

DC7xD series configuration and instructions

Ver1.7

1. Panel and display

◆ DC70D

















◆ DC72D



2. Operation

◆ Keys description

KEYS	NAME	Main Function
	Stop Reset Revert	<ul style="list-style-type: none"> ◆ 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 datas, the datas can be saved and system will exit after pressing.

	Start	<ul style="list-style-type: none"> ◆ Start the genset under manual mode. ◆ Pressing this key can start the genset under manual testing mode.
	Manual	<ul style="list-style-type: none"> ◆ Pressing this key will set the module into manual mode.
	Auto	<ul style="list-style-type: none"> ◆ Pressing this key will set the module into auto mode.
	DC70D Records	<ul style="list-style-type: none"> ◆ Pressing this key to check the alarm records under stop mode.
	DC72D Test	<ul style="list-style-type: none"> ◆ 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 well, which is to test if the auto start is in normal status.
	LED Test/ Warning clear	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Under manual mode, pressing this key can transfer load to genset/mains.
	Left	<ul style="list-style-type: none"> ◆ Under display mode, pressing this key to turn left page. ◆ Under edition mode, pressing this key to move the digit.
	Right	<ul style="list-style-type: none"> ◆ Under display mode, pressing this key to turn right page. ◆ Under edition mode, pressing this key to move the digit.
	Up	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Pressing OK and STOP simultaneously to come into setting mode
	DC72D Alarm Records checking	<ul style="list-style-type: none"> ◆ Pressing STOP and RIGHT to check the records and any buttons pressed to exit from the page.



◆ Alarm records checking


DC7XD controller can save 14 groups of alarm records which contains time, gens parameter, engine parameter and so on. How to check the alarm records:

1) Enter alarm record page:

a) DC70D: under stop mode, press  to come into alarm records page;

b) DC72D: 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

 to confirm the record and come into history records checking page.

3) Press  to turn lower records under records checking page. Press  to turn upper records and press






to revert back to alarm history records page.






4) Exit from records page: In the history records page and checking page, press  to exit;

3. Parameter setting

◆ Enter the edition page






Please set the parameters according to below steps:



1) In the stop mode, please  and  simultaneously, then loose  so that you can come to password interface, 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 not 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
1	Language	0-English 1-简体中文 2-繁体中文 3-español 4-русский	Language option.
2	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
3	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.
4	CT rate	5-6000A/5A(500A/5A)	Used for setting genset CT primary current, secondary rated current 5A.
5	Rated frequency	40.0-80.0Hz(50.0Hz)	Setting generator rated frequency to choose the meter range and calculate the alarm value.
6	Rated phase voltage	80-360V(230V)	Setting generator phase voltage to choose the meter range and calculate the alarm value.
7	Rated phase current	5-6000A(500A)	Setting generator phase current to choose the meter range and calculate the alarm value.
8	Rated total power	5-2000Kw (276Kw)	Set total power of generator to choose the meter range and calculate the average loading rate and alarm value.
9	Rated battery voltage	8.0-36.0V(24.0V)	Choose the meter range and calculate the alarm value.
10	Rated RPM	500-4500RPM(1500)	Choose the meter range and calculate the alarm value.
11	Flywheel teeth	0-300(0)	If the setting is 0, (RPM sensor Disabled), then RPM is resulted by Hz.
12	Oil pressure sensor	1:VDO 0-10Bar 2:MEBAY-003B	Choose the usual oil pressure sensor, if the sensor users choose is not the 9 types, it can be User-defined.

		3:SGH 4:SGD 5:SGX 6:CURTIS 7:DATCON 10Bar 8:VOLVO-EC 9:3015237 10:User-defined 11:GENCON 0-10BAR 12-15:Reserved	
13	Coolant temperature sensor	1:VDO 40-120 2:MEBAY-001B 3:SGH 4:SGD 5:SGX 6:CURTIS 7:DATCON 8:VOLVO-EC 9:3015238 10:PT100 11:MEBAY-Mier 12:User-defined 13: GENCON 120°C 14-15:Reserved	Choose the usual water temperature sensor, if the sensor users choose is not the 11 types, it can be User-defined.
14	Oil temperature sensor	0:From ECU 1:From analogue 1:VDO 40-120 2:MEBAY-001B 3:SGH 4:SGD 5:SGX 6:CURTIS 7:DATCON 8:VOLVO-EC 9:3015238 10:PT100 11:MEBAY-Mier 12:User-defined 13: GENCON 120°C 14-15:Reserved	Choose the usual oil temperature sensor, if the sensor users choose is not the 11 types, it can be User-defined.
15	Cylinder temperature sensor	1:MEBAY-Mier 2:PT100 3:User-defined 4-15: Reserved	If the sensor users choose is not the 2 types, it can be User-defined.
16	Genset box temperature sensor	1:MEBAY-Mier 2:PT100 3: User-defined 4-15:Reserved	If the sensor users choose is not the 2 types, it can be User-defined.
17	Fuel level sensor	1: SGH 2: SGD 3: MEBAY 150 4: User-defined 5: ZP61-10 6: VDO ohm range10-180 7: VDO TUBE TYPE 90-0 8: US ohm range240-33 9: GM ohm range 0-90 10: GM ohm range 0-30 Ford(73-10)	If the sensor users choose is not the 3 types, it can be User-defined.
18	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.
19	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.
20	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.
21	Action if low oil pressure	Warning Alarm and stop	If setting as warning,the programmable input 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.
22	Action if high water temperature	Warning Alarm and stop Alarm and stop after unloading	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.
23	Action if high oil temperature	Warning Alarm and stop Alarm and stop after unloading	If setting as warning:the programmable 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.
24	Action if high cylinder temperature	Warning Alarm and stop Alarm and stop after unloading	If setting as alarm and stop after unloading:the programmable 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.
25	Action if high genset box Temperature	Warning Alarm and stop Alarm and stop after unloading	
26	Action if oil pressure sensor disconnected	Disable Warning Alarm and stop	Action if oil pressure sensor disconnected.
27	Action if water temperature sensor disconnected	Disable Warning Alarm and stop	Action if Water temperature sensor disconnected.
28	Action if oil temperature sensor disconnected	Disable Warning Alarm and stop	Action if oil temperature sensor disconnected.
29	Action if cylinder temperature sensor disconnected	Disable Warning Alarm and stop	Action if cylinder temperature sensor disconnected.
30	Action if genset box temperature sensor disconnected	Disable Warning Alarm and stop	Action if genset box temperature sensor disconnected.
31	Action if fuel Level sensor disconnected	Disable Warning Alarm and stop	Action if Fuel level sensor disconnected.
32	Pressure/Temperature unit	°C/KPA °C/BAR °C/PSI F/KPA F/BAR F/PSI	Unit display.
33	Gens breaker checking	Disable Warning Alarm and stop	The according switch value input should be set as input checking terminal.
34	Mains breaker checking	Disable Warning Alarm and stop	The according switch value input should be set as input checking terminal.
35	Standby battery start condition	0.0V-60.0V(0.0V)	The genset will crank successfully when there is mains failure and ABF is lower than preset value. When it is set as 0 that ABF voltage can not be checked,then genset will be cranked once mains failure.(genset will be stopped once mains normal).

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	1.If there is no oil pressure sensor, please dont 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

		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+	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 10s, 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 ".

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 (DC7XD 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)	Emergency and over frequency alarm delay.
20	Normal alarm delay	2.0-20.0s(5.0s)	The alarm delay except for emergency stop and over 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 $T=t/((IA/IT) -1)^{A2}$.
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 $T=t/((IA/IT) -1)^{A2}$.
25	Transfer switch delay	0-3600.0s(5.0s)	The time from Mains to Gens.

26	Load / unload pulse width	1.0-10.0s(10.0s)	Mains and Gens loading and unloading pulse width, 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	Standby battery charging time	10-600min (600min)	When the standby battery charged well, the power input will be stopped.
31	Over phase current delay	0-3600.0s(1296s)	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.
32	Over total power delay	0-3600.0s(1296s)	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.

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°C (150 °C)	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°C (65 °C)	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°C (85 °C)	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.

6) Output/input setting

NO	Parameters	Range(defaults)	Notes
1	Programmable output 1	0-50 (25. E.S.T. hold)	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
2	Programmable output 2	0-50 (15.Idle speed control)	
3	Programmable output 3	0-50 (21.Gens loading)	
4	Programmable output 4	0-50 (43.Mains loading)	
5	Programmable output 5	0-50 (2.Public alarm output)	

		<p>time ends, then pre-oil supply stopped.</p> <p>12. Fuel output: output once gens starts and off till stable.</p> <p>13. Crank output: output once cranking, no output in other mode.</p> <p>14. Genset running:output under running,off once RPM is lower than cranking RPM. The crank success condition can be set.</p> <p>15. Idle speed control 1: used for speed controller, there is output under idle but no output under high speed.</p> <p>16. Speed-up control: there is output when coming into high speed warming up, which time is Longest RPM-up time.</p> <p>17. High speed control: The output is valid after idle delay is completed, and the output is closed after high-speed heat dissipation.</p> <p>18. Excitation output: there is output during cranking procession and there is 2s output if there is no frequency under high speed status.</p> <p>19. Rated running: there is output under rated running.</p> <p>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.</p> <p>21. Gens load: continuous or pulse type according to time setting.</p> <p>22. Gens unload: continuous or pulse type according to time setting.</p> <p>23. Public un/loading: continuous(loading) or unloading.</p> <p>24. Speed-down control: the output time is shutdown idle delay during shutdown idle or shutdown on power procession.</p> <p>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.</p> <p>26. System in stop: there is output under stop mode.</p> <p>27. System in manual: there is output under manual mode.</p> <p>28. System in test: there is output under test mode(not for DC70D).</p> <p>29. System in auto: there is output under auto mode.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
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			<p>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.</p> <p>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.</p> <p>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 DC70D.</p> <p>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 DC70D.</p> <p>43. Mains loading: continuous or pulse type according to time setting. Not for DC70D.</p> <p>44. Mains unloading: continuous or pulse type according to time setting. Not for DC70D .</p> <p>45. ECU power: apply to electrical ECU engine,used for control ECU power.</p> <p>46. ECU stop: apply to electrical ECU engine,used for control ECU shutdown.</p> <p>47. ECU warning: there is a warn signal from ECU.</p> <p>48. ECU alarm: there is an alarm signal from ECU.</p> <p>49. ECU communication failure: Cannot communicate with ECU.</p> <p>50. Pulse speed up output:the pulse shall be sent out in the interval of “Pulse speed up delay” under speed –up.</p> <p>51. Pulse speed down output: the pulse shall be sent out in the interval of “Pulse speed down delay” under stop idle speed.</p> <p>52. Over speed output: the relay shall output after overspeed/over frequency alarms.</p> <p>53. Low oil pressure alarm: the relay shall output after low oil pressure sensor/switch alarms.</p> <p>54. High water temperature alarm: the relay shall output after high water temperature sensor/switch alarms.</p> <p>55. High oil temperature alarm: the relay shall output after high oil temperature sensor/switch alarms</p> <p>56. Idle speed control 2: used for speed controller, there is output under idle but no output under high speed.</p>
6	Configurable input 1	0-37(2.High temperature alarm) <i>water</i>	0. Disable.
7	Configurable input 2	0-37(Low oil pressure switch)	1. Low oil pressure alarm switch.
8	Configurable input 3	0-37 (33.Remote start)	2. High water temperature alarm switch.
9	Configurable input 4	0-37(8.Low Fuel level warning input)	3. High oil temperature alarm switch.
10	Configurable input 5	0-37(6.Low water level alarm input)	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.

			<p>16. High cylinder temperature shutdown disabled: valid if there is signal input</p> <p>17. High genset box temperature shutdown disabled: valid if there is signal input.</p> <p>18. External instant warning input.</p> <p>19. External instant alarm input.</p> <p>20. External instant unloading shutdown disabled: the gens loading will transfer unloading if there is signal input.</p> <p>21. External instant unloading shutdown: the gens loading will transfer unloading and shutdown.</p> <p>22. Gens un/loading input: connect to the gens loading switches auxiliary point.</p> <p>23. Mains un/loading input: connect to auxiliary point of mains loading switch.(not for DC72D).</p> <p>24. Louver status input.</p> <p>25. Auto start disabled: gens will not start if there is signal input whatever mains normal or not.</p> <p>26. Auto stop disabled: gens will not stop if there is signal input whatever mains normal or not.</p> <p>27. V+ active relay.</p> <p>28. V- active relay.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>33. Remote start(with load): the gens comes into start procession if this signal is valid and under auto mode.</p> <p>34. Soundproof alarm: audio alarm output is disabled if there is signal output.</p> <p>35. Front face button disabled: any button except for page button is disabled if there is signal output.</p> <p>36. Meter mode: all output are disabled, alarm and warns are invalid. any button except for page button is disabled.</p> <p>37. Remote control mode: any button except for page button is disabled if the input is valid, LCD will display remote mode.remote control module can start/stop and monitor parameters through front face buttons.</p>
11	Programmable sensor 1	0-6(2. Water temperature sensor)	<p>0. Disable.</p> <p>1. Oil pressure.</p> <p>2. Water temperature.</p> <p>3. Oil temperature.</p> <p>4. Cylinder temperature.</p> <p>5. Genset box temperature.</p> <p>6. Fuel level.</p>
12	Programmable sensor 2	0-6 (1. Oil pressure sensor)	
13	Programmable sensor 3	0-6(0. Disable)	
14	Programmable sensor 4	0-6(0. Disable)	<p> Note: every sensor input can be set as same function.(oil pressure, fuel level warns and alarm will</p>

			<i>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.)</i>
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7) Working plan and maintenance 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 1 st to 31 st Default: the first day	The date chosen for every month.
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 protection

No	Parameter	Range(defaults)	Notes
1	Phase	Disable 1 Phase 2 Wire 2 Phase 3 Wire 3 Phase 3 Wire 3 Phase 4 Wire	Choose the input, there is no display if setting as disable.
2	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.
3	Revert under volt	55-330V(207V)	
4	Mains over volt	55-330V(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.
5	Revert over volt	55-330V(253V)	
6	Mains normal delay	0.0-3600.0S(10.0s)	The time from abnormal to normal, which is used for ATS transfer.
7	Mains abnormal delay	0.0-3600.0S(5.0s)	

9) LCD setting

No	Parameter	Range(defaults)	Notes
1	Start screen display time	0-20.0s(5.0s)	Start screen display time,0: No-display.
2	Lightness of LCD	20-100%(50%)	Lightness adjustment.
3	LCD comparison	20-100%(100%)	LCD comparison adjustment.
4	Back lightness	20-100%(80%)	Back lightness adjustment.
5	Saving mode	5.0-200.0s(200.0s)	LCD light will be closed automatically without any button pressed after delay.If setting as 200.0s, back light always lighted.
6	Homing display	5.0-600.0s(60.0s)	The time when the page reverts back to the home page .If setting as 600.0s:disable.
7	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.

10) USB/485 PORT

No	Parameter	Range(default)	Notes
1	Controller ID	1-255(16)	The IP built by controller and PC.
2	485 baud rate	0-4800 1-9600 2-19200 3-38400 4-57600 5-115200	RS485 communication baud rate selection.
3	485 CRC setting	0-CRC L_H 1-CRC H_L	Sequence selection of RS485 communication protocol CRC;

11) CAN communication

NO	Parameter	Range(default)	Notes
1	CAN failure	Warn/ Alarm/ Disable	ECU communication failure.

2	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:Volvo-EMS2 12:Volvo-EMS2b 13:Volvo-EDC4 14:Scania 15:Scania-kw2000 16:Scania-kw2k-coo 17:John Deere 18:mtu-ADEC 19:mtu-ADEC-SAM 20:mtu-ADEC-303 21:mtu-ADEC-304 22:BOSCH 23:GTSC1 24:MTSC1 25:YUCHAI-YCECU 26:Y&C ENGINE-YC6K 27:WEICHAI-WISE15 28:CHANGCHAI-ECU15 29:YUCHAI-LMB 30:MAN 31:J1939-C 32:SDEC-H/D 33:SDEC-E 34:YTO 35:DEUTZ EMR2-2001 36:DEUTZ EMR2-2012 37:DEUTZ EMR3 38:DEUTZ EMR4	CAN protocol Option : the Engine parameters like RPM, oil pressure, water temperature are all from ECU data after choosing the relative protocol.
3	ECU warning	Disable/ Enable	ECU warnings enable.
4	ECU alarm	Disable/ Enable	ECU alarms enable.
5	Mask SPN	00000000	Up to 12 sets of alarm codes can be input, and the controller will not respond to the input alarm codes.
6	ECU idle	500-3000RPM(750RPM)	Set the speed when idling. Only the ECU that supports speed control is effective.
7	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.

12) working plan

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.

13) Data/time setting

No	Parameter	Range(defaults)	Notes
1	Date/Time	2016/01/01-2099/12/31	Permanent calendar inside, please correct the time timely.
2	Current time	00:00:00-23:59:59	Permanent calendar inside, please correct the time timely.

14) Self-define curve

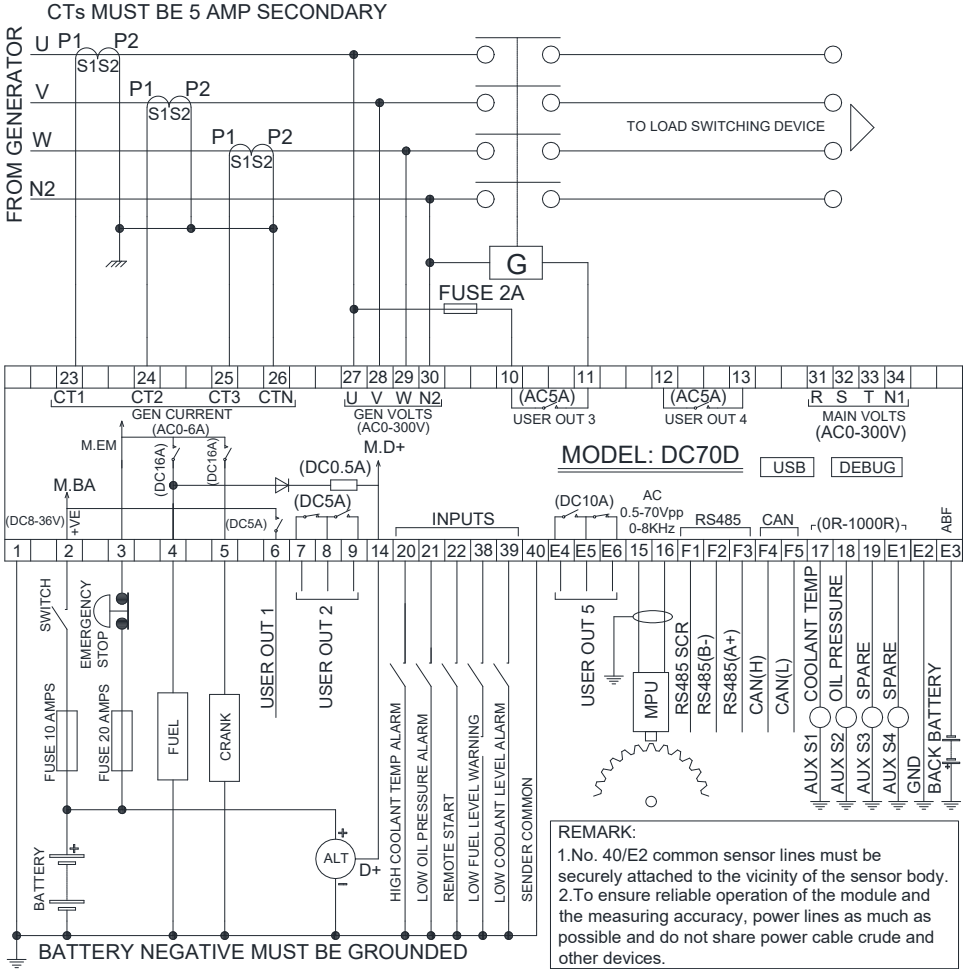
NO	Parameter	Notes
1	Self-define oil pressure curve	Sensor curve can be User-defined by panel buttons, resistance and according value should be input,MAX 15 groups ,MIN 2 groups.
2	Self-define water temperature curve	
3	Self-define oil temperature curve	

4	Self-define cylinder temperature curve
5	Self-define genset box temperature curve
6	Self-define fuel level curve

Rule: resistance should be input from small to large.

4. Typical diagram

◆ DC70D 3 phase 4 wire diagram

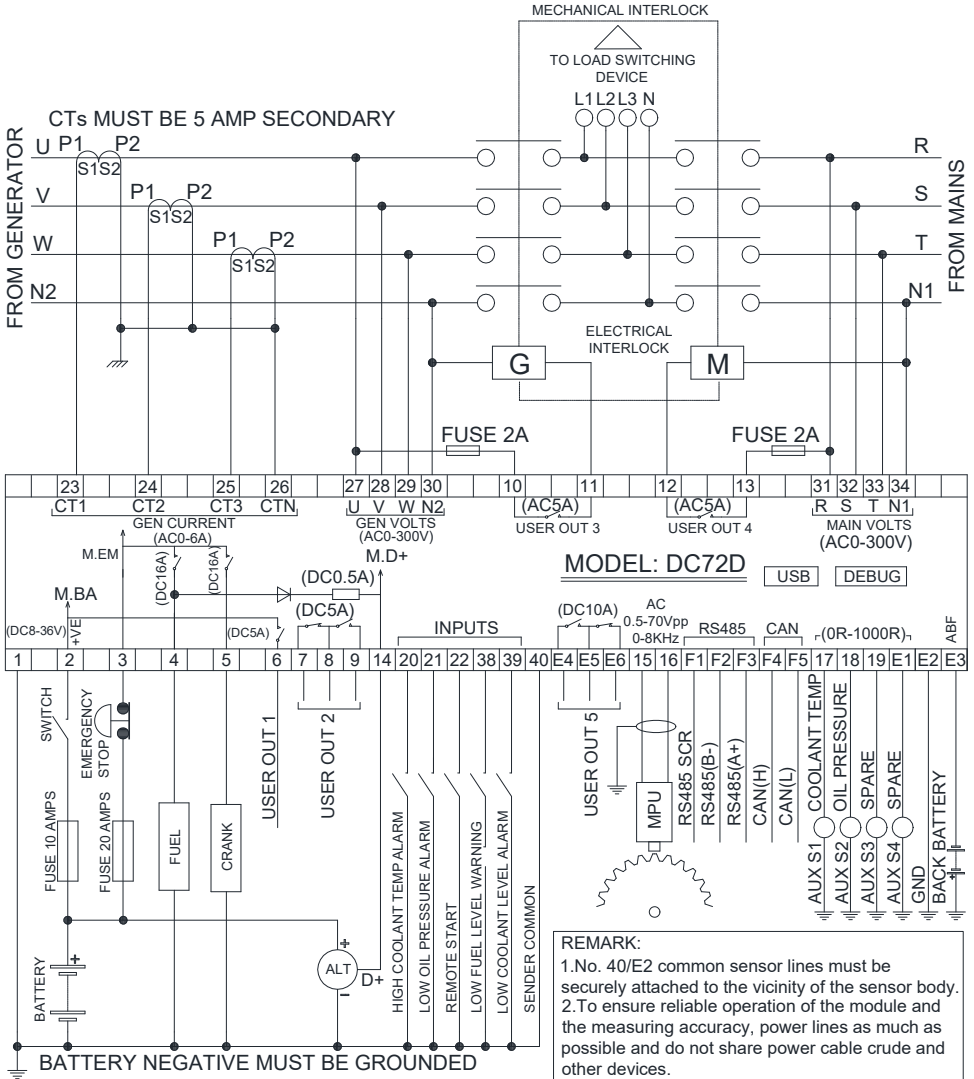


DIMENSIONS

210×160×50mm(8.27" ×6.3" ×1.97")

PANEL CUTOUT

186×142mm(7.32"×5.59")



Notes:

1. Please don't move battery during running status or it may cause the controller broken.
2. The CT public terminal ICOM should connect to public ground, on the mean time, please don't connect to Line Nero, or the controller may be burnt.

Warning: the secondary CT can not be opened under current loading, or the high voltage may cause damage and safety problem for workers.

Notes:

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