This content is intended for quick guidance and supplement to the user who is using GEC6100 controller. You can read the standard manual for more details.

GEC6110/6120 described below:

Type	Description
GEC6110	Automatic start module，it controls generator to start/stop by remote start/stop signals.
GEC6120	Based on GEC6110 and add mains AC monitoring, mains/gens automatic switch control function (AMF).

1. KEY FUNCTION DESCRIPTION

	Stop	Can stop generator under **Manual** / **Auto** mode; During stopping process, pressing this key again can stop the generator immediately.
	Start	Start Engine under **Manual** or **TEST/OBD** mode.
	Manual	Pressing this key will set the module as **Manual** mode;
	Auto	Pressing this key will set the module as **Auto** mode;
	TEST/OBD	Pressing this key will set the module as **TEST/OBD** mode; Press  under **TEST/OBD** Mode,Engine will enter manual testing mode and run automatically with load when engine normal.(GEC6110 without TEST function)
	Menu	press  and  to enter the setting menu.Again pressing this key can return main interface. Scroll screen in main interface.
	Conform/Reset	Move cursor and conform in setting menu; Reset alarm message.
	Up	Scroll the screen up Increase value in setting menu.
	Down	Scroll the screen down Decrease value in setting menu.
	Gens Close/Open	Can control gens to switch on or off in Manual mode.

C/O	Mains Close/Open	Can control mains to switch on or off in Manual mode.(GEC6110 without this key)

2. CONTROLLER DIMENSION

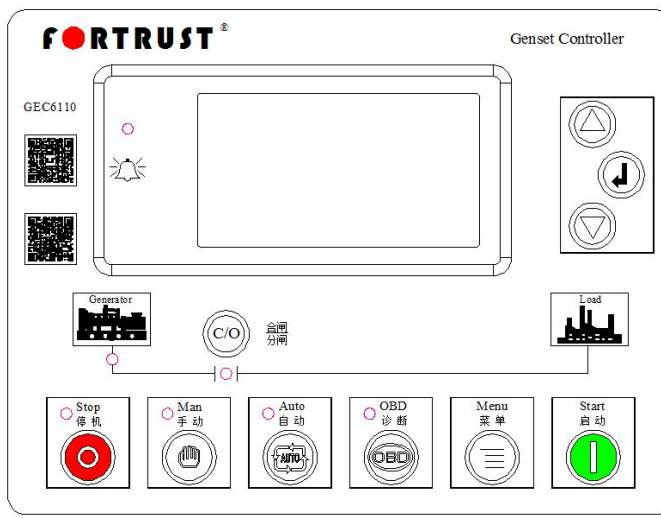
Over Dimension	Panel Cutout
197mm×152mm×51mm	185mm×139mm

3. POWER SUPPLY

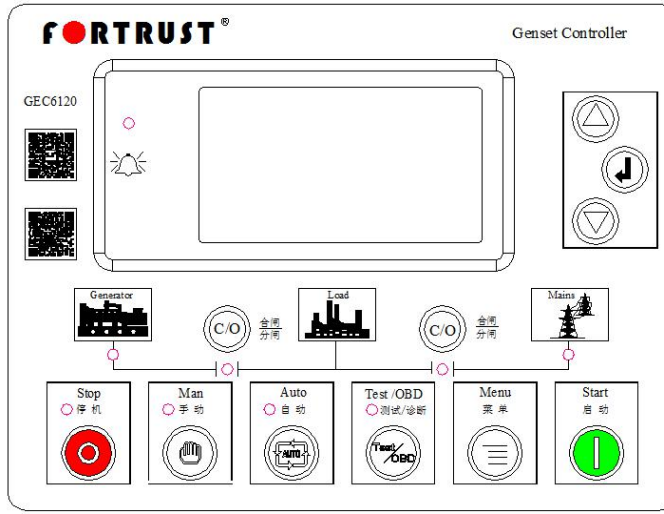
Working Voltage	Power Consumption
DC8.0V to DC35.0V, continuous	<3W(Standby mode: ≤2W)

4. PANEL INDICATORS DESCRIPTION

GEC6110



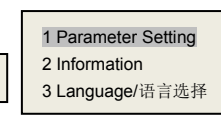
GEC6120



5. PARAMETER EDITING

After controller powered on，press and simultaneously to enter the parameter setting menu. The setup steps are as follows：

Fig 1



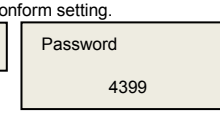
1） Press and simultaneously to enter selection menu, and choose 1(see Fig 1);

2） Press to enter parameter configuration password conform interface(see Fig 2);
(when 4399 is input, all the parameters can be set.)

3） Press or key to increase or decrease values, press key to shift cursor and conform setting.

4） If password is correct, enter parameter interface. Press or to choose parameter items. Press to enter current parameter setting menu.

Fig 2



5） If parameter is in the range, the setting can be saved in internal flash of controller. If out of range, it can't be saved.

Note: Pressing at any time can exit the editor and return to main menu, and pressing in main interface can scroll pages.

6. PARAMETER RANGE AND DEFINITION

No.	Items	Ranges	Default	Description
1	Mains Normal Delay	(0-3600)S	10	The delay from abnormal to normal or from normal to abnormal. It is used for ATS (automatic transfer switch) control.
2	Mains Abnormal Delay	(0-3600)S	3	
3	Mains Under Voltage	(30-360)V	184	When mains voltage has fallen below the set value, mains under voltage active. If the set value is 30, mains under voltage disabled.
4	Mains Over Voltage	(30-360)V	276	When mains voltage has exceeded the set value, mains over voltage active. If the set value is 360V, mains over voltage disabled.

No.	Items	Ranges	Default	Description
5	Transfer Rest Time	(0-99.9)S	1.0	The delay from mains open to generator closed or from generator open to mains closed.
6	Bat.vol Select	(0-1)	1	0 : 12V 1 : 24V
7	Flywheel Teeth	(0-300)	118	Tooth number of the engine, it can detect engine speed.
8	Gens Rate Spd	(0-4000) RPM	1500	Set the engine rated speed to compute the under-speed and over-speed values.
9	Temperature High	(80-140)℃	95	**Sensor And Harness Fault :** OBD diagnostic prompt (tool-tip), no stop. Temperature High: Sound Alarm(Buzzer ringing), Light alarm(Twinkle) Press Reset(muting) : yowl—>halt Twinkle—>Stable Press Reset Again:If Fault exists,the alarm lamp work,else not work. **Temperature Over High :** About protection When the value is 140, over high temp alarm won't be sent. (only suited for temperature sensor, except for high temp. High temp alarm signal inputted by programmable input port)
10	Temperature HHigh	(80-140)℃	98	
11	Temperature HH Act	(0-1)	1	0 : NOT STOP 1 : STOP
12	OP Low	(0-400)k Pa	150	**Sensor And Harness Fault** : OBD diagnostic prompt (tool-tip), no stop. **OP Low**: Sound Alarm(Buzzer ringing), Light alarm(Twinkle) Press Reset(muting) : yowl—>halt Twinkle—>Stable Press Reset Again:If Fault exists,the alarm lamp work,else not work **OP Very Low**: About Protection When the value is 0, low oil pressure alarm won't be sent. (It is suited for oil pressure sensor, except for low oil pressure alarm signal inputted by programmable input port)
13	OP Very Low	(0-400)k Pa	100	
14	OP Very Low Act	(0-1)	1	0 : NOT STOP 1 : STOP

No.	Items	Ranges	Default	Description
15	Select temp curve	(0-10)	2	0 None 1 User Defined 2 VDO 3 SGH 4 SGD 5 CURTIS 6 DATCON 7 VOLVO-EC 8 SGX 9 PT100 10 Euro III (Special Custom)
16	Select Press curve	(0-10)	2	0 None 1 User Defined 2 VDO 10BAR 3 SGH 4 SGD 5 CURTIS 6 DATCON 10BAR 7 VOLVO-EC 8 SGX 9 Reserve 10 Euro III (Special Custom)
17	Select Level curve	(0-3)	3	0：None 1：User defined 2：SGH 3：SGD
18	Gens Rate L-N	(30-600)V	400	To offer standards for detecting of gens' over/under voltage.
19	Gens Rate Freq	(0-500) HZ	50	To offer standards for detecting of over/under/load frequency.
20	Generator Poles	(2-32)	4	Number of magnetic poles, used for calculating rotating speed of generator without speed sensor(speed=120× frequency / poles).
21	CT Rate	(5-6000)/5	500	Current transformer rate (500/5)
22	Full load current	(5-6000)A	500	Rated current of generator, used for calculating over load current.
23	C/O Fail alarm sel	(0-1)	0	0：Not Alarm 1：Alarm
24	Output 1 set	(0-17)	1	Default: Common Alarm Refer to Table 1
25	Output 2 set	(0-17)	3	Default: Idle Control Refer to Table 1
26	Output 3 set	(0-17)	5	Default: Close Gen Refer to Table 1
27	Output 4 set	(0-17)	6	Default: Close Mains Refer to Table 1
28	Digit input 1 set	(0-15)	1	Default: High Temp Input Refer to Table 2
29	Digit input 1 act	(0-1)	0	Default : Close 0：Close 1：Open
30	Digit input 1 delay	(0-20.0)s	2.0	Time from detecting active to confirm
31	Digit input 2 set	(0-15)	2	Default : Low Pressure Input Refer to Table 2
32	Digit input 2 act	(0-1)	0	Default : Close 0：Close 1：Open
33	Digit input 2 delay	(0-20.0)s	2.0	Time from detecting active to confirm
34	Digit input 3 set	(0-15)	10	Default : Remote Start Refer to Table 2

No.	Items	Ranges	Default	Description
35	Digit input 3 act	(0-1)	0	Default : Close 0 : Close 1 : Open
36	Digit input 3 delay	(0-20.0)s	2.0	Time from detecting active to confirm
37	Digit input 4 set	(0-15)	11	Default : Fuel Level Warn Refer to Table 2
38	Digit input 4 act	(0-1)	0	Default : Close 0 : Close 1 : Open
39	Digit input 4 delay	(0-20.0)s	2.0	Time from detecting active to confirm
40	Digit input 5 set	(0-15)	12	Default : Coolant Level Warn Refer to Table 2
41	Digit input 5 act	(0-1)	0	Default : Close 0 : Close 1 : Open
42	Digit input 5 delay	(0-20.0)s	2.0	Time from detecting active to confirm
43	Digit input 6 set	(0-15)	6	Default : Gens Closed Input Refer to Table 2
44	Digit input 6 act	(0-1)	0	Default : Close 0 : Close 1 : Open
45	Digit input 6 delay	(0-20.0)s	2.0	Time from detecting active to confirm
46	Digit input 7 set	(0-15)	7	Default : Mains Closed Input Refer to Table 2
47	Digit input 7 act	(0-1)	0	Default : Close 0 : Close 1 : Open
48	Digit input 7 delay	(0-20.0)s	2.0	Time from detecting active to confirm
49	Digit input 8 set	(0-15)	4	Default : Shutdown Input Refer to Table 2
50	Digit input 8 act	(0-1)	0	Default : Close 0 : Close 1 : Open
51	Digit input 8 delay	(0-20.0)s	0	Time from detecting active to confirm
52	Number of Crank	(0-1) times	0	0 : 3 num 1 : 6 num
53	Cranking time	(3-60)S	8	Time of starter power up each time.
54	Crank rest time	(3-60)S	8	The waiting time before next crank when engine start fall.
55	Preheat Time	(0-300)S	0	Power-on time of heater before starter is powered on.
56	Start Idle Time	(0-3600)S	6	Idle running time of gen-set when starting.
57	Warming Up Time	(3-3600)S	8	Warm-up time between high speed and gen-set switch on.
58	Cooling Time	(3-3600)S	4	Gen-set cooling time between generator unloading and stop idle.
59	Stop idle time	(0-3600)S	6	Idle running time before gen-set stop.
60	ETS solenoid hold	(0-120)S	10	ETS solenoid's power-on time when gen-set is stopping.
61	ATS close time	(0-10)S	5.0	The switch of mains or generator closing pulse width, when it is 0, output is continuous.
62	GenVolt AbnormTime	0-20.0S	10.0	Over or under voltage delay.
63	Gens Under Voltage	-(0-50) %	15%	If generator voltage has fallen below the set value for some time,the generator is in under voltage . It will initiate a shutdown alarm.If the value is 0%, Gen-set under voltage alarm won't be sent.
64	Gens Over Voltage	+(0-50) %	15%	If generator voltage has exceeded the set value for some time,the generator is in over voltage. It will initiate a shutdown alarm. If the value is 50%, Gen-set over voltage alarm won't be sent.
65	Over Current	+(0-50)%	20%	When the controller detects that the Gen-set current has exceeded the set value, it will initiate a warning alarm.
66	Over Current Delay	(0-3600)S	900	When the over current has exceeded the set value for some time, it will initiate an action signal of "OverCurrent Action"(it can be set in No. 67) .

No.	Items	Ranges	Default	Description
67	Over Current Act	(0-1)	1	0：Not Open 1：Open
68	Gens under freq	-(0-100) %	10%	When the frequency of generator has fallen below the set value(Rated frequency * (1-10%)), alarm signal is sent without stopping.
69	Gens over freq	+(0-100) %	15%	When the frequency of generator has exceeded the set value(Rated frequency * (1+15%)), the generator is in over frequency.It'll initiate an over frequency shutdown alarm.
70	Under speed	-(0-100) %	10%	When the engine speed has fallen below the set value(Rated Speed * (1-10%)), alarm signal and switch signal is sent.
71	Over speed	+(0-100)%	15%	When the engine speed has exceeded the set value (Rated Speed * (1+15%)),shutdown alarm signal is sent.
72	Charge fail Voltage	(30-80)V	60	During generator is running, when charge alternator WL/D+ voltage has exceeded this point and remain for some time, it will initiate a warning alarm.
73	Fuel low	-(0-100)%	10	When the controller detects that the fuel level has fallen below the set value, it will initiate a warning alarm.
74	Fuel pump on	(0-50)%	25	When the fuel level has fallen below the set value for some time, send a signal to open fuel pump.
75	Fuel pump off	(50-100)%	80	When the fuel level has exceeded the set value for some time,send a signal to close fuel pump.
76	Module power on	(0-3)	0	0：STOP Mode 1：Manual Mode 2：Auto Mode 3：Test/OBD mode
77	Password Set	(0-9999)	4399	Inputting correct password can enter the settings menu.
78	Crank Disconnect	(0-1)	1	0: No Speed. 1: Speed
79	Speed Disconnect	(0-3000)RPM	400	When engine speed has exceeded the set value, starter will disconnect.
80	Select AC system	(0-2)	0	0: 3 Phase 4 Wire; 1: 3 Phase 3 Wire; 2: Single Phase;
81	Adj LCD Contrast	(30-63)	48	Set LCD contrast.
82	Defined curve set	(0-2)	2	0: Defined Temp. Sensor ; 1: Defined Pressure. Sensor ; 2: Defined liquid Level Sensor. Select the sensors,and input 8dot with Resistance values and corresponding values.
83	Engine Type Select	(0-5)	0	0：Common Gens 1：J1939 2：BOSCH 3：Reserve 4：Reserve 5：Reserve
84	The machine address	(1-254)	1	The address of controller, Power-off restart if it changed.
85	Address obtainMethod	(0-1)	1	0：Auto 1：Input

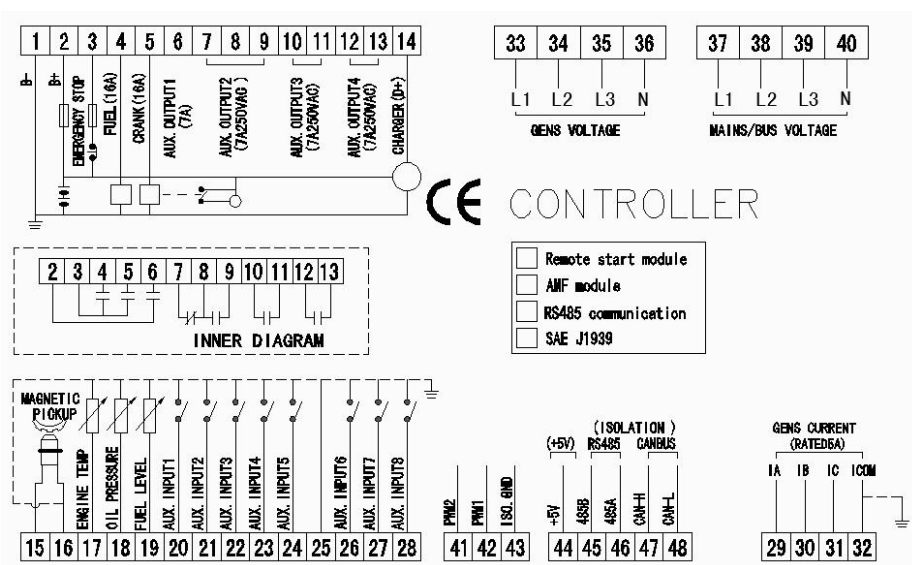
Table 1 PROGRAMMABLE OUTPUT OPTIONS

No.	Items	No.	Items
0	Not Used	1	Common Alarm
2	Energised To Stop	3	Idle Control
4	Preheat Control	5	Close Gens
6	Close Main	7	Open ATS
8	Raise Speed	9	Drop Speed
10	Generator run	11	Fuel Pump Control
12	High Speed Control	13	In Auto Mode
14	Shutdown Alarm	15	Reserve
16	Reserve	17	Reserve

Table 2 PROGRAMMABLE INPUT OPTIONS

No.	Items	No.	Items
0	Not Used	1	High Temp Input
2	Low Pressure Input	3	Warn Input
4	Shutdown Input	5	WTH Stop By Cool
6	Gens Closed Input	7	Mains Closed Input
8	Inhibit WTH Stop	9	Inhibit OPL Stop
10	Remote Strart	11	Fuel Level Warn
12	Coolant Level Warn	13	Fuel Level Shutdown
14	Coolant Level Shut	15	Inhibit Start Auto

7.Controller port definition

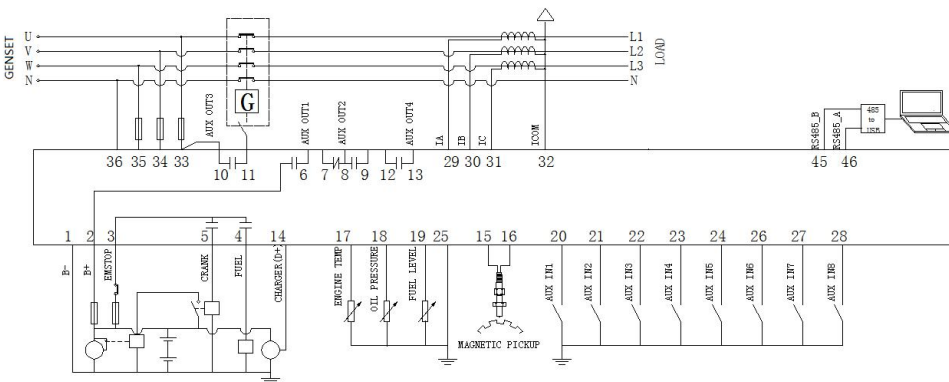


No	Terminal	Cable size	Description
1	B-	2.5 mm²	Connect to negative of battery
2	B+	2.5 mm²	Connected to positive of starter battery. If wire length is over 30m, better to double wires in parallel. Max. 20A fuse is recommended.
3	Emergency Stop	2.5 mm²	Connected to B+ via emergency stop button.
4	Fuel Relay Output	1.5 mm²	B+ is supplied by 3 points, rated 16A
5	Start Relay Output	1.5 mm²	B+ is supplied by 3 points, rated 16A Connect to starter coil
6	Aux. Relay Output 1	1.5 mm²	B+ is supplied by 2 points, rated 7A
7	Aux. Relay Output 2	1.5 mm²	Normal close output, 7 A rated.
8			Relay common port
9			Normal open output, 7 A rated.
10	Aux. Relay Output 3	1.5 mm²	Relay normal open volt-free contact output 16 A rated
11			
12	Aux. Relay Output 4	1.5 mm²	Relay normal open volt-free contact output 16 A rated
13			
14	Charging Generator D+ Input	1.0 mm²	Connect to D+ (WL) terminal. If without, the terminal is not connected.
15	Speed +	0.5 mm²	Connected to Speed sensor, shielding line is recommended.
16	Speed -		
17	Temp. Sensor Input	1.0 mm²	Connect to water /cylinder temp. resistance type sensor.(resistance)
18	Oil Pressure Sensor Input	1.0 mm²	Connect to oil pressure resistance type sensor.(resistance)
19	Liquid Level Sensor Input	1.0 mm²	Connect to liquid level resistance type sensor.(resistance)
20	Aux.Input 1	1.0 mm²	Ground connected is active (B-).
21	Aux.Input 2	1.0 mm²	Ground connected is active (B-).
22	Aux.Input 3	1.0 mm²	Ground connected is active (B-).
23	Aux.Input 4	1.0 mm²	Ground connected is active (B-).
24	Aux.Input 5	1.0 mm²	Ground connected is active (B-).
25	Sensor Common	1.0 mm²	Sensor common port.
26	Aux.Input 6	1.0 mm²	Ground connected is active (B-).
27	Aux.Input 7	1.0 mm²	Ground connected is active (B-).
28	Aux.Input 8	1.0 mm²	Ground connected is active (B-).
29	Current IA	1.5 mm²	Connect secondary coil, rated 5A.
30	Current IB	1.5 mm²	Connect secondary coil, rated 5A.
31	Current IC	1.5 mm²	Connect secondary coil, rated 5A.
32	Current COM	1.5 mm²	See INSTALLATION in this manual.
33	Gen AC Volt L1	1.0 mm²	Connected to U-phase of generator (2A fuse is recommended).
34	Gen AC Volt L2	1.0 mm²	Connected to V-phase of generator (2A fuse is recommended).
35	Gen AC Volt L3	1.0 mm²	Connected to W-phase of generator (2A fuse is recommended).
36	Gen AC Volt N	1.0 mm²	Connected to N-wire of generator.
37	Mains AC Volt L1	1.0 mm²	Connect to mains L1 phase(2A fuse is recommended) GEC6110

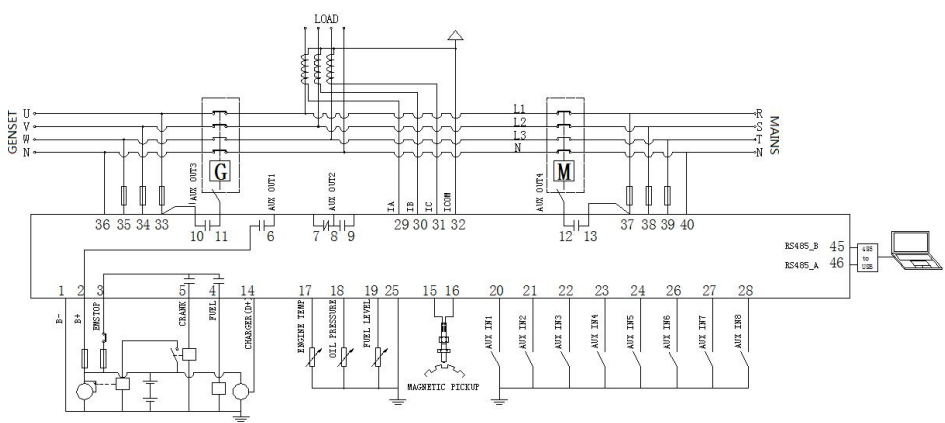
			without.
38	Mains AC Volt L2	1.0 mm²	Connect to mains L2 phase(2A fuse is recommended) GEC6110 without
39	Mains AC Volt L3	1.0 mm²	Connect to mains L3 phase(2A fuse is recommended) GEC6110 without
40	Mains AC Volt N	1.0 mm²	Connect to mains N-wire,GEC6110 without.

8.TYPICAL APPLICATION

GEC6110



GEC6120



Note ：

1、 Recommend that the stop control port and the output of crank and fuel must be expand high capacity relay.

2、 For “Emergency Stop”, the normally closed contacts can be connected to the fuel oil and the crank output circuits.Emergency stop warning can be showed ,if the normally opened contacts connected to the input port which configured as emergency stop signal input.

3、 Open circuit is inhibited in the CT secondary side. And ICOM must be connected to protective earth.

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