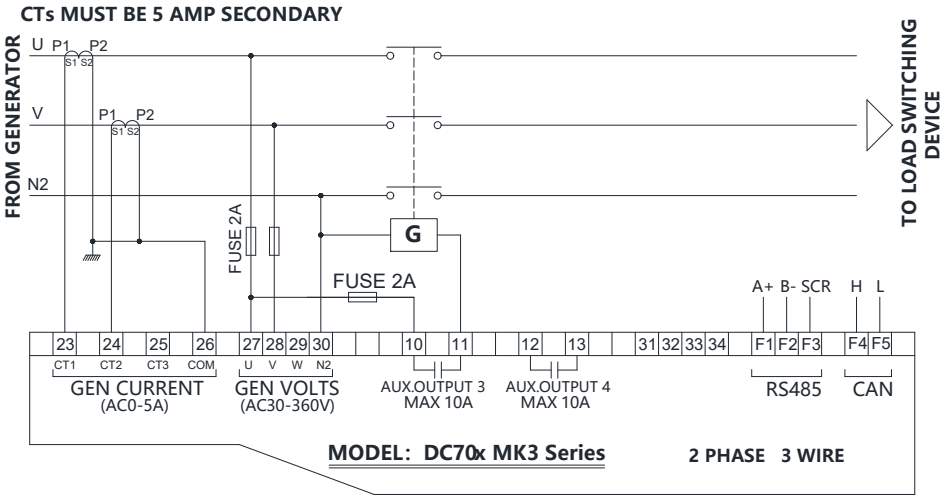
◆DC70x MK3 Series 1-phase 2-wire Typical Wiring Diagram



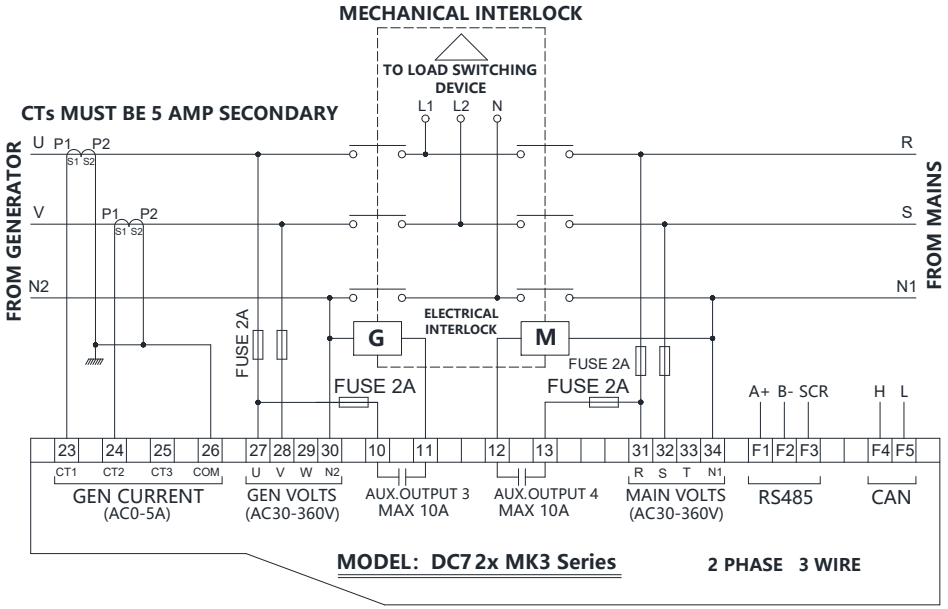
◆DC72x MK3 Series 1-phase 2-wire Typical Wiring Diagram



◆DC70x MK3 Series 2-phase 3-wire Typical Wiring Diagram



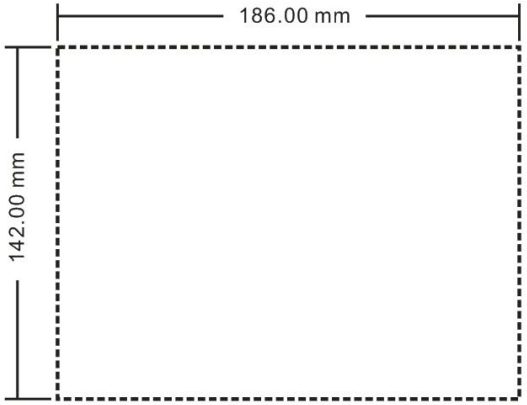
◆DC72x MK3 Series 2-phase 3-wire Typical Wiring Diagram



7.Installation instruction

◆The controller is fixed by four special fixing members and screws, and the screws of the metal fasteners cannot be too tight.

◆Panel Cutout: W186mm*H142mm.



Note: If the controller is installed directly in the genset shell or other fluctuated equipment, the rubber pad must be installed.

◆Battery Voltage Input

DC7x MK3 Series controller is suitable for 8-36V DC battery voltage. Battery negative must be reliably connected to the enclosure of the engine. The controller power supply B+ and B- must be connected to battery positive and negative, and the wire size must not be less than 2.5mm^2.

NOTE:

In case of floating charger connect charger output to battery positive and negative directly, then, connect battery positive and negative poles to controller positive and negative power supply.

◆Output and relay expansion

Note: All outputs of the controller are relay contacts. The maximum current capacity is described in the "Parameters" in this manual. Please use it in the relay current capacity. If an extended relay is needed, add a continuous current diode (when the extended relay coil is DC) or a resistance-capacitance loop (when the extended relay coil is AC) to both ends of the coil to prevent interference with the controller or other equipment.

◆AC current input

Current transformer with rated secondary current 5A must be externally connected to the controller current input.

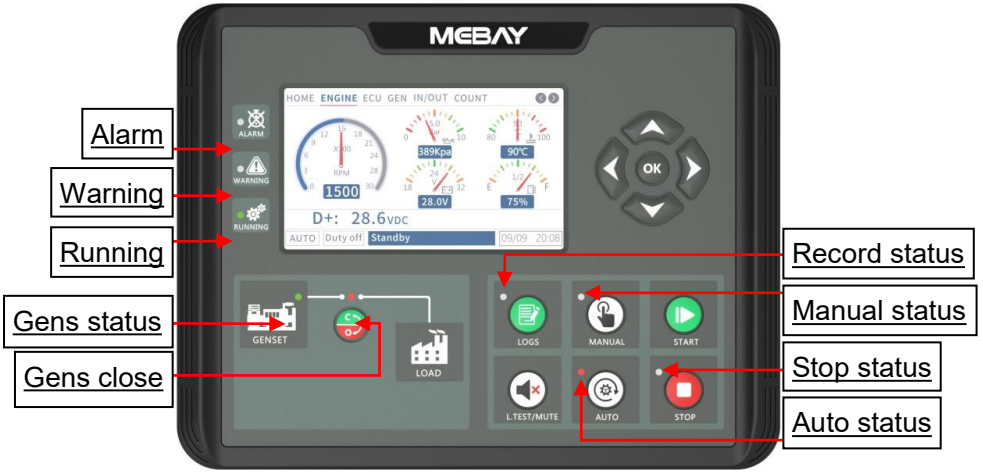
WARNING: When generator is on-load, C. T. secondary must not be open circuit, Otherwise, the high voltage generated will pose a danger to personal safety.

◆Withstanding voltage test

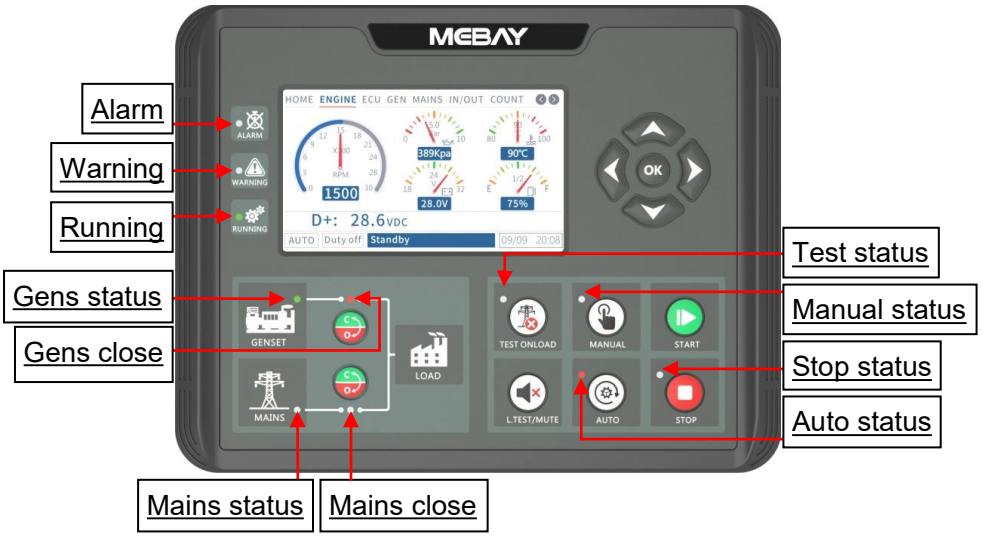
If withstanding voltage test is conducted after the controller has already been installed onto the control panel, please unplug all controller terminal connections in order to prevent high voltage from damaging it.

8.Panel and display

◆DC70x MK3

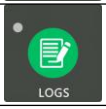


◆DC72x MK3



9.Control and operation instruction

◆Key Function Description

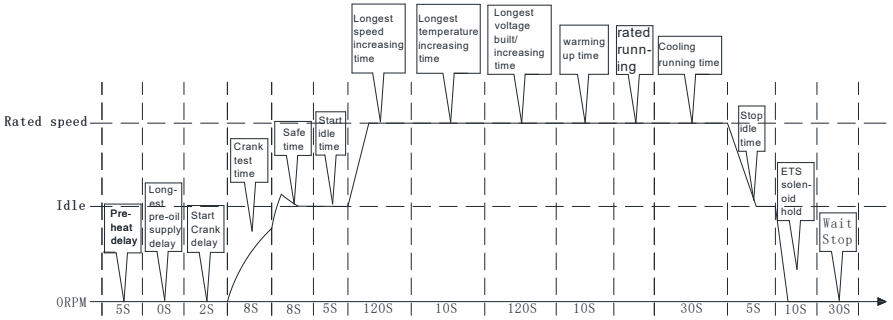
KEYS	NAME	Main Function
	Stop Reset Revert	◆Can stop generator under manual/auto mode; ◆Can reset shutdown alarm ◆During stop procession, pressing this key again can stop generator immediately. ◆Pressing this key can cancel the setting and back to upper class under edition. ◆Under the setting mode with checking data, the data can be saved and system will exit after pressing.
	Start	◆Start the genset under manual mode. ◆Pressing this key can start the genset under manual testing mode. ◆In the stop gear, press this key, the oil valve and ECU power supply will output; ◆Idle runtime process, press the start button again, then the idle runtime process will be jumped out.
	Manual	◆Pressing this key will set the module into manual mode.
	Auto	◆Pressing this key will set the module into auto mode.
	DC70x MK3 Records	◆Pressing this key to check the alarm records under stop mode.
	DC72x MK3 Test	◆Pressing this key to come into manual testing mode. ◆Under testing mode, pressing MANUAL can start the genset and transfer to normal loading after running which is to test if the auto start is in normal status.
	LED Test/ Warning clear	◆Test if all LED lights are ok, pressing this key to test if all lighted, all off when loosen it. ◆Under warning, pressing this key can clear warning and controller will re-check warning. ◆Under alarm, pressing this key can clear the buzzer call. ◆Pressing this key in 3 seconds can clear the buzzer call, pressing it again in 3 seconds can recover the buzzer call.
	Gens/ Mains Close/On	◆Under manual mode, pressing this key can transfer load to genset/mains.
	Left	◆Under display mode, pressing this key to turn left page. ◆Under edition mode, pressing this key to move the digit.
	Right	◆Under display mode, pressing this key to turn right page. ◆Under edition mode, pressing this key to move the digit.

	Up	◆Under display mode, parts of the page can move up. ◆Under edition mode, pressing this key to move the digit or increase the numbers. ◆Under records mode, pressing this key to move the digit.
	Down	◆Under display mode, parts of the page can move down. ◆Under edition mode, pressing this key to move the digit or decrease the numbers. ◆Under records mode, pressing this key to move the digit.
	OK UI Change	◆Confirm the change under edition mode. ◆Page exited under records checking mode. ◆Black UI and white UI can be switched when Pressing. ◆In standby state, press for 3 seconds to enter the parameter setting mode.
	Setting mode	◆Pressing OK and STOP simultaneously to come into setting mode
	DC72x MK3 Alarm Records checking	◆Pressing STOP and RIGHT to check the records and any buttons pressed to exit from the page.

◆Manual test mode: (only DC72x MK3 has this function)

Press  and make sure it is in the stop position before starting.

Press "" and the test file indicator is on. At this time, it is detected whether the connection of each sensor is normal. If the sensor is open, the sensor opens an alarm. If it is normal, the unit start process is executed in the following sequence after pressing the "". automatically switch to Generator provide the power when the unit is running normally. Press "" The controller performs the parking process at the following timing:



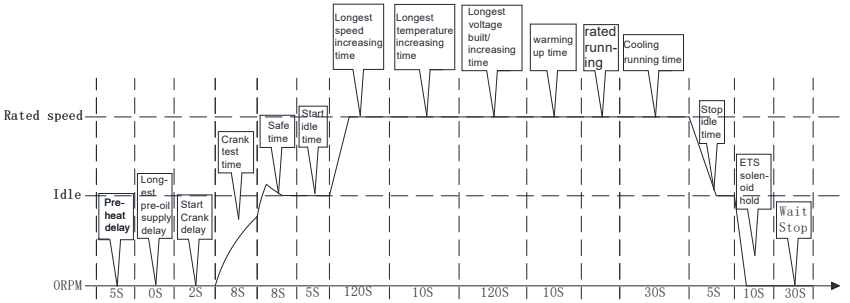
◆Manual Start Mode

press  and make sure it is in the stop position before starting.

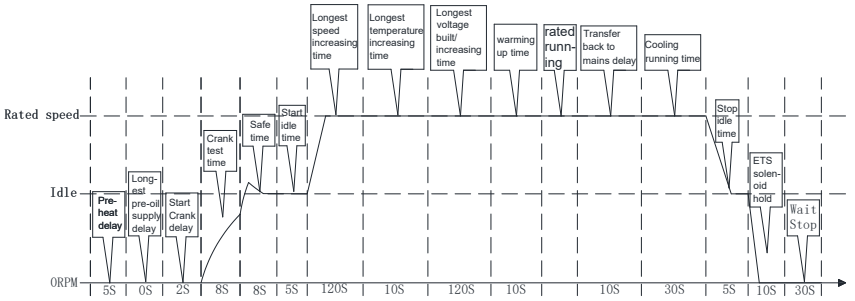
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alarm. If it is normal, the unit start process is executed in the following sequence after pressing the "". automatically switch to Generator provide the power when the unit is running normally. Press "" The controller performs the parking process at the following timing:

Manual start and stop process:



After the manual start is successful, pressing the "automatic key" can be converted into an automatic file. The specific working time is as follows:



◆Emergency start mode:

In manual mode, pressing the ""button and the "" button at the same time can force the generator to start. At this time, the controller will no longer automatically judge the successful start condition, and the operator will judge the separation of the starter by himself. The operator observes that the unit has started successfully. After releasing the "" button, the starter motor will be disconnected immediately, and the controller will enter the "safety protection delay" state.

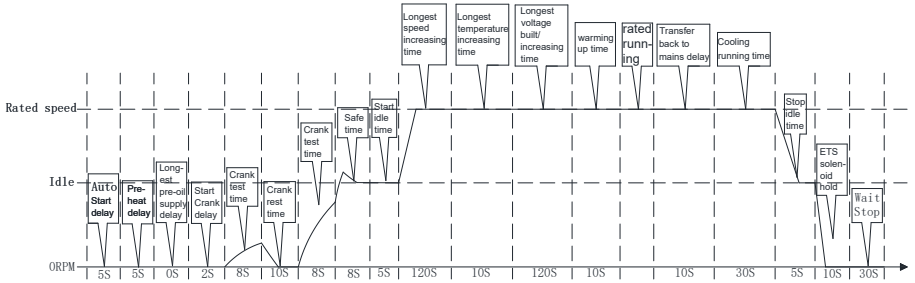
◆Automatic starting mode:

press and make sure it is in the stop position before starting.

Press "" and the test file indicator is on. At this time, it is detected whether the connection of each sensor is normal. If the sensor is open, the sensor opens an alarm. If it is normal, wait for the remote start signal to be valid (DC72x MK3 detected the remote starting signal is valid or the mains provide the power is invalid). The unit will perform the starting process in the following sequence. When the unit enters the

normal rated operation, it will automatically switch to the generator provide the power. The controller will detect the remote start signal and the mains status in real time (DC72x MK3 is available). When the remote start signal fails and the mains provide the power returns to normal, the shutdown process after the "loop time delay" is performed (DC72x MK3 is available).

Auto start and stop process:



Notices in Starting Process

Note 1: During the Cranking time, the controller automatically detects the speed signal, frequency signal and oil pressure value or the charging voltage (according to the parameter setting) to reach the judgment condition of successful start, then the judgment is that the start is successful and the motor relay is closed.

Note 2: Within the safety delay, only respond to emergency stop, immediate stop, over speed, over frequency, Over voltage, ECU communication Failure,shutter open abnormal, other alarms are not responded to.

Note 3: No response to alarm and warning of under speed, low frequency, under voltage, over current, over power,non-balance of current,external instant unloading shutdown,during start idle time.

Note 4: No response to low frequency, under voltage, over current non-balance of current,external instant unloading shutdown and over power is required when entering the RPM-up time.

Note 5: No response to low frequency, under voltage, over current non-balance of current,external instant unloading shutdown and over power is required when entering the temperature-up time.

Note 6: No response to low frequency, under voltage, over current non-balance of current,external instant unloading shutdown and over power is required when entering the Voltage-up time.

Note 7: No response to low frequency, under voltage, over current non-balance of current,external instant unloading shutdown and over power is required when entering the Warming-up time.

Note 8: After entering rated operation, the Gens load relay output.

Note 9: In the process of shutdown, if the remote starting signal is restored to be valid within the " Cooling time", the rated operation will be entered again.

Note 10: If the stop key is pressed again during idle time, the idle time will be canceled and the stop operation will be executed directly.

◆Engine flywheel teeth automatic adjustment

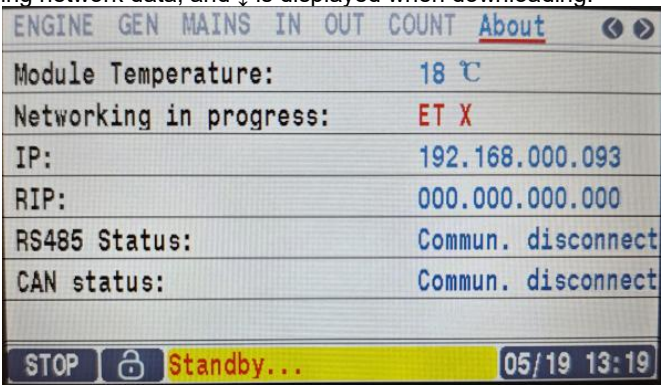
1)Crank disconnect must be set to include both "speed" and "frequency" options.

2)When the generator frequency and engine speed are not zero, press and for more than 0.5 seconds, the controller will automatically calculate and save the number of flywheel teeth according to the generation frequency and generator poles.

3)After calculating and saving the number of flywheel teeth successfully, the controller shows: " **Flywheel xxx teeth, saved successfully!**"

◆ETHERNET network status view

After opening the ETHERNET interface, you can check the ETHERNET network status in the status bar in the lower left corner of the screen. when the ET network connection fails, "ET X" will be displayed; when the ET network is connected, flash "ET"; "ET" is displayed when the ET network connection is normal, ↑ is displayed when uploading network data, and ↓ is displayed when downloading.



10.Setting Menu instructions

The steps to enter the **Menu** setting are as follows:

1)Press the key OK for more than 3 seconds.Or press the stop key without releasing, press the OK key OK again, and then release all the keys to enter the setting menu page; The menu contents are as follows:

◆Fast Set Parameters: This menu is for commonly used setup options and does not require a password to enter, making it easy for users to debug the unit.

◆Set Parameters: please refer to "Parameter".

◆Language/语言: please refer to "Language".

◆Information: Can view the product model, release date, Cloud ID, TCP/IP, TCP Port, UDP port, Bluetooth name and other information.

◆System log

DC7x MK3 series generator set controller can save 5000 system logs, including operation time, generator set startup, key operation, parameter modification, controller power on and other records.

The steps to view the system log are as follows:

1)Press the key OK for more than 3 seconds.Or press the stop key without releasing, press the OK key again, and then release all the keys to enter the setting menu page;

2)In the setting menu page, select "**System logs**" and press the OK key to enter the password input page;

3)Enter the controller parameter setting password, and the default factory password is "**07623**"; after entering the password, press the OK key once to enter the system log page;

4)In the system log page, press the up key and down key to browse the operation log, and the latest operation is recorded in the front; press the STOP key to exit the system log page.

◆Operational Records

DC7x MK3 controller can save 5000 system operation records, including power-on time, date, cumulative time, starting mode (manual, automatic, unknown,), running time, stopping mode (manual, automatic, alarm stop, unknown), and writing running time and mode at intervals.

The steps to view the system log are as follows:

2)Press the key OK for more than 3 seconds.Or press the stop key without releasing, press the OK key again, and then release all the keys to enter the setting menu page;

3)In the setting menu page, select "**System Operational Records**" and press the OK key once to enter the System Operational Records page;

4)In the System Operational Record page, press the up key and down key to browse the operation log, and the latest operation is recorded in the front; press the STOP key to exit the System Operational Records page.

◆Alarm records

DC7x MK3 series controller can save 100 groups of detailed historical alarm records, alarm record data details refer to the following: "Alarm record data details: the controller real-time record data, the unit in alarm state according to: according to the alarm data record interval time to store. Only the latest 10 groups are recorded for each data. (e.g.: RPM data, the interval time is set to 1 second, you can view 10 groups of RPM change data during the alarm)".

How to check the alarm records:

1)Enter alarm record page:

a)DC70x MK3: Under stop mode, press to come into alarm records page;

b)DC72x MK3: Press and simultaneously to come into alarm records page;

2)Press to turn upper digit and press to turn lower digit in order to choose the record you need. Press OK to confirm the record and come into history records checking page.

3)When browsing the alarm record data detail interface, press to scroll down the alarm record item, press to scroll up the alarm record item; press the key to return to the interface of historical alarm record list;

4)Exit from records page: In the records page, press to exit.

◆Maintenance Reset

The controllers are equipped with a quick reset maintenance countdown function, which is operated as follows:

1)Press the key OK for more than 3 seconds to enter the setting menu interface.

2)In the setting menu interface, press key to move down, select "Maintenance Countdown Reset", and input "Maintenance Countdown Reset Password".

3) In the pop-up dialogue box, select **"Yes"**, the controller will reset the maintenance countdown to the set value.

4) After the maintenance countdown is reset successfully, press the STOP key to exit the setting interface.

Note: The maintenance countdown password cannot be set as the same as the parameter setting password!

◆DPF Regeneration

No	Parameters	Range*(defaults)*
01	**DPF Regeneration Requested**	***0-Disable;*** 1-Enable
02	**DPF Regeneration Inhibit**	***0-Disable;*** 1-Enable
03	**DPF Regeneration Bus Control**	***0-Disable;*** 1-Enable
04	**Urea Level Low Warning Value**	0.0-100.0% ***(10.0%)***

Available for ECU which require the engine speed to drop during a manual regeneration cycle. During this time, the generator is not available to supply power and the under speed and under frequency alarms are not active.

There are two ways to enable and disable the regeneration function:

1:Controller parameter setting page to enable or disable, after re-power on **DPF Regeneration Inhibit**, **DPF Regeneration**" will be reset to disable.

2: AUX.Input control:

DPF Regeneration Inhibit: This input is used to override the ECU function and

prevent the regeneration of the diesel particulate filter.
DPF Regeneration: This input is used to override the ECU function and activate the regeneration of the diesel particulate filter.

Regeneration is divided into hardware regeneration control and bus regeneration control; hardware regeneration is controlled by module relay Output;

DPF Regeneration Inhibit Request: when the output is active **,** the diesel particulate filter regeneration inhibit.
DPF Regeneration Requested: Outputs an indication when diesel particulate filter regeneration is requested;
DPF Forced Regeneration: When the output is valid: forced regeneration of the diesel particulate filter.
DPF Regeneration In Progress: Output indication when diesel particulate filter regeneration is in progress.

Bus regeneration is realized by sending CAN commands; when the controller regeneration function is turned on, CAN commands are automatically sent to realize DPF forced regeneration.

11.Warnings and Shutdown Alarms

◆Warnings

Notes: Warning is a non-serious failure state, which will not harm the gensets system for the time being. It only reminds operators to pay attention to the situation that does not meet the requirements and solve it in time to ensure the continuous operation of the system. When the warning occurs, the gensets does not stop. Once the fault is removed, the warning is automatically canceled.

Note: When a warning fault occurs, the warning indicator **"WARNING"** is always on, and the current fault interface displays the warning description, Generators will not stop.

Code	Display name	Description
A0	Over speed	When the controller detects that the engine speed is higher than "**Over speed warning**", after the warning delay, it will report the"**Over speed**" warning.
A1	Under speed	When the controller detects that the engine speed is lower than "**Under speed warning**", after the warning delay, it will report the"**Under speed**" warning.
A2	Over frequency	When the controller detects that the generator frequency is higher than "**Over frequency warning**", after the warning delay, it will report the"**Over frequency**" warning.
A3	Under frequency	When the controller detects that the generator frequency is lower than "**Under frequency warning**", after the warning delay, it will report the "**Under frequency**" warning.
A4	Over voltage	When the controller detects that the generator voltage

		is higher than "**Over voltage warning**", after the warning delay, it will report the "**Over voltage**" warning.
A5	Under voltage	When the controller detects that the generator voltage is lower than "**Under voltage warning**", after the warning delay, it will report the "**Under voltage**" warning.
A7	Low oil pressure sensor	When the controller parameter "**Low Oil Pressure** Sensor Alarm Action" is set to **"Warning"**, detected sensor less than the "Warning Threshold", after the warning delay, it will report the "**Low oil pressure sensor**" warning.
A8	High WT sensor	When the controller parameter "**High water temperature** Sensor Alarm Action" is set to "**Warning**", detected sensor higher than the "Warning Threshold", after the warning delay, it will report the **"High WT sensor"** warning.
A9	High OT sensor	When the controller parameter "**High oil temperature** Sensor Alarm Action" is set to **"Warning"**, detected sensor higher than the "Warning Threshold", after the warning delay, it will report the **"High OT sensor"** warning.
A10	High CT sensor	When the controller parameter "**High cylinder temperature** Sensor Alarm Action" is set to **"Warning"**, detected sensor higher than the "Warning Threshold", after the warning delay, it will report the **"High CT sensor"** warning.
A11	Low fuel level sensor	When the controller parameter "Low fuel level Sensor Alarm Action" is set to "Warning", detected sensor less than the "Warning Threshold", after the warning delay, it will report the "**Low fuel level sensor**" warning.
A12	Low fuel level switch	When the controller detects that the AUX. Input "**Low fuel level warning input"** switch is active, after the warning delay, it will report the "**Low fuel level switch**" warning.
A13	Under battery voltage	When the controller detects that the battery voltage is lower than the "**Under battery voltage warning"**, after the warning delay, it will report the "**Under battery voltage**" warning.
A14	Non-balance of current	When the controller parameter **"Non-balance current action"** is set to **"Warning"**, the controller is 2 phase 3 wire or 3 phase 4 wire, the controller detects that the unbalance degree of the three-phase or two-phase current of the generator is higher than the "**Non-balance current ratio warnin**g". after the warning delay, it will report the "**Non-balance of current**" warning.
A19	High WT switch	When the controller detects that the AUX. Input "**High water temperature warning"** switch is active, after

		the warning delay, it will report the **"High WT switch"**.
A20	High OT switch	When the controller detects that the AUX. Input "**High oil temperature warning"** switch is active, after the warning delay, it will report the **"High OT switch"**.
A21	High CT switch	When the controller detects that the AUX. Input "**High cylinder temperature warning"** switch is active, after the warning delay, it will report the **"High CT switch"**.
A22	High Box Temp-A	When the controller parameter "**High Genset box temperature** Sensor Alarm Action" is set to **"Warning"**, detected sensor higher than the "Warning Threshold", after the warning delay, it will report the **"High** Box Temp-A**"** warning.
A23	High Box Temp-D	When the controller detects that the AUX. Input "**High Genset box temperature warning"** switch is active, after the warning delay, it will report the **"High** Box Temp-D **switch"**.
A24	Low oil level switch	When the controller detects that the AUX. Input **"Low oil level warning"** switch is active, after the warning delay, it will report the **"Low oil level switch"** warning.
A25	Instant unload switch	When the controller detects that the AUX. Input "**External instant unload input"** switch is active, after the warning delay, it will report the **"Instant unload switch"**.
A26	Instant warning switch	When the controller detects that the AUX. Input "**External instant warning input"** switch is active, after the warning delay, it will report the **"Instant warning switch"**.
A28	RPM Signal lost	When the controller parameter "**Action if RPM lost**" is set to "**warning**", the detected speed value is 0, after the warning delay, it will report the "**RPM Signal lost**" warning.
A29	Oil Pressure sensor open	When the controller parameter "**Action if oil pressure sensor disconnected**" is set to "**warning**", When the oil pressure sensor is detected to be disconnected, it will report the **"Oil Pressure sensor open"**
A30	WT sensor open	When the controller parameter "**Action if water temperature sensor disconnected**" is set to "**warning**", When the water temperature sensor is detected to be disconnected, it will report the **"WT sensor open"**
A31	OT sensor open	When the controller parameter "**Action if oil temperature sensor disconnected**" is set to "**warning**", When the oil temperature sensor is detected to be disconnected, it will report the **"OT sensor open"**
A32	CT sensor open	When the controller parameter "**Action if cylinder temperature sensor disconnected**" is set to "**warning**", When the cylinder temperature sensor is

		detected to be disconnected, it will report the **"CT sensor open"**
A33	BT sensor open	When the controller parameter "**Action if Genset box temperature sensor disconnected**" is set to "**warning**", When the **Genset box temperature** sensor is detected to be disconnected, it will report the **"BT sensor open"**
A34	Fuel level sensor open	When the controller parameter "**Action if Fuel level sensor disconnected**" is set to "**warning**", When the fuel level sensor is detected to be disconnected, it will report the **"Fuel level sensor open"**
A35	Over power	When the controller parameter **"Over power action"** is set to **"Warning"**, the controller detects that the generator power is higher than "**Over total power warning**", after the warning delay, it will report the "**Over power**" warning.
A37	Phase Sequence Wrong	When the controller parameter "**Phase Sequence Wrong**" is set to **"warning"**, detects that the generator "**Phase Sequence Wrong**" , it will report the **"Phase Sequence Wrong"** warning.
A38	Gens close fail	When the controller gens close output, controller does not detect the " **Gens close signal**" within the warning time, it will report the **"Gens close fail"** warning.
A39	Gens open fail	When **"Action if gens open fail "** is set to **"warning"** the controller gens open output, controller does not detect the " **Gens open signal**" with in the warning time, it will report the **"Gens open fail"** warning.
A40	Mains close fail	When the controller mains close output, controller does not detect the " **Mains close signal**" within the warning time, it will report the **"Mains close fail"** warning.
A41	Mains open fail	When **"Action if mains open fail "** is set to **"warning"** the controller mains open output, controller does not detect the " **Mains open signal**" within the warning time, it will report the **"Mains open fail"** warning.
A42	2nd maintain end	When the controller parameter "**Secondary maintenance expire**" is set to "**warning**", when the secondary countdown to maintenance is detected as "0" or second maintenance date less than current date, it will report the "**2nd maintain end**" warning.
A43	3rd maintain end	When the controller parameter "**Third maintenance expire**" is set to "**warning**", when the third countdown to maintenance is detected as "0" or third maintenance date less than current date, it will report the"**3rd maintain end**"warning.
A44	ECU Warn	When the controller detects a warning message from the ECU, after the warning delay, an ECU warning is reported (The corresponding ECU warning code

		displayed).
A45	ECU Comms. fail	When the controller parameter "**ECU failure**" Action is set to "**warning**", and no message is received from the ECU within a fixed period of time, it will report **"ECU Comms.fail"** warning.
A46	Low water level switch	When the controller detects that the AUX. Input "**Low water level warning"** switch is active, after the warning delay, it will report the **"Low water level switch"** warning.
A47	Over battery voltage	When the controller detects that the battery voltage is over than the "**Over battery voltage warning"**, after the warning delay, it will report the "**Over battery voltage**" warning.
A48	Charger fault	When the controller detects that the voltage difference between D+ and B+ is greater than the **" Charger warning voltage difference",** after the warning delay, it will report " **charger fault**" warning.
A49	Battery charger fault	When the controller detects that the AUX. Input "**Charging failure warning"** switch is active, after the warning delay, it will report **"Battery charger fault"** warning.
A50	Low OP switch	When the controller detects that the AUX. Input "**Low oil pressure warning"** switch is active, after the warning delay, it will report the **"Low OP switch"** warning.
A51	Over current	When the controller parameter "**Action in case of over current"** is set to **"Warning"**, the controller detects that the generator current is higher than **"Phase current over-load warning"**, after the warning delay, it will report the "**over current**" warning.
A52	1st maintain end	When the controller parameter **"Primary maintenance expire"** is set to **"warning"**, when the primary countdown to maintenance is detected as "0" or primary maintenance date less than current date, it will report the "**1st maintain end**" warning.
A67	Pumping failure	When the controller detects that the AUX. Input "**pumping failure warning"** switch is active, after the warning delay, it will report the **"pumping failure"** warning.
A69	Battery pack low voltage	When the controller detects that the UPS battery pack voltage is lower than the **"Lower limit of battery pack voltage"**, it will report the **"Battery pack low voltage"** warning.
A97	Pumping failure warning	When the controller detects that the AUX. Input "**pumping failure Alarm"** switch is active, after the warning delay, it will report the **"pumping failure warning"** warning.
A98	DPF Regeneration Requested	When the DPF function is on, when the controller receives the corresponding ECU telegram warning

A99	DPF Regeneration Inhibit Request	information, it reports the corresponding warning.
A100	High Exhaust System Temperature	
A101	DPF Regeneration In Progress	
A102	Low DEF level	

◆**Shutdown Alarms**

Warning: After the Shutdown Alarm occurs, the system will be locked immediately and the generator set will be stopped. Only after troubleshooting, press  key to clear the alarm, can it be re-operated.

Notes:When the shutdown alarm failure occurs, the "**ALARM**" lights will light up and the generator unit automatically stops.

Code	Display name	Description
E0	Emergency stop	When the controller detects that the input voltage of PIN 3 is less than 2V, then start alarm delay and the duration (0.5s) have not returned to normal, it will report the **"Emergency stop "** alarm.
E1	Over speed	When the controller detects that the engine speed is higher than "**Over speed alarm**", after the alarm delay, it will report the **"Over speed "** alarm.
E2	Under speed	When the controller detects that the engine speed is under than "**Under speed alarm**", after the alarm delay, it will report the **"Under speed "** alarm, after the alarm delay, it will report the **"Under speed "** alarm.
E3	Over frequency	When the controller detects that the generator frequency is higher than "**Over frequency alarm**", after the alarm delay, it will report the **"Over frequency"** alarm.
E4	Under frequency	When the controller detects that the generator frequency is lower than "**Under frequency alarm**", after the alarm delay, it will report the **"Under frequency"** alarm.
E5	Over voltage	When the controller detects that the generator voltage is higher than "**Over voltage alarm**", after the alarm delay, it will report the **"Over voltage"** alarm.
E6	Under voltage	When the controller detects that the generator voltage is lower than "**Under voltage alarm**", after the alarm delay, it will report the **"Under voltage"** alarm.
E8	Low oil pressure	When the controller parameter **"Low Oil Pressure**

	sensor	**Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**Low oil pressure sensor**"alarm.
E9	Low oil pressure switch	When the controller detects that the AUX. Input **"Low oil pressure alarm"** switch is active, after the alarm delay, it will report the **"Low oil pressure switch"** alarm.
E10	Oil Pressure sensor open	When the controller parameter "**Action if oil pressure sensor disconnected**" is set to "**Alarm and stop**", When the oil pressure sensor is detected to be disconnected, it will report the **"Oil Pressure sensor open"**
E11	High WT sensor	When the controller parameter **"High coolant temperature Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**High WT sensor**"alarm.
E12	High WT switch	When the controller detects that the AUX. Input **"High coolant temperature alarm"** switch is active, after the alarm delay, it will report the **"High WT switch"** alarm.
E13	WT sensor open	When the controller parameter "**Action if coolant temperature sensor disconnected**" is set to "**Alarm and stop**", When the coolant temperature sensor is detected to be disconnected, it will report the **"WT sensor open".**
E14	High OT sensor	When the controller parameter **"High oil temperature Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**High OT sensor**"alarm.
E15	High OT switch	When the controller detects that the AUX. Input **"High oil temperature alarm"** switch is active, after the alarm delay, it will report the **"High OT switch"** alarm.
E16	OT sensor open	When the controller parameter "**Action if oil temperature sensor disconnected**" is set to "**Alarm and stop**", When the oil temperature sensor is detected to be disconnected, it will report the **"OT sensor open".**
E17	High CT sensor	When the controller parameter **"High cylinder temperature Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**High CT sensor**"alarm.
E18	High CT switch	When the controller detects that the AUX. Input **"High cylinder temperature alarm"** switch is active, after the alarm delay, it will report the **"High CT switch"** alarm.

E19	CT sensor open	When the controller parameter "**Action if cylinder temperature sensor disconnected**" is set to "**Alarm and stop**", When the cylinder temperature sensor is detected to be disconnected, it will report the **"CT sensor open".**
E20	Low water level switch	When the controller detects that the AUX. Input **"Low coolant level alarm"** switch is active, after the alarm delay, it will report the **"Low water level switch"** alarm.
E21	Crank failure	If the number of cranks exceeds the predetermined number of cranks, the **"Crank failure"** will be reported if the start-up of the generating unit is still unsuccessful.
E22	RPM Signal lost	When the controller parameter "**Action if RPM lost**" is set to "**Alarm and stop**", the detected speed value is 0, after the alarm delay, it will report the "**RPM Signal lost**" alarm.
E23	Stop failure-RPM	When the controller detects that the speed is not "0" after the execution of the shutdown, it will report the "**Stop failure-RPM**" alarm.
E24	Stop failure-Oil pres	When the controller detects that the oil pressure switch has not returned after the stop, it will report the "**Stop failure-Oil pres**" alarm.
E26	Stop failure-Oil pres	When the controller detects that the Oil Pressure is not "0" after the execution of the shutdown, it will report the "**Stop failure-Oil pres**" alarm.
E31	High Box Temp-A	When the controller parameter **"High Genset box temperature Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**High Box Temp-A"**alarm.
E32	Fuel level sensor open	When the controller parameter "**Action if Fuel level sensor disconnected**" is set to "**Alarm and stop**", When the Fuel level sensor is detected to be disconnected, it will report the **"Fuel level sensor open"**
E33	High Box Temp-D	When the controller detects that the AUX. Input **"High Genset box temperature alarm"** switch is active, after the alarm delay, it will report the **"High Box Temp-D"** alarm.
E34	Low fuel level switch	When the controller detects that the AUX. Input **"Low Fuel level alarm"** switch is active, after the alarm delay, it will report the **"Low fuel level switch"** alarm.
E35	Low oil level switch	When the controller detects that the AUX. Input **"Low oil level alarm"** switch is active, after the alarm delay, it will report the **"Low oil level switch"** alarm.
E38	Instant unload switch	When the controller detects that the AUX. Input "**External instant trip and stop alarm input"**

		switch is active, after the alarm delay, it will report the **"Instant unload switch"** alarm.
E39	Instant alarm switch	When the controller detects that the AUX. Input "**External instant alarm input"** switch is active, after the alarm delay, it will report the **"Instant warning switch"** alarm.
E41	BT sensor open	When the controller parameter "**Action if Genset box temperature sensor disconnected**" is set to "**Alarm and stop**", When the Genset box temperature sensor is detected to be disconnected, it will report the **"BT sensor open".**
E42	Non-balance of current	When the controller parameter **"Non-balance current action"** is set to **"Trip and stop"**, the controller is 2 phase 3 wire or 3 phase 4 wire, the controller detects that the unbalance degree of the three-phase or two-phase current of the generator is higher than the "**Non-balance current ratio Alarm**". after the alarm delay, it will report the "**Non-balance of current**" alarm.
E43	Over power	When the controller parameter **"Over power action"** is set to **"Trip and stop"**, the controller detects that the generator power is higher than "**Over total power Alarm**", after the alarm delay, it will report the "**Over power**" alarm.
E45	Phase Sequence Wrong	When the controller parameter "**Phase Sequence Wrong**" is set to **"Alarm and stop"**, detects that the generator "**Phase Sequence Wrong**" , it will report the **"Phase Sequence Wrong"** alarm.
E46	1st maintain end	When the controller parameter **"Primary maintenance expire"** is set to **""Alarm and stop"**, when the primary countdown to maintenance is detected as "0" or primary maintenance date less than current date, it will report the "**1st maintain end**" alarm.
E47	2nd maintain end	When the controller parameter "**Secondary maintenance expire**" is set to "**Alarm and stop**", when the secondary countdown to maintenance is detected as "0" or second maintenance date less than current date, it will report the "**2nd maintain end**" alarm.
E48	3rd maintain end	When the controller parameter "**Third maintenance expire**" is set to "**Alarm and stop**", when the third countdown to maintenance is detected as "0" or third maintenance date less than current date, it will report the"**3rd maintain end**" alarm.
E49	ECU Alarm	When the controller detects a alarm message from the ECU, after the alarm delay, an ECU alarm is reported (The corresponding ECU alarm code displayed).
E50	ECU Comms. fail	When the controller parameter "**ECU failure**" Action

		is set to "**Alarm and stop**", and no message is received from the ECU within a fixed period of time, it will report **"ECU Comms.fail"** alarm.
E51	Louver opening exception	When opening the Louver control , the controller detects that the AUX. Input **"Louver status input"** switch is inactive, after the alarm delay, it will report the **"Louver opening exception"** alarm.
E53	Stop failure-D+	When the controller detects that the D+ is not "0" after the execution of the shutdown, it will report the **"Stop failure-D+"** alarm.
E54	Stop failure-Hz	When the controller detects that the frequency is not "0" after the execution of the shutdown, it will report the "**Stop failure-Hz**" alarm.
E55	Over current	When the controller parameter "**Action in case of over current"** is set to **"Trip and stop"**, the controller detects that the generator current is higher than **"Phase current over-load alarm"**, after the alarm delay, it will report the "**over current**" alarm.
E56	Low fuel level sensor	When the controller parameter **"Low fuel level Sensor Alarm Action"** is set to **"Alarm and stop"**, detected sensor less than the **"Alarm Threshold"**, after the alarm delay, it will report the "**Low fuel level sensor**"alarm.
E78	Pumping failure	When the controller detects that the AUX. Input "**pumping failure Alarm"** switch is active, after the warning delay, it will report the **"pumping failure warning"** warning. After the **Pump fail warn delay** it will report the **"pumping failure"** alarm.
E80	Battery pack charging failure	When the voltage is lower than or equal to the **"Lower limit of battery pack voltage"**, after the generator is turned on to charge the battery pack for the maximum time of charging, the battery pack voltage is still lower than the **"lower limit of battery pack voltage",** it will report the **"Battery pack charging failure"** alarm.
E81	Host Comms. fail	When the controller working mode is set to **"Slave mode"**,and no message is received from the **Host** within a fixed period of time, it will report **"Host Comms. fail"** alarm.
E82	Alternative config conflict	When the controller detects that several "**Alternative config conflict**"are valid before startup or during operation, it will report the **"Alternative config conflict"** alarm.

12.Parameters setting

◆Enter the edition page

Please set the parameters according to below steps:

1)The setting mode can be actived after pressing and simultaneously, under the status of standby without any alarm. The default password is "***07623***".

2)Press and add number 1, press to reduce number 1, press to turn the digit into right, press to turn the digit into left, press once done. Then system comes into menu after confirmation of password setting. The screen will display error if password is wrong. The correct password should be put after pressing any button.

3)Press to turn the digit into upper position, press to turn the digit into lower position, press to get into parameters setting page.

4)Press to shift up the parameters, press to shift down the parameters, press to get into parameter changing page.

5)Press to add number 1, press to reduce number 1, press to turn the digit into right and press to turn the digit into left, press once done. If the parameters setting is in the valid setting range,then it can be saved, if not, it can not be saved.

6)Press and to save the parameters and exit from edition page.

7)Press to revert back to last class if in any setting position.

Revert back to default: put password **"97011"** when coming into parameters setting, then all the parameters can be set as defaults.

Note: the data can't be saved if the user didn't press OK and STOP to confirm the setting.

◆Parameter setting

1)Basic setting

No	Parameter	Range ***(default)***	Notes
0	Language	0-English ***1-简体中文*** 2-繁体中文 3-Русский 4-Espanol 5-Türk dili 6-Français 7-Românesc 8-Polski 9-Português 10-Deutsch	Language option. Display language selection. 0: English, 1: Simplified Chinese, 2: Traditional Chinese, 3: Spanish, 4: Russian, 5: Turkish, 6: French, 7: Romanian, 8: Polish, 9: Portuguese, 10: German, 11: Korean, 12: Vietnamese,13:Arabic 14: Bahasa Indonesia,15:Persian. 16:Ukrainian;

		11-한국어 12-Tiếng Việt 13-بالعربية 14-Bahasa Indonesia 15--فارسی; 16-Україна	
1	Gens poles	2/4/6/8***(4)***	When the flywheel teeth is set as 0,the RPM will be resulted by frequency. Pole 2: 50Hz---3000RPM.Pole 4: 50Hz---1500RPM. Pole 6: 50Hz---1000RPM.Pole 8: 50Hz---750RPM
2	Gens AC system	Disable 1 phase 2 wire 2 phase 3 wire 3 phase 3 wire ***3 phase 4 wire***	Gens phases: No gens parameters can be displayed if setting as disable, which is applied to water pump genset.
3	CT rate	5-6000A/5A***(500A/5A)***	Used for setting genset CT primary current, secondary rated current 5A.
4	Rated frequency	40.0-80.0Hz***(50.0Hz)***	Setting generator rated frequency to choose the meter range and calculate the alarm value.
5	Rated phase voltage	30-30000V***(230V)***	Setting generator phase voltage to choose the meter range and calculate the alarm value.
6	Rated phase current	5-6000A***(500A)***	Setting generator phase current to choose the meter range and calculate the alarm value.
7	Rated total power	5-2000Kw（***276Kw***）	Set total power of generator to choose the meter range and calculate the alarm value.
8	Rated battery voltage	8.0-36.0V***(24.0V)***	Choose the meter range and calculate the alarm value.
9	Rated RPM	500-4500RPM***(1500)***	Choose the meter range and calculate the alarm value.
10	Flywheel teeth	0-300***(0)***	If the setting is 0, (RPM sensor Disabled), then RPM is resulted by Hz.
11	Action if over current	Warning ***Alarm and stop*** Trip stop	If the system is set as trip stop, then the unloading procession shall be acted and then stop with alarm.
12	Action if over power	Warning ***Alarm and stop*** Trip stop	If the system is set as trip stop, then the unloading procession shall be acted and then stop with alarm.
13	Load rate based on	Current A Active power kW Apparent power kVA	Calculation basis for selecting generation load rate.
14	Action if RPM lost	Warning ***Alarm and stop***	This fault can be checked only if there is gens frequency checked as one condition of crank successfully.
15	Action if low oil	Warning	If setting as warning,the AUX. INPUT

	pressure	***Alarm and stop*** Warning and alarm stop	should be set as Low oil pressure stop disabled and input is valid. When the oil pressure value is lower than the preset value or low oil pressure alarm input signal is valid, then controller only display warning but not stop.
16	Action if high water temperature	Warning ***Alarm and stop*** Alarm and stop after unloading Warning and alarm stop	Alarm and stop: when the temperature is higher than preset value or high temperature signal is valid, then controller will alarm and stop after normal faults delay. If setting as warning:the AUX. INPUT should be set as high temperature stop disabled and input is valid. When the temperature value is higher than the preset value or high temperature alarm input signal is valid, then controller only display warning but not stop. If setting as alarm and stop after unloading:the AUX. INPUT should be set as high temperature stop and input is valid. When the temperature value is higher than the preset value or high temperature alarm input signal is valid, then controller shall start the unloading procession and stop with alarm.
17	Action if high oil temperature	Warning ***Alarm and stop*** Alarm and stop after unloading Warning and alarm stop	
18	Action if high cylinder temperature	Warning ***Alarm and stop*** Alarm and stop after unloading Warning and alarm stop	
19	Action if high genset box Temperature	Warning ***Alarm and stop*** Alarm and stop after unloading Warning and alarm stop	
20	Action if oil pressure sensor disconnected	Disable ***Warning*** Alarm and stop	Action if oil pressure sensor disconnected.
21	Action if water temperature sensor disconnected	Disable ***Warning*** Alarm and stop	Action if Water temperature sensor disconnected.
22	Action if oil temperature sensor disconnected	Disable ***Warning*** Alarm and stop	Action if oil temperature sensor disconnected.
23	Action if cylinder temp. sensor disconnected	Disable ***Warning*** Alarm and stop	Action if cylinder temperature sensor disconnected.
24	Action if genset box temp. sensor disconnected	Disable ***Warning*** Alarm and stop	Action if genset box temperature sensor disconnected.
25	Action if fuel Level sensor disconnected	Disable ***Warning*** Alarm and stop	Action if Fuel level sensor disconnected.
26	Pressure/Temperature unit	℃/KPA ***℃/BAR*** ℃/PSI F/KPA	Unit display.

		F/BAR F/PSI	
27	Gens breaker checking	Disable ***Warning*** Alarm and stop	The according switch value input should be set as input checking terminal.
28	Mains breaker checking	Disable ***Warning*** Alarm and stop	The according switch value input should be set as input checking terminal.
29	Gens volt. Primary(PT)	30-30000V***(100V)***	Generator voltage transformer primary voltage.
30	Gens volt. Secondary(PT)	30-30000V***(100V)***	Generator voltage transformer secondary voltage.
31	Mains volt. Primary(PT)	30-30000V***(100V)***	Mains voltage transformer primary voltage.
32	Mans volt. Secondary(PT)	30-30000V***(100V)***	Mains voltage transformer secondary voltage.

2)Basic Setting 2

NO	Parameter	Range***(defaults)***	Notes
1	Primary Modes	***STOP*** Manual Auto Auto save	The primary modes on power, easy for user operation. Note: auto record function can not record the mode with load.
2	Manual crank times	1-30 ***(1 time)***	Crank times under mode and test mode.
3	Auto start crank times	1-30 ***(3 times)***	Crank times under auto mode.
4	Crank disconnect	RPM Hz Oil pressure(delay) D+ ***RPM/Frequency*** RPM/Oil Pressure RPM/ D+ Frequency/Oil Pressure Frequency / D+ Oil pressure/ D+ RPM/Frequency/Oil press. Frequency/oil Press./D+ Oil pressure/D+/RPM D+/Frequency/RPM RPM/Freq./Oil Press./D+	1.If there is no oil pressure sensor, please don't choose the type. 2.If there is no oil pressure sensor (only with low oil pressure switch),RPM, voltage, the user can choose Charge D+ as the crank condition, please choose oil pressure+Charge D+ as conditions in order to keep the engine running safely. Oil pressure switch input is not the crank condition Please check if the running status, stop condition are according with crank condition. Means either of the conditions can be acceptable as crank condition. But all of them should be meet together to regard as stop condition.
5	Frequency disconnect	0-200%***(28%)***	Rated frequency multiplying by this value is regarded as crank success condition. When the gens frequency is over the condition value, then system regards it as crank success.

6	Oil pressure disconnect	0-400kpa***(200kpa)***	When the engine oil pressure is over the condition value, then system regards it as crank success, motor escaped.
7	RPM disconnect	0-200%***(24%)***	Rated RPM multiplying by this value is regarded as crank success condition. When the RPM is over the condition value, then system regards it as crank success, motor escaped.
8	D+ disconnect	3.0-32.0V***(8.0V)***	When the engine D+ is over the condition value, then system regards it as crank success, motor escaped.
9	OP pre-supply stop	50-600kpa***(200kpa)***	When the oil pressure is over the condition value, then pre-oil supply is stopped.
10	RPM-up stop	0-200%***(90%)***	Rated RPM multiplying by this value is regarded as speed-up stop value. When the RPM is over this value, then the RPM-Up procession is stopped in time.
11	Temperature-up stop	20-200℃***(68℃)***	When the water temperature is over the preset value, then temperature-up procession is stopped in time.
12	Voltage-up stop	0-200%***(85%)***	Rated voltage multiplying by this value is regarded as voltage-up stop value. When the voltage is over this value, then the voltage-Up procession is stopped in time.
13	Water temperature for Fan open	20-200℃***(75℃)***	Used for controlling radiator: when the water temperature reaches the set temperature, then the radiator is opened.
14	Water temperature for Fan close	20-200℃***(60℃)***	Used for controlling radiator: when the water temperature is lower than the set temperature, then the radiator is closed.
15	Oil temperature for fan open	20-200℃***(75℃)***	Used for controlling radiator: when the fuel temperature reaches the set temperature, then the radiator is opened.
16	Oil temperature for fan close	20-200℃***(60℃)***	Used for controlling radiator: when the fuel temperature is lower than the set temperature, then the radiator is closed.
17	Cylinder temperature for fan open	20-200℃***(75℃)***	Used for controlling radiator: when the cylinder temperature reaches the set temperature, then the radiator is opened.
18	Cylinder temperature for fan close	20-200℃***(60℃)***	Used for controlling radiator: when the cylinder temperature is lower than the set temperature, then the radiator is closed.
19	Genset box temp. for fan open	20-200℃***(75℃)***	Used for controlling radiator: when the genset box temperature reaches the set temperature, then the radiator is opened.
20	Genset box temp. for fan close	20-200℃***(60℃)***	Used for controlling radiator: when the genset box temperature is lower than the set temperature, then the radiator is closed.
21	Fuel pump open	0-100%***(25%)***	When the fuel level is lower than preset value and remains 10S, fuel pump opened

			signal output
22	Fuel pump close	0-100%***(80%)***	When the fuel level is higher than preset value and remains 1S, fuel pump closed signal output.
23	Primary Maintenance countdown	0-5000h***(800h)***	When it is set as 5000, then this function is disabled.
24	Secondary maintenance countdown	0-5000h***(1000h)***	
25	Third maintenance countdown	0-5000h***(1200h)***	
26	Primary maintenance date	***2000/01/01***-2099/12/31	When it is set as 2000/01/01, this function is disabled.
27	Secondary maintenance date	***2000/01/01***-2099/12/31	
28	Third maintenance date	***2000/01/01***-2099/12/31	
29	Primary maintenance expire	***Warning*** Alarm and stop	The action after the primary maintenance expired.
30	Secondary maintenance expire	***Warning*** Alarm and stop	The action after the secondary maintenance expired.
31	Third maintenance expire	***Warning*** Alarm and stop	The action after the third maintenance expired.
32	User password	00000-65535***(07623)***	Change the password.
33	Battery charging start	8.0-30.0***(25.6V)***	When the battery voltage is lower than start value and remains 10s under non-running status, then the relay is opened. When it is higher than the close value and remains 20Min, relay is closed. Once coming into running mode, there is no output.
34	Battery charging stop	10.0-36.0***(27.8V)***	
35	E.T.S. hold times	1-10***(2 times)***	The max E.T.S. hold on power shall be canceled once stop success under auto mode . the output interval time is " Fail to stop ".
36	ATS in manual mode	***Disable***/Enable	When it is set to enabled, when the generator set meets the closing conditions, it will be loaded automatically.
37	Maintenance expiry reset password	0-65535（***06869***）	When the maintenance countdown time arrives, enter the password to reset the maintenance countdown time, this password cannot be the same as the parameter setting password.

3)Delay time setting

NO	Parameter	Range***(default)***	Notes
1	Start delay	0-6500.0s***(5.0s)***	The time during the genset starts after the mains failure or remote signal is valid.
2	Preheat time	0-6500.0s***(0.0s)***	The time needed to be preheat before the starter on power.
3	Longest pre-oil supply	0-180.0s***(0.0s)***	Under pre-oil supply, if the oil pressure is higher than setting value, then pre-oil supply stopped.
4	Cranking time	3.0-60.0s***(8.0s)***	The time when the starter is on power.
5	Crank rest time	3.0-60.0s***(10.0s)***	If crank failure, the waiting time before the second test time.
6	Oil pressure delay	0-20.0s***(0.0s)***	When the crank condition contains oil pressure, if the oil pressure is higher than the preset value and continue for few seconds, then it is regarded as crank success.
7	Safety delay	1.0-60.0s***(8.0s)***	Low oil pressure, high water temperature, under speed, under frequency, under voltage, charge failure are all invalid during this time except for emergency stop and over speed.
8	Start idle time	0-3600.0s***(5.0s)***	Idle running time when crank successfully.
9	Longest RPM-up time	0-3600.0s ***(120.0s)***	The longest speed-up time,during which time the system will exit once speed increased successfully .
10	Longest Temp.-up time	0-3600.0s***(0.0s)***	The longest warming-up time,during which time the system will exit once temperature increased successfully .
11	Longest Volt.-up time	0-3600.0s ***(120.0s)***	The longest voltage-up time,during which time the system will exit once voltage increased successfully .
12	Warming-up time	0-3600.0s ***(10.0s)***	The time needed for loading.
13	Back to Mains time	0-3600.0s ***(10.0s)***	To avoid the switch actions if the mains unstable.If the remote start signal is invalid (DC7x MK3 will check if the mains normal), genset will not switch immediately, after the delay time, it will transfer to mains. during the delay, if the remote start signal is valid, then genset will come into rated running.
14	Back to Gens time	0-3600.0s***(5.0s)***	There shall be loading delay from Mains to Gens if the remote start signal valid or Mains abnormal under Cooling time.
15	Cooling time	0-3600.0s ***(30.0s)***	After unloading, the time of cooling down by radiator before stop. during the delay, if the remote start signal is valid, then genset will come into rated running.
16	Stop idle time	0-3600.0s***(5.0s)***	Idle-speed running time.
17	E.T.S. hold time	0-600.0s***(10.0s)***	Stop solenoid on power time.
18	Fail to stop	5-180.0s***(30.0s)***	If the RPM is 0 during the stop failure time, then the stop failure time is no needed.
19	Emergency delay	0-10.0s***(1.5s)***	Over speed and over frequency alarm delay.
20	Normal alarm	2.0-20.0s***(5.0s)***	The alarm delay except for over speed and over

	delay		frequency
21	Normal warning delay	1.0-20.0s***(2.0s)***	The warning delay.
22	AC Voltage abnormal delay	2.0-20.0s ***(10.0s)***	Over / under voltage delay.
23	Over current 【inverse time】	0.1-36.0***(36.0)***	This option will not take effect until the **[31-Over phase current delay]** is set to **0**. The overcurrent delay is inverse time, and the formula is **T=t/((IA/IT) -1)^2.**
24	Over power 【inverse time】	0.1-36.0***(36.0)***	This option will not take effect until the **[32-Over total power delay]** is set to **0**. The over power delay is inverse time, and the formula is **T=t/((IA/IT) -1)^2.**
25	Gens/Mains closing delay	0-3600.0s***(1.0s)***	The time from Mains to Gens or Gens to Mains closing delay.
26	Opening/Closing output time	1.0-10.0s ***(5.0s)***	Mains and Gens loading and unloading output time, when it is 10s, it is regarded as continuous output.
27	Choke close delay	0-200.0s ***(3.0s)***	Choke close delay.
28	Pulse speed up delay	0.1－60.0s ***(0.1s)***	The interval time of the pulse speed up relay change.
29	Pulse speed down delay	0.1－60.0s ***(0.1s)***	The interval time of the pulse speed down relay change.
30	Over phase current delay	0-3600.0s***(30s)***	When this parameter is set to 0, the over current delay is the inverse time; if not, the over current delay is the time set for this parameter.
31	Over total power delay	0-3600.0s***(30s)***	When this parameter is set to 0, the over power delay is the inverse time; if not, the over current delay is the time set for this parameter.
32	Fuel output delay	0-60.0s***(2.0s)***	The output time of fuel valve relay before crank.
33	Pump fail warn delay	0－6500.0s ***(300.0s)***	Detect the delay time from early warning to alarm shutdown after the "**pumping failure alarm**" switch is effective.
34	Maximum fuel pump on time	0-65000s ***(0s)***	The maximum oil supply time of the oil pump, set the minimum value 0 to disable.
35	Fuel pump filling detection	0-600s***(30S)***	Fuel pump filling detection time, the sensor oil level change is detected.

4)Engine Alarm setting

NO	Parameter	Range ***(defaults)***	Notes
1	Over speed warning	0-200% ***(107%)***	Rated RPM multiplying by this value is regarded as over speed warning value.When the RPM is higher than the warning value and comes into over speed delay but still higher, then over speed warns. if the value is set as 200, then the over speed alarm is disabled.
2	Over speed alarm	0-200% ***(114%)***	Rated RPM multiplying by this value is regarded as over speed alarm value.When the RPM is higher than the

			alarm value and comes into over speed delay but still higher(emergency faults delay), then over speed alarms. if the value is set as 200, then the over speed alarm is disabled.
3	Over speed revert	0-200% ***(108%)***	Rated RPM multiplying by this value is regarded as over speed alarm revert value.
4	Under speed warning	0-200% ***(90%)***	Rated RPM multiplying by this value is regarded as under speed warning value.When the RPM is lower than the warning value and comes into under speed delay but still lower (normal warning delay), then under speed warns. if the value is set as 0, then the over speed alarm is disabled.
5	Under speed alarm	0-200% ***(80%)***	Rated RPM multiplying by this value is regarded as under speed alarm value.When the RPM is lower than the alarm value and comes into under speed delay but still lower (normal faults delay), then under speed alarms. if the value is set as 0, then the under speed alarm is disabled.
6	Under speed revert	0-200% ***(85%)***	Rated RPM multiplying by this value is regarded as under speed alarm revert value.
7	Low oil pressure warning	0-999kpa ***(180kpa)***	When the oil pressure is lower than the value and comes into low oil pressure warning delay but still lower(normal warning delay), then low oil pressure warns. If it is higher than the value then warning clears. If the value is set as 0, then the low oil pressure warning is disabled.
8	Low oil pressure alarm	0-999kpa ***(103kpa)***	When the oil pressure is lower than the alarm value and comes into low oil pressure delay but still lower (normal faults delay), then low oil pressure alarms. if the value is set as 0, then the under speed alarm is disabled.
9	High water temperature warning	20-200℃ ***(95℃)***	When the water temperature is higher than the value and comes into high temperature warning delay but still higher r(normal warning delay), then high temperature warns. If it is lower than the value then warning clears. If the value is set as 200, then the high temperature warning is disabled.
10	High water temperature alarm	20-200℃ ***(98℃)***	When the water temperature is higher than the alarm value and comes into high temperature delay but still higher (normal faults delay), then high temperature alarms. if the value is set as 200, then the high temperature alarm is disabled.
11	High oil temperature warning	20-200℃ ***(95℃)***	When the temperature is higher than the value and comes into high temperature warning delay but still higher (normal warning delay), then high temperature warns. If it is lower than the value then warning clears. If the value is set as 200, then the high temperature warning is disabled.
12	High oil temperature alarm	20-200℃ ***(100℃)***	When the temperature is higher than the alarm value and comes into high temperature delay but still higher (normal faults delay), then high temperature alarms. if the value is set as 200, then the high temperature alarm is disabled.
13	High cylinder temperature warning	20-200℃ ***(120℃)***	When the temperature is higher than the value and comes into high temperature warning delay but still higher (normal warning delay), then high temperature warns. If it is lower than the value then warning clears. If

			the value is set as 200, then the high temperature warning is disabled.
14	High cylinder temperature alarm	20-200℃ ***(150℃)***	When the temperature is higher than the alarm value and comes into high temperature delay but still higher (normal faults delay), then high temperature alarms. if the value is set as 200, then the high temperature alarm is disabled.
15	High genset box temperature warning	20-200℃ ***(65℃)***	When the temperature is higher than the value and comes into high temperature warning delay but still higher (normal warning delay), then high temperature warns. If it is lower than the value then warning clears. If the value is set as 200, then the high temperature warning is disabled.
16	High genset box temperature alarm	20-200℃ ***(85℃)***	When the temperature is higher than the alarm value and comes into high temperature delay but still higher (normal faults delay), then high temperature alarms. if the value is set as 200, then the high temperature alarm is disabled.
17	Low fuel level warning	0-100% ***(20%)***	When the fuel level is lower than the value and comes into low fuel level warning delay but still lower(normal warning delay), then low fuel level warns. If it is higher than the value then warning clears. If the value is set as 0, then the low fuel level warning is disabled.
18	Low fuel level alarm	0-100% ***(0%)***	When the fuel level is lower than the alarm value and comes into low fuel level delay but still lower (normal faults delay), then low fuel level alarms. if the value is set as 0, then the under speed alarm is disabled.
19	Over battery voltage warning	0-200% ***(135%)***	Rated battery voltage multiplying by this value is regarded as over battery voltage warning value.When the battery input is higher than the warning value and comes into over battery voltage delay but still higher (normal faults delay), then over battery voltage warns. if the value is set as 200, then the over battery voltage is disabled.
20	Under battery voltage warning	0-200% ***(100%)***	Rated battery voltage multiplying by this value is regarded as under battery voltage warn value.When the battery input is lower than the warning value and comes into under battery voltage delay but still lower (normal faults delay), then under battery voltage warns. if the value is set as 0, then the under battery voltage is disabled.
21	Charger warning	1.0-30.0V ***(30.0V)***	When the gap between D+ and B+ is over than this value, and there is charging failure but still high(normal warning delay), then charge failure warns. Once the gap is lower than the value, warns clear. If the value is set as 300, then the charge failure is disabled.

5)Generator alarm parameters

NO	Parameter	Range***(defaults)***	Notes
1	Over freq warning	0-200%***(110%)***	Rated frequency multiplying by this value is regarded as under over frequency warn value. When the Freq is higher than the value and comes into over freq warning delay but still higher(normal warn delay), then over frequency warns. If it is lower than the value then warning clears. If the value is set as 200, then the warning is disabled.

2	Over freq alarm	0-200%***(114%)***	Rated frequency multiplying by this value is regarded as under over frequency alarm value. When the Freq is higher than the value and comes into over freq delay but still higher(emergency faults delay), then over frequency alarms.If the value is set as 200, then the alarm is disabled.
3	Over freq revert	0-200%***(112%)***	Rated frequency multiplying by this value is regarded as under over frequency revert value.
4	Under freq warning	0-200%***(90%)***	Rated frequency multiplying by this value is regarded as under under frequency warn value. When the Freq is lower than the value and comes into under freq delay but still lower(normal warn delay), then under frequency warns..If the value is set as 0, then the warning is disabled.
5	Under freq alarm	0-200%***(80%)***	Rated frequency multiplying by this value is regarded as under frequency alarm value. When the Freq is lower than the value and comes into under freq delay but still lower(normal faults delay), then under frequency alarms.If the value is set as 0, then the alarm is disabled.
6	Under freq revert	0-200%***(85%)***	Rated frequency multiplying by this value is regarded as under under frequency revert value.
7	Over voltage warning	0-200%***(112%)***	Rated voltage multiplying by this value is regarded as over voltage warn value. When the voltage is higher than the value and comes into over voltage delay but still higher(normal warn delay), then over voltage warns..If the value is set as 200, then the warning is disabled.
8	Over voltage alarm	0-200%***(120%)***	Rated voltage multiplying by this value is regarded as over voltage alarm value. When the voltage is higher than the value and comes into over voltage delay but still higher(normal faults delay), then over voltage alarms.If the value is set as 200, then the alarm is disabled.
9	Over voltage revert	0-200%***(115%)***	Rated voltage multiplying by this value is regarded as over voltage revert value.
10	Under voltage warning	0-200%***(90%)***	Rated voltage multiplying by this value is regarded as under voltage warn value. When the voltage is lower than the value and comes into under voltage delay but still lower (normal warn delay), then under voltage warns.If the value is set as 0, then the warning is disabled.
11	Under voltage alarm	0-200%***(80%)***	Rated voltage multiplying by this value is regarded as under voltage alarm value. When the voltage is lower than the value and comes into under voltage delay but still lower(normal faults delay), then under voltage alarms.If the value is set as 0, then the alarm is disabled.
12	Under voltage revert	0-200%***(85%)***	Rated voltage multiplying by this value is regarded as under voltage revert value.

13	Phase current over-load warning	0-200%***(90%)***	Rated current multiplying by this value is regarded as over current warn value. When the phase current is higher than the value and comes into over current delay but still higher(normal warn delay), then over current warns..If the value is set as 200, then the warning is disabled.
14	Phase current over-load alarm	0-200%***(100%)***	Rated current multiplying by this value is regarded as over current alarm value. When the current is higher than the value and comes into over current delay but still higher(over current faults delay), then over current alarms.If the value is set as 200, then the alarm is disabled.
15	Phase current over-load revert	0-200%***(95%)***	Rated current multiplying by this value is regarded as over current revert value.
16	Non-balance current ratio warning	10-100%***(100%)***	It is valid for 2P3W or 3P4W.When the non-balance current ratio is higher than the value and comes into delay but still higher(normal warn delay), then non-balance current ratio warns.If the value is set as 100, then the warning is disabled.
17	Non-balance current ratio alarm	10-100%***(100%)***	It is valid for 2P3W or 3P4W. When the non-balance current ratio is higher than the value and comes into delay but still higher(normal faults delay), then non-balance current ratio warns.If the value is set as 100, then the alarm is disabled.
18	Non-balance current ratio revert	10-100%***(100%)***	
19	Over total power warning	0-200%***(90%)***	Rated power multiplying by this value is regarded as over power warn value. When the loading power is higher than the value and comes into delay but still higher(normal warn delay), then over power warns..If the value is set as 200, then the warning is disabled.
20	Over total power alarm	0-200%***(100%)***	Rated power multiplying by this value is regarded as over power alarm value. When the loading power is higher than the value and comes into delay but still higher(power faults delay), then over power alarms..If the value is set as 200, then the alarm is disabled.
21	Over total power revert	0-200%***(95%)***	Rated power multiplying by this value is regarded as over power revert value.
22	Phase Sequence	Disable ***Warning*** Alarm and stop	Monitor whether the phase sequence is normal.

6)Input/Output setting

No	Parameters	Range***(defaults)***	Notes
1	AUX. OUTPUT 1 (DC Supply Out) Pin 6	**Source:** 0-115 ***(25.* E.S.T. hold*)***	**Source:** Select the output source to control the state of the output.
2	Polarity	***0-Energise*** 1-De-Energise	See **AUX. Output**

3	AUX. OUTPUT 2 (Volts Free) Pin7,8,9	**Source:** 0-115 ***(15.Idle speed control)***	**function table** for details of all available functions. **Polarity:** Select the AUX.OUTPUT polarity. **De-Energise:** When the output source is true, the output deactivates. **Energise:** When the output source is true, the output activates
4	Polarity	***0-Energise*** 1-De-Energise	
5	AUX. OUTPUT 3 (Volts Free) Pin 10,11	**Source:** 0-115 ***(21.Gens loading)***	
6	Polarity	***0-Energise*** 1-De-Energise	
7	AUX. OUTPUT 4 (Volts Free) Pin 12,13	**Source:** 0-115 ***(43.Mains loading)***	
8	Polarity	***0-Energise*** 1-De-Energise	
9	AUX. OUTPUT 5 (Volts Free) Pin E4,E5,E6	**Source:** 0-115 ***(2.Public alarm output)***	
10	Polarity	***0-Energise*** 1-De-Energise	

AUX. Output function table

0.Disable.
1.Public warning output: when there is any warning output.
2.Public alarm output: when there is any alarm output, alarm locks till revert back.
3.Audio alarm: when there is any alarm output, the Audio controls.
4.Shades control: there is output once genset starts and stop till stable.
5.Preheat mode 1: preheat before start.
6.Preheat mode 2: preheat before crank success.
7.Preheat mode 3: preheat after safety delay.
8.Preheat mode 4: preheat till temperature-up end.
9.Preheat mode 5: preheat till temperature-up end, but no preheat when motor starts.
10.Choke control: choke will be started after crank success and off after delay.
11.Pre-oil supply control: Under pre-oil supply,if the oil pressure is higher than setting value or pre-oil supply time ends, then pre-oil supply stopped.
12.Fuel output: output once gens starts and off till stable.
13.Crank output: output once cranking, no output in other mode.
14.Genset running:output under running,off once RPM is lower than cranking RPM. The crank success condition can be set.
15.Idle speed control 1: used for speed controller, there is output under idle but no output under high speed.
16.Speed-up control: there is output when coming into high speed warming up, which time is **Longest RPM-up time**.
17.High speed control: The output is valid after idle delay is completed, and the output is closed after high-speed heat dissipation.
18.Excitation output: there is output during cranking procession and there is 2s output if there is no frequency under high speed status.
19.Rated running: there is output under rated running.
20.Gens valid: when there is voltage output between low voltage alarm revert valueand high voltage alarm revert value, among which there is no output.
21.Gens load: continuous or pulse type according to time setting.

22.Gens unload: continuous or pulse type according to time setting.
23.Public un/loading: Continuous output during power generation closing and disconnection during opening.
24.Speed-down control: the output time is shutdown idle delay during shutdown idle or shutdown on power procession.
25.E.S.T. hold: shutdown output, it is used for gens with stop solenoid. when the setting value of shutdown delay is over, then it is off.
26.System in stop: there is output under stop mode.
27.System in manual: there is output under manual mode.
28.System in test: there is output under test mode(not for DC70x MK3).
29.System in auto: there is output under auto mode.
30.Output for AUX1:when the switch value 1 is set as high level active relay or low level active relay, there is output or shutdown according to the input status.
31.Output for AUX2:when the switch value 1 is set as high level active relay or low level active relay, there is output or shutdown according to the input status.
32.Output for AUX3:when the switch value 1 is set as high level active relay or low level active relay, there is output or shutdown according to the input status.
33.Output for AUX4:when the switch value 1 is set as high level active relay or low level active relay, there is output or shutdown according to the input status.
34.Output for AUX5:when the switch value 1 is set as high level active relay or low level active relay, there is output or shutdown according to the input status.
35.High water temperature output: there is output if the water temperature is higher than start condition and shutdown if it is lower than the shutdown condition.
36.High oil temperature output: there is output if the oil temperature is higher than start condition and shutdown if it is lower than the shutdown condition.
37.High cylinder temperature output: there is output if the cylinder temperature is higher than start condition and shutdown if it is lower than the shutdown condition.
38.High genset box temperature output: there is output if the genset box temperature is higher than start condition and shutdown if it is lower than the shutdown condition.
39.Fuel pump output: there is output if the oil capacity is lower than start condition for 10s and shutdown if it is higher than the shutdown condition for 1s.
40.Battery charging control: there is output if the voltage is lower than the preset value under standby status and shutdown after start and in running status.
41.Mains abnormal: there is output when the mains voltage is lower than low voltage threshold and higher than high voltage threshold during mains abnormal delay time. There is not output when the mains voltage is higher than low voltage revert threshold or lower than high voltage revert threshold during mains normal delay time. This is not for DC70x MK3.
42.Mains normal: there is output when the mains voltage is higher than low voltage threshold and lower than high voltage threshold during mains normal delay time. There is not output when the mains voltage is lower than low voltage revert threshold or higher than high voltage revert threshold during mains abnormal delay time. This is not for DC70x MK3.
43.Mains loading: continuous or pulse type according to time setting. Not for DC70x MK3.
44.Mains unloading: continuous or pulse type according to time setting. Not for DC70x MK3 .
45.ECU power: apply to electrical ECU engine,used for control ECU power.
46.ECU stop: apply to electrical ECU engine,used for control ECU shutdown.
47.ECU warning: there is a warn signal from ECU.
48.ECU alarm: there is an alarm signal from ECU.
49.ECU communication failure: Cannot communicate with ECU.
50.Pulse speed up output:the pulse shall be sent out in the interval of **"Pulse speed up**

delay" under speed –up.
51.Pulse speed down output：the pulse shall be sent out in the interval of **"Pulse speed down delay"** under stop idle speed.
52.Over speed output：the relay shall output after overspeed/over frequency alarms.
53.Low oil pressure alarm：the relay shall output after low oil pressure sensor/switch alarms.
54.High water temperature alarm：the relay shall output after high water temperature sensor/switch alarms.
55.High oil temperature alarm：**t**he relay shall output after high oil temperature sensor/switch alarms.
56.Idle speed control 2: used for speed controller, there is output under idle but no output under high speed.
57.Oil pump control: when the CAN protocol is Yuchai LMB. When the genset is in the standby state, the oil pump controls the output every 30 minutes. If the oil pressure is higher than 100kPa or the output is 1 minute (whichever comes first), the oil pump control output will stop; when the genset is in the preheating state, the oil pump control will always output.
58.Public unload: Public unload of Gens and Mains.
59.Under speed alarm: Action when underspeed alarm.
60.Low fuel level warn: Action when low fuel level warning.
61.Low fuel level alarm: Action when low fuel level alarm.
62.Under freq alarm: Action when under frequency alarm.
63.Over voltage alarm: Action when over-voltage alarm.
64.Under voltage alarm: Action when undervoltage alarm.
65.Over-current alarm: Action when over-current alarm.
66.Non-balance current ratio alarm: Output when non-balance current ratio alarm.
67.Overpower alarm: Action when over power alarm.
68.Emergency stop: Action when emergency stop alarm.
69.STOP failure: Action when shutdown failure alarm.
70.High battery volt: Action when the battery voltage is too high warning.
71.Low battery volt: Action when the battery voltage is too low warning.
72.Mains load/unload: disconnect when mains is load, output when mains is unload, only [AUX.Output 2] is valid.
73.Alternative config 1 enable: Output when alternate Alternative config 1 as valid.
74.Alternative config 2 enable: Output when alternate Alternative config 2 as valid.
75.Alternative config 3 enable: Output when alternate Alternative config 3 as valid.
76.Over frequency alarm: Output when over frequency alarm.
77.Oil pressure sensor open alarm: Output when oil pressure sensor open alarm.
78.WT sensor open alarm: Output when WT sensor open alarm.
79.OT sensor open alarm: Output when OT sensor open alarm.
80.High CT sensor alarm: Output when high CT sensor alarm.
81.High CT switch alarm: Output when high CT switch alarm.
82.CT sensor open alarm: Output when CT sensor open alarm.
83.High Box Temp-A alarm: Output when high WT sensor alarm.
84.High Box Temp-D alarm: Output when high CT switch alarm.
85.BT sensor open alarm: Output when BT sensor open alarm.
86.Low fuel level switch alarm: Output when low Fuel level switch alarm.
87.Fuel level sensor open alarm: Output when Fuel level sensor open alarm.
88.Low oil level switch alarm: Output when low oil level switch alarm.
89.Instant alarm switch alarm: Output when Instant alarm switch.
90.Low water level switch alarm: Output when low water level switch alarm.

91.Crank failure alarm: Output when the engine fails to start.
92.RPM Signal lost alarm: Output when Speed signal lost alarm.
93.Stop failure alarm-RPM: Output when the engine shutdown fails to alarm.
94.Stop failure alarm-Oil pres: Output when the engine shutdown fails to alarm.
95.Stop failure alarm-D+: Output when the engine shutdown fails to alarm.
96.Stop failure alarm-Hz: Output when the engine shutdown fails to alarm.
97.Instant load switch alarm: Output when Instant load switch alarm.
98.Phase Sequence alarm: Output when Phase Sequence alarm.
99. 1st Maintain end alarm: Output when maintain end alarm.
100. 2nd Maintain end alarm: Output when maintain end alarm.
101. 3rd Maintain end alarm: Output when maintain end alarm.
102.Shades open abnormal alarm: Output when Shades open abnormal alarm.
103.Pumping failure: Output when pumping failure alarm.
104.Alternative config conflict alarm: Output when Alternative config conflict alarm.
105.DPF Regeneration Inhibit Request: when the output is active **,** the diesel particulate filter regeneration inhibit.
106.DPF Regeneration Requested: Outputs an indication when diesel particulate filter regeneration is requested;
107.DPF Forced Regeneration: When the output is valid: forced regeneration of the diesel particulate filter.
108.DPF Regeneration In Progress: Output indication when diesel particulate filter regeneration is in progress.
109.Heating output: output according to the heating condition setting;
110....115 Reserved.

11	AUX. INPUT 1 (Functional of Pin 20)	0-55***(2.High water temperature alarm)***	Set the default value (please refer to the AUX. input function table) **Set the state when the AUX. input is valid.**
12	AUX. INPUT 1 Valid Type	***0-Normal close*** 1-Normal open	
13	AUX. INPUT 2 (Functional of Pin 21)	0-55 ***(1.Low oil pressure switch)***	
14	AUX. INPUT 2 Valid Type	***0-Normal close*** 1-Normal open	
15	AUX. INPUT 3 (Functional of Pin 22)	0-55 ***(33.Remote start)***	
16	AUX. INPUT 3 Valid Type	***0-Normal close*** 1-Normal open	
17	AUX. INPUT 4 (Functional of Pin 38)	0-55 ***(8.Low Fuel level warning input)***	
18	AUX. INPUT 4 Valid Type	***0-Normal close*** 1-Normal open	
19	AUX. INPUT 5 (Functional of Pin 39)	0-55 ***(6.Low water level alarm input)***	
20	AUX. INPUT 5 Valid Type	***0-Normal close*** 1-Normal open	

AUX. input function table

0.Disable.
1.Low oil pressure alarm switch.
2.High water temperature alarm switch.
3.High oil temperature alarm switch.
4.High cylinder temperature alarm switch.

5.High genset box temperature alarm switch.
6.Low water level warning switch.
7.Low water level alarm switch.
8.Low fuel level warning input.
9.Low fuel level alarm input.
10.Low engine oil level warning input.
11.Low engine oil level alarm input.
12.Charging failure warning: output when charging failure.
13.Low oil pressure shutdown disabled: valid if there is signal input.
14.High water temperature shutdown disabled: valid if there is signal input.
15.High oil temperature shutdown disabled: valid if there is signal input.
16.High cylinder temperature shutdown disabled: valid if there is signal input
17.High genset box temperature shutdown disabled: valid if there is signal input.
18.External instant warning input.
19.External instant alarm input.
20.External instant unloading shutdown disabled: the gens loading will transfer unloading if there is signal input.
21.External instant unloading shutdown: the gens loading will transfer unloading and shutdown.
22.Gens un/loading input: connect to the gens loading switchs auxiliary point.
23.Mains un/loading input: connect to auxiliary point of mains loading switch.(not for DC70x MK3).
24.Louver status input.
25.Auto start disabled: gens will not start if there is signal input whatever mains normal or not.
26.Auto stop disabled: gens will not stop if there is signal input whatever mains normal or not.
27.V+ active relay.
28.V- active relay.
29.Stop by radiator if high temperature: The controller will shutdown the gens after high speed cooling down delay when temperature is too high if this signal is valid and gens under normal running . the controller will shutdown the gens directly if the signal is not valid.
30.Stop by radiator if high oil temperature: The controller will shutdown the gens after high speed cooling down delay when temperature is too high if this signal is valid and gens under normal running . the controller will shutdown the gens directly if the signal is not valid.
31.Stop by radiator if high cylinder temperature: The controller will shutdown the gens after high speed cooling down delay when temperature is too high if this signal is valid and gens under normal running . the controller will shutdown the gens directly if the signal is not valid.
32.Stop by radiator if high genset box temperature: The controller will shutdown the gens after high speed cooling down delay when temperature is too high if this signal is valid and gens under normal running . the controller will shutdown the gens directly if the signal is not valid.
33.Remote start(with load): the gens comes into start procession if this signal is valid and under auto mode,Closing with load.
34.Soundproof alarm: audio alarm output is disabled if there is signal output.
35.Front face button disabled: any button except for page button is disabled if there is signal output.
36.Meter mode: all output are disabled, alarm and warns are invalid. any button except for page button is disabled.
37.Local/Remote control mode: Remote control when input is valid: any button except

for page button is disabled, LCD will display remote mode.Remote control of unit start/stop operation and monitoring of real-time unit parameters via RS485, USB and Ethernet only. When the input is invalid, **Local** control: the unit can only be controlled through the local panel for start/stop operation.
38.Simulate STOP.
39.Simulate MANUAL.
40.Simulate AUTO.
41.Simulate START.
42.Simulation GENS Close/Open.
43.Simulation MAINS Close/Open.(only fro DC72x MK3)
44.Remote start(without load): the gens comes into start procession if this signal is valid and under auto mode,No closing with load.
45.Alarm shutdown prohibition (War mode)**:** this mode, in addition to the "emergency shutdown", all other alarms are invalid.
46.Alternative config 1: Alternate configuration 1 and switch input active at the same time.
47.Alternative config 2: Alternate configuration 2 and switch input active at the same time.
48.Alternative config 3: Alternate configuration 3 and switch input active at the same time.
49.Pump fail alarm switch input;
50.Pump fail warning switch input;
51.DPF Regeneration Inhibit: This input is used to override the ECU function and prevent the regeneration of the diesel particulate filter.
52.DPF Regeneration: This input is used to override the ECU function and activate the regeneration of the diesel particulate filter.
53.....55 Reserved.

21	AUX. SENSOR 1 (Functional of PIN 17)	0-6***(2.Water temperature sensor)***	**0. Disable.** **1. Oil pressure.** **2. Water temperature.** **3. Oil temperature.** **4. Cylinder temperature.** **5. Genset box temperature.** **6. Fuel level.** ⚠***Note: every sensor input can be set as same function.(oil pressure, fuel level warns and alarm will be judged according to the lowest value. Water temperature, oil temperature, cylinder temperature, genset box temperature warns and alarm will be judged by the highest value. Either of the inputs for alarm opened.)***
22	AUX. SENSOR 2 (Functional of PIN 18)	0-6 ***(1.Oil pressure sensor)***	
23	AUX. SENSOR 3 (Functional of PIN 19)	0-6***(0.Disable)***	
24	AUX. SENSOR 4 (Functional of PIN E1)	0-6***(0.Disable)***	
25	Oil pressure sensor	0:Disable 1:From ECU 2:User defined-Resistance 3:User defined-Voltage 4:User defined-Current 5:Volt In 1MPa-0-5V 6:Volt In 1MPa-0.5-4.5V 7:Current In 1MPa-4-20mA	Choose the usual oil pressure sensor, if the sensor users choose is not these types, it can be User-defined. **The voltage,Current type oil pressure sensor is only valid for "configurable sensor input 2" (pin 18).**

		8:VDO 0-10Bar 9:MEBAY-003B 10:SGH 11:SGD 12:SGX 13:CURTIS 14:DATCON 10Bar 15:VOLVO-EC 16:3015237 17:WEICHAI 0-0.6MPa 18:GENCON 0-10Bar	
26	Coolant temperature sensor	0:Disable 1:From ECU 2:User-defined-Resistance ***3:VDO 40-120℃*** 4:MEBAY-001B 5:SGH 6:SGD 7:SGX 8:CURTIS 9:DATCON 10:VOLVO-EC 11:3015238 12:PT100 13:MEBAY-Mier 14:WEICHAI 40-120℃ 15:GENCON 40-120℃	Choose the usual water temperature sensor, if the sensor users choose is not these types, it can be User-defined.
27	Oil temperature sensor	0:Disable 1:From ECU 2:User-defined-Resistance ***3:VDO 40-120℃*** 4:MEBAY-001B 5:SGH 6:SGD 7:SGX 8:CURTIS 9:DATCON 10:VOLVO-EC 11:3015238 12:PT100 13:MEBAY-Mier 14:WEICHAI 40-120℃ 15:GENCON 40-120℃	Choose the usual oil temperature sensor, if the sensor users choose is not these types, it can be User-defined.
28	Cylinder temperature sensor	0:Disable 1:From ECU 2:User defined-Resistance 3:MEBAY-Mier ***4:PT100*** 5:-15: Reserved	If the sensor users choose is not these types, it can be User-defined.
29	Genset box	0:Disable	If the sensor users choose is not

	temperature sensor	1:From ECU 2:User defined-Resistance 3:MEBAY-Mier ***4:PT100*** 5:-15: Reserved	these types, it can be User-defined.
30	Fuel level sensor	0:Disable 1:User defined-Resistance 2:User defined-Voltage 3:Volt In 1MPa-0-5V 4:Volt In 1MPa-0.5-4.5V 5:0-100Ω 6:100-0Ω 7:0-107Ω 8:107-0Ω 9:0-180Ω 10:180-0Ω 11:180-10Ω 12:10-180Ω 13:120-10Ω 14:10-120Ω 15:90-0Ω 16:0-90Ω 17:0-30Ω 18:73-10Ω 19:240-33Ω 20:33-100Ω 21:0-200Ω 22:200-0Ω 23:0-190Ω 24:190-0Ω 25:100-33Ω	If the sensor users choose is not these types, it can be User-defined. **The voltage type Fuel level sensor is only valid for "configurable sensor input 3" (pin 19).**
31	Heating Open Value	0℃-300℃***(0℃)***	Heating Control Setting Minimum Disable.
32	Heating Close Value	0℃-300℃***(0℃)***	
33	Heating Max Time	0-7200Min***(0Min)***	
34	Associated connection Sensors	AUX.SENSOR1~4	Associated Temperature Sensor Valid

7) Working maintenance plan setting

NO	Parameter	Range***(defaults)***	Notes
1	Working plan format	***Disable*** Every month Every week	This mode must be under auto mode. Working plan is disabled once setting as disable. The working plan will be executed according the chosen date when setting as every month. The working plan will be executed according the chosen date when setting as every week.
2	Maintenance date per month	From 1st to 31st ***Default: the first***	The date chosen for every month.

		day	
3	Maintenance date per week	Monday to Sunday ***Default: Sunday***	The date chosen for every week.
4	Maintenance with load or not	***Disabled***/with load	To choose if the genset starts with load or not.
5	Maintenance start time	00:00-23:59***(00:00)***	Maintenance start time setting.
6	Maintenance running time	1-120m***(5m)***	Maintenance running time setting.

8)Mains setting

No	Parameter	Range***(defaults)***	Notes
1	Mains options	***Disable (70x MK3)*** ***AMF/Auto-start (72x MK3)*** Display volt and seq only	Select the mains function, if disabled it will no longer detect and display mains related parameters.
2	Mains Phase	1 Phase 2 Wire 2 Phase 3 Wire 3 Phase 3 Wire ***3 Phase 4 Wire(72D)***	Choose the input, there is no display if setting as disable.
3	Mains under volt	55-330V***(184V)***	When the mains voltage is lower than the "low voltage crank threshold" and comes into mains low voltage delay(normal failure delay) but still lower, then mains becomes invalid. If the voltage become higher than "low voltage revert threshold" during normal failure delay time, then it will not alarm.
4	Revert under volt	55-40000V***(207V)***	
5	Mains over volt	55-40000V***(276V)***	When the mains voltage is higher than the" high voltage crank threshold" and comes into mains high voltage delay(normal failure delay) but still higher, then mains becomes invalid. If the voltage become lower than "low voltage revert threshold" during normal failure delay time, then it will not alarm.
6	Revert over volt	55-40000V***(253V)***	
7	Mains normal delay	0.0-3600.0S***(10.0s)***	The time from abnormal to normal, which is used for ATS transfer.
8	Mains abnormal delay	0.0-3600.0S***(5.0s)***	
9	Loss of Phase judgment	***Loss of Phase 1*** Loss of Phase 2 Loss of Phase 3	Set the phase loss condition to judge whether the mains is abnormal.

9)LCD setting

No	Parameter	Range***(defaults)***	Notes
1	Start screen display time	0-20.0s***(2.0s)***	Start screen display time,0: No-display.
2	Back lightness	20-100%***(80%)***	Back lightness adjustment.
3	Saving mode	5.0-6000.0s(***600.0s)***	LCD light will be closed automatically without

			any button pressed after delay.If setting as 6000.0s, back light always lighted.
4	Homing display	5.0-600.0s***(60.0s)***	The time when the page reverts back to the home page .If setting as 600.0s:disabled.
5	LOGO delay display under standby	5.0-6000.0***(6000.0s)***	Start screen will be opened without any button pressed after delay.If setting as 6000.0s: disabled.
6	ECU page	Disable/***Enable***	Set whether the ECU page is displayed.
7	Display UI selection	Dark mode ***Bright mode*** Auto memory	Set the default display mode of the display interface after the controller is powered on.

a)Communication setting

No	Parameter	Range***(default)***	Notes
1	RS485 Controller ID	1-255***(16)***	The IP built by controller and PC.
2	RS485 baud rate	0-4800 1-9600 ***2-19200*** 3-38400 4-57600 5-115200	RS485 communication baud rate selection.
3	Controller working mode	***Host mode*** Slave mode	Slave mode can read and display parameters of slave controller through RS485 port.
4	ECU failure	Warn/ Alarm/***Alarm and Stop***	ECU communication failure.
5	CAN Protocol	***0- Disabled*** 1:J1939 2:Cummins ISB 3:Cummins-CM850 4:Cummins QSX15-CM570 5:Cummins-CM850-PCC13X 6:Cummins-DCEC-QSZ13 7:Cummins-CCEC-QSN 8:Perkins 9:Perkins-1100 10:Volvo 11.....184:Zenith ECU	Built-in more than 180 ECU communication protocols, **11~184 CAN protocol** (**please refer to the detailed list**) CAN protocol Option : the Engine parameters like RPM, oil pressure, water temperature are all from ECU data after choosing the relative protocol.
6	ECU warning	Disable/***Enable***	ECU warnings enable.
7	ECU alarm	Disable/***Enable***	ECU alarms enable.
8	Mask SPN	00000000	Up to 12 sets of alarm codes can be input, and the controller will not respond to the input alarm codes.
9	ECU idle	500-3000RPM ***(750RPM)***	Set the speed when idling. Only the ECU that supports speed control is effective.
10	Slow speed up delay	0-120S***(5S)***	Through CAN port, it controls the time delay from idle speed up to rated speed. Only ECU supporting speed control is effective.

11	ECU speed control address	0-255***(3)***	The TSC1 message ID address sent by the controller to the ECU, and the communication protocol must be 31: j1939-c.
12	CAN Baud Rate	0-Automatic detection 1-125Kbps ***2-250Kbps*** 3-500Kbps	Set the baud rate of CAN bus communication.

b)Duty Plan setting

No	Parameter	*Range**(default)***	Notes
1	Working plan	***Disable*** Enable 1:remote start Enable 2:mains failure Enable 3:the above 1 or 2 Enable 4:running always	Working plan start condition.
2	Start time	00:00-23:59	The start time allowed.
3	End time	00:00-23:59	The end time allowed(the next day is valid).
4	Dates	1-31	Multiple choices according to the reality. The longest running time is 24 hours.

c)Data/time setting

No	Parameter	Range***(defaults)***	Notes
1	Date/Time	2000/01/01-2099/12/31	Internal calendar, please calibrate regularly.
2	Current time	00:00:00-23:59:59	
3	Current week	Monday to Sunday	
4	Universal Time Coordinate	UTC+8	Set the parameters based on the time zone.

d)Self-define curve

NO	Parameter	Notes
1	Self-define oil pressure Ohm curve	***Sensor curve can be User-defined by panel buttons, resistance and according value should be input,MAX 15 groups ,MIN 2 groups.*** ***Rule: resistance should be input from small to large.***
2	Self-define oil pressure DC curve	
3	Self-define oil pressure current curve	
4	Self-define water temperature curve	
5	Self-define oil temperature curve	
6	Self-define cylinder temperature curve	
7	Self-define genset box temperature curve	
8	Self-define fuel level Ohm curve	
9	Self-define fuel level DC curve	

e)Alternative config setting

No	Parameter	Range***(defaults)***	Notes
1	Alternative config 1	***Disable/*** Enable	Sets whether Alternative config 1 is enabled.
2	Alternative config 2	***Disable/*** Enable	Sets whether Alternative config 2 is enabled.
3	Alternative config 3	***Disable/*** Enable	Sets whether Alternative config 3 is enabled.
Detailed list of Alternative config parameter settings (only via the host computer)			
Gens AC system; Rated RPM; Over speed alarm; Under speed alarm; Rated frequency; Over freq alarm; Under freq alarm; Rated Phase voltage; Over voltage warning; Under			

voltage alarm; Rated phase current; Phase current over-load alarm; Over current recovery hysteresis width; Rated total power; Over total power alarm; Over power recovery hysteresis width; Mains Phase; Mains under volt; Revert under volt; Mains over volt; Revert over volt; Loss of Phase judgment;

f)Auto Battery Fail settings

NO	Parameter	Range***(defaults)***	Notes
1	ABF function enable	***0:Disable*** 1:Enable	After activating the ABF function, when in automatic mode, start the generator according to the starting conditions of the unit.
2	Unit startup conditions	0:Remote start valid 1:Low battery pack voltage 2:**Remote start is effective and battery pack voltage is low**	The conditions for starting the generator set after enabling the ABF function.
3	Unit shutdown conditions	0:Remote start invalid 1:Battery pack voltage is normal 2:**Remote start invalid or battery pack voltage normal**	The conditions for the generator set to stop after enabling the ABF function.
4	Upper limit of battery pack voltage	0.0-100.0V***(58.0V)***	When the battery pack voltage is higher than this set value, it is determined that the battery pack is full.
5	Lower limit of battery pack voltage	0.0-100.0V***(45.0V)***	When the battery pack voltage is lower than this set value, it is determined that the battery pack voltage is low.
6	Minimum charging time of battery pack	0-600min***(30min)***	When the battery voltage is low, the shortest time for the generator to start and charge the battery pack.
7	Maximum charging time of battery pack	1-6000min***(720min)***	When the battery voltage is low, the maximum time for the generator to start and charge the battery pack.

g)Configure Network

No	Parameter	Range***(defaults)***	Notes
1	ET communication configuration	0:Disable***/1:Enable***	Select whether to enable the ETHERNET interface.
2	Cloud monitoring settings	0:Disable***/1:Enable***	Select whether to enable the cloud monitoring function of the ETHERNET interface.
3	Network protocol selection	***1-TCP*** 2-UDP 3-SNMP	
4	TCPModbus settings	0:Disable***/1:Enable***	Set whether the ETHERNET interface is connected to the controller via PC software.

5	TCP/TARP Port	0-600***(502)***	TCP/IP Modbus server dedicated port number or SNMP TARP port number
6	DHCP Settings	0:Disable***/1:Enable***	0: Manual input; 1: Use automatic IP acquisition.
7	Local IP	0-255***(192.168.0.111)***	IP settings are for reference only
8	Subnet mask	0-255***(255.255.255.0)***	
9	Default gateway	0-255***(192.168.0.1)***	
10	DNS address	0-255***(192.168.0.1)***	
11	East and west warp settings	***0:East longitude*** 1:Wast longitude	Set East longitude or West longitude
12	Set longitude	0°-180°***(000.00000)***	Set GPS location and altitude information for cloud platform display.
13	North and south latitude setting	0:South latitude ***1:North latitude***	Set South latitude or North latitude
14	Set latitude	0°-90°***(000.00000)***	Set GPS location and altitude information for cloud platform display.
15	Altitude	0-9999m***(100.0m)***	
16	Running data upload interval	10-170S***(10)***	The interval between uploading data to the server while the generator is running.
17	Standby data upload interval	90-170S***(90)***	The interval between uploading data to the server while the generator is standby.

◆CAN Protocol Detailed Table

0.Disabled	**94.Isuzu Tier 4 Final**
1.J1939	**95.Isuzu Tier 4 Final DOC Only**
2.Cummins ISB	**96.Iveco EDC7C1**
3.Cummins-CM850	**97.Iveco EDC7UC31**
4.Cummins QSX15-CM570	**98.Iveco EDC62**
5.Cummins-CM850-PCC13X	**99.Iveco T3**
6.Cummins-DCEC-QSZ13	**100.JCB DCM3.3**
7.Cummins-CCEC-QSN	**101.JCB DCM7.24**
8.Perkins	**102.JCB DCM7.24 No SCR**
9.Perkins-1100	**103.John Deere**
10.Volvo	**104.John Deere iT4**
11.Volvo-EMS2	**105.John Deere T4f**
12.Volvo-EMS2b	**106.John Deere T4f CVT**
13.Volvo-EDC4	**107.John Deere T4f NoDPF**
14.Scania	**108.Kipor ECM**
15.Scania-kw2000	**109.Kipor V ECM**
16.Scania-kw2k-coo	**110.KOEL**
17.John Deere	**111.KOEL 6K**
18.mtu-ADEC	**112.KOEL HA2**
19.mtu-ADEC-SAM	**113.KOEL K4300**

20.mtu-ADEC-303	114.KOEL N
21.mtu-ADEC-304	115.Kohler HD
22.BOSCH	116.Kohler KDI Stage V
23.GTSC1	117.Kohler KDI Stage V SCR
24.MTSC1	118.Kohler T4f
25.YUCHAI-YCECU	119.Kohler T4f + DPFREGST
26.Y&C ENGINE-YC6K	120.Kohler T4f no DCU
27.WEICHAI-WISE15	121.Kohler T4f no SCR
28.CHANGCHAI-ECU15	122.Kubota ECU
29.YUCHAI-LMB	123.Kubota LSI
30.MAN	124.Kubota Stage V
31.J1939-C	125.Kubota T4f DOC Only
32.SDEC-H/D	126.Lombardini KDI
33.SDEC-E	127.Mahindra BS4
34.YTO	128.Mahindra N1
35.DEUTZ EMR2-2001	129.Mahindra NG
36.DEUTZ EMR2-2012	130.Mahindra NG A46
37.DEUTZ EMR3	131.MAN EDC17
38.DEUTZ EMR4	132.MAN MFR
39.NEVED-ECU13	133.MAXXFORCE
40.Cummins-CM2150	134.MTU ADEC
41.AgCo EEM4S5	135.MTU ECU8
42.Baudouin WISE10B	136.MTU ECU8 SAM
43.Baudouin Wise15	137.MTU ECU9
44.CAT A4E2	138.MWM16
45.CAT A4E2v2	139.Perkins 1300
46.CAT A4E2v3.1	140.Perkins 1600
47.CAT ADEM4	141.Perkins A4E2
48.CAT C3.4B T4f	142.Perkins A4E4 A5E2 Dual ECU T4F
49.Cummins CM558	143.Perkins A5E2
50.Cummins CM570	144.Perkins A5E2v2
51.Cummins CM570 Ind	145.Perkins A6E2
52.Cummins CM850	146.Perkins A6E2 EU3
53.Cummins CM2150E	147.Perkins A6E10
54.Cummins CM2250	148.Perkins A6E11
55.Cummins CM2350	149.Perkins ADEM3
56.Cummins CM2350 G-Drive Stage	150.Perkins ADEM4

57.Cummins CM2350 G-Drive T4f	151.Perkins EDC17C49
58.Cummins CM2350 Ind, Stage V	152.Perkins Generic T4F Dual ECU
59.Cummins CM2350 Ind	153.Powerlink Gas
60.Cummins CM2850	154.PowerLink Gas V1
61.Cummins CM2880 G-Drive	155.PowerLink Gas V2
62.Cummins CM2880 Ind	156.PSI 4G
63.Cummins QSZ	157.PSI IAT
64.Daimler CPC4	158.Scania E3
65.Detroit DDEC	159.Scania OCE
66.Deutz EMR2	160.Scania S6
67.Deutz EMR3	161.Scania S8
68.Deutz EMR4	162.Scania S8 Single
69.Deutz EMR4 CVT	163.Scania S8 Single-speed Stage V
70.Deutz EMR5	164.Scania S8 SS Stage V HEST
71.Doosan G2 Stage V	165.Siemens NG
72.Econtrols GCP	166.Sisu EEM3
73.FPT EDC7UC31 i T4	167.Volvo EDC3
74.FPT EDC17C49 T4B	168.Volvo EDC4
75.FPT EDC17CV41	169.Volvo EMS2
76.FPT MD1CE101	170.Volvo EMS2 VE
77.FPT MD1CE101 Tier3	171.Volvo EMS2.3
78.FPT MD1CS069	172.Volvo EMS2.3 VE
79.FPT MD1CS069 No SCR	173.Volvo EMS2.4
80.Generac STM Dual (SPTF-MotorT)	174.Volvo EMS2b
81.Generac STP Dua	175.Weichai Wise 15
82.Generic J1939	176.Weifu ECU
83.Generic Plus	177.Woodward SECM70
84.GM PSI	178.Yammar ECO
85.Hatz EDC17	179.Yanmar 4TN88G
86.Hatz EDC17 3K 1200 Idle	180.Yanmar T4F TNV
87.Hatz EDC17 SV	181.Yanmar TNV Stage V
88.Isuzu 4H	182.Yuchai ECU
89.IsuZu 4J	183.Yuchai ECU 1000rpm
90.Isuzu 4J T4f	184.Zenith ECU
91.Isuzu 4L	
92.Isuzu 6H	
93.Isuzu 6W	

13.Communication Ports

◆ETHERNET PORT

Ethernet is used for point-to-point cable connection of more than one device and allows for connection to PCs, PLCs, Building Management Systems and SNMP Managers (to name just a few devices)

MODBUS TCP

One advantage of the Ethernet interface is the ability to interface into an existing LAN (Local Area Network) connection for remote connection via an internet connection. This allows for a large distance between the module and a PC running the DC7xMR MK3 Configuration Suite software or any external device.The operator is then able to control the module, starting or stopping the engine, selecting operating modes, etc through various different means.

SNMP

The Ethernet port on the controller supports V2c of the Simple Network Management Protocol (SNMP) and is able to connect to two SNMP managers. SNMP is an international standard protocolfor managing devices on IP networks. It is used to monitor network-attached devices for conditions that warrant administrative attention.

Up to two administrative computers (SNMP managers) monitor the DC7xMR MK3 module. Should an "event" occur, the DC7xMR MK3 module reports information via SNMP TRAP messages to the SNMP manager. The SNMP TRAP messages that are sent are configured used the DC7xMR MK3 Configuration Suite PC Software by the system integrator.

Additionally, the DC7xMR MK3 module responds to GET / SET messages from the SNMP manager to allow the operating mode of the DC7xMR MK3 module to be changed, or instrumentation values to be retrieved. The SNMP manager knows how to communicate to the DC7xMR MK3 module by using the .MIB file provided by DC7xMR MK3.

Many third party SNMP managers exist. MEBAY do not produce or supply SNMP managers.

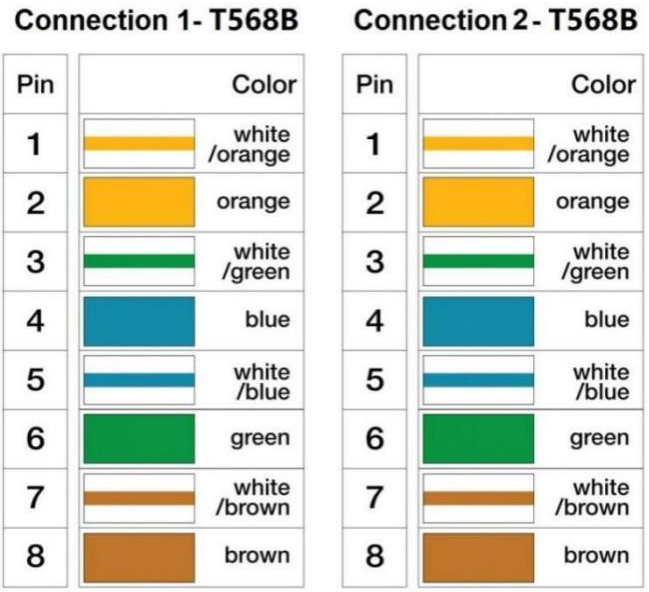
The DC7xMR MK3 MIB file for the controller is available upon request from the MEBAY Technical Support Department or by downloading it from the MEBAY website, http://www.mebay.cn

UDP

UDP has the disadvantage of not providing packet grouping, assembly and the inability to sort packets. UDP is fast because it does not have to establish a connection between the client and the server before transmitting the datagram and there are no mechanisms such as timeout retransmissions.

Ethernet Cable Wiring Detail

They can be purchased from any PC or IT store.



◆USB SLAVE PORT(Type-B)

The USB port is provided to give a simple means of connection between a PC and the controller. Using the DC7x MK3 Configuration Suite Software, the operator is then able to control the module, starting or stopping the engine, selecting operating modes, etc.

Additionally, the various operating parameters (such as coolant temperature, oil pressure, etc.) of the engine are available to be viewed or changed.

To connect a module to a PC by USB, the following items are required:

DC7x MK3 Controller

DC7x MK3 Configuration Suite PC Software

USB cable Type A to Type B.

(This is the same cable as often used between a PC and a USB printer)

◆RS485 PORT

The RS485 port on the controller supports the MODBUS RTU protocol and is for connection to a single MODBUS master device only.

RS485 is used for point-to-point cable connection of more than one device (maximum 32 devices) and allows for connection to PCs, PLCs and Building Management Systems.

One advantage of the RS485 interface is the large distance specification. The operator is then able to control the module, starting or stopping the engine, selecting operating modes, etc.

The various operating parameters (such as coolant temperature, oil pressure, etc.) of the remote engine are viewed or changed.

Many PCs are not fitted with an internal RS485 serial port. DOES NOT recommend the use of USB to RS485 convertors can recommend PC add-ons to provide the computer with an RS485port.

◆CAN PORT

NOTE: The CAN Port communication port is only applicable when the DC7x MK3 application is active on the DC7x MK3 module.

The modules are fitted with a CAN interface as standard and are capable of receiving engine data from engine ECU compliant with the CAN J1939 standard.

ECU monitor the engine"s operating parameters such as speed, oil pressure, coolant temperature (among others) in order to closely monitor and control the engine. The industry standard communications interface (CAN) transports data gathered by the engine"s ECU/ECM using the J1939 protocol. This allows engine controllers such as DC7x MK3 to access these engine parameters with no physical connection to the sensor device.

The ECU Port is used for point-to-point cable connection of more than one device and allows for connection to CAN Scanner, PLC and CAN controllers (to name just a few devices). The operator is then able to view the various operating parameters.

14.Fault finding

Symptoms	Possible Solutions
Controller no response with power	Check DC voltage. Check DC fuse. Check if the terminal 1 and 2 is with battery voltage.
Genset shutdown	Check the water/cylinder temperature is too high or not. Check the genset AC voltage. Check DC fuse.
Genset Emergency Stop	Check the emergency stop button. Check that the voltage of the controller's 3 feet to the ground should be the battery voltage. Check the controller connection.
Low oil pressure alarm	Check oil pressure sensor and its wiring. Check the oil pressure sensor type and controller settings must be consistent. Check whether the low oil pressure sensor is normal.
High temperature alarm	Check temperature sensor and its wiring. Check the temperature sensor type and controller settings must be consistent. Check whether the temperature sensor is normal.
Shutdown Alarm in running	Check related switch and its connections according to the information on LCD. Check AUX. INPUTs.
Fail to start	Check fuel return circuit and wiring. Check start battery. Consult engine manual.

Starter motor does not respond	Check the wiring to the starter. Check start battery.
Unit operation but ATS does not switch	Check the ATS. Check the cable between the controller and the ATS.
USB communication is abnormal	Check the USB connection. Check whether the USB port of the computer is normal. Check whether the USB driver is installed.
ECU cannot communicate normally	Check the connection; Check whether the H line and L line of the CAN are reversed; After adding a 120 ohm resistor between the HL of the controller CAN, try again; Check whether the ECU is normal.
Ethernet cannot connect to server	Check whether "ET Communication Settings", "Cloud Monitoring Settings", and "TCPModbus Settings" are enabled; Check whether the relevant network settings are correct;
Disconnect while connecting to host	Check that the controller screen status bar shows "ET is connected to the Internet". If the controller is only used for the intranet, you need to set "Network Configuration --> Cloud Monitoring Settings" to disable it.