

GEC6110D/6120D

发电机组控制器 安装操作说明 V1.2



上海孚创动力电器有限公司

SHANGHAI FORTRUST POWER ELECTRIC CO., LTD.

本说明资料为使用 GEC6100D 系列控制器时提供快速操作指引，详细请参阅标准使用说明。

GEC6100D 系列有两种型号如下所述： 两种型号如下所述：

型 号	功 能
GEC6110D	用于单机自动化，通过远端开信号控制发电机组启停。
GEC6120D	在 GEC6110D 基础上增加了市电量监测和市电/发电自动切换控制功能 (AMF)。

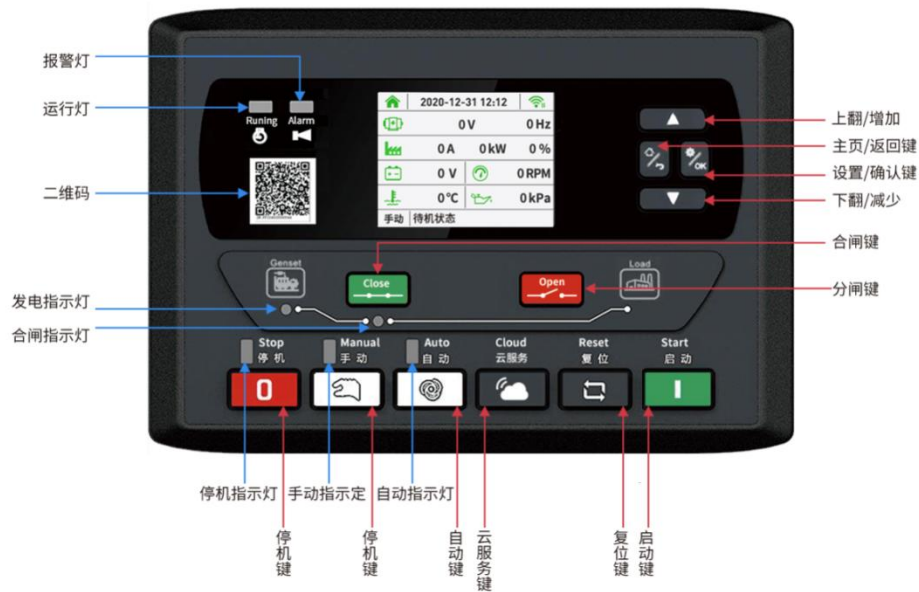
1. 按键功能描述

	停机键	在手动 / 自动模式下，均可以使运转中的发动机停止。 在停机过程中，再次按下此键，可快速停机。
	启动键	在手动模式下，按下此键可以使静止的发电机组开始启动。
	手动键	按下此键，可以将控制器置于手动模式，手动指示灯亮。
	自动键	按下此键，可以将控制器置于自动模式，自动指示灯亮。
	合分闸键	在手动模式下，按下此键，可控制开关合分闸。 注:该按键适合于 GEC6120D。
	合闸键	在手动模式下，按下此键，可控制开关合闸。 注： 该按键适合于 GEC6110D 。
	分闸键	在手动模式下，按下此键，可控制开关分闸。 注:该按键适合于 GEC6110D 。
	设置/确认键	按下此键进入设置菜单列表界面，在参数设置中移动光标及确认设置信息。
	上翻/增加	触屏，在设置中向上移动光标及增加光标所在位的数字。
	下翻/减少	触屏，在设置中向下移动光标及减少光标所在位的数字。
	主页/返回键	在主界面按下此键返回到主页，在参数设置界面按下此键退出参数设置。
	复位键	在报警状态下，报警灯亮，屏幕第六行显示报警，按此键可以复位，屏幕报警显示条消失；若故障还存在，屏幕报警仍显示，报警灯仍亮。
	云服务键	按下此键，进入云服务模式。按此键，进入 wifi 连接二维码界面，再次按下，退出并进入主界面，此键只对控制器主页生效。详见十、手机云服务功能操作步骤

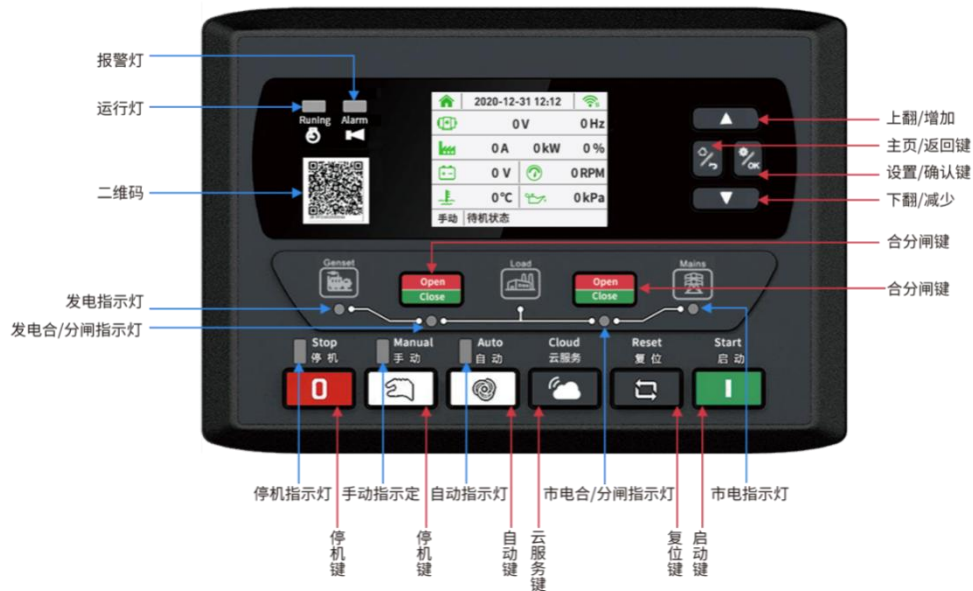
2. 控制器尺寸

外形尺寸	开孔尺寸
197mm x 152mm x 51mm	185mm x 139mm

3. 控制器面板图



GEC6110D



GEC6120D

4. 参数设置方法

对控制器进行参数设置的步骤如下所示：

- 1) 在控制器开机后按下  键即可进入菜单界面，如图1：

2) 按  (上翻/增加) 或按  (下翻/减少) 光标选定控制器信息整定

3) 再按  键 由控制器参数整定转到输入口令如图2：

4) 按键进入参数设置口令输入界面后，
输入密码“1921”可设置配置参数的所有项。设置方法如 5) —6)

5) 按  (上翻/增加) 或  (下翻/减少)可上下移动设置项或修改设置值，按下  (设置/确认键) 确认当前值，并向右移动光标。

6) 按  (主页/返回)，返回上一级菜单。

7) 若输入配置口令正确则进入参数设置界面(第一行为设置页标志行，第二行为设置参数项目，第三行为当前值，第四行为设置参数值)，按按  (上翻/增加) 或  (下翻/减少)可进行参数配置项的选择，选择需要配置的参数项按键，则进入当前参数项配置模式：如图3

8) 按照步骤 5) —6) 对参数进行设置，若设定的数值在范围内，则该值被保存。若超出范围，则不能被保存。
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5. 参数设置

序号	项目	参数范围	默认值	描述
1	市电正常延时	(0-3600)S	10	当市电电压从不正常到正常或从正常到不正常的确认时间，用于 ATS 的切换。
2	市电异常延时	(0-3600)S	5	
3	市电欠压阈值	(30-60000)V	184	当采样电压低于此值，即认为市电电压过低。当设为 30V 时，不检测电压过低信号。
4	市电过压阈值	(30-60000)V	276	当采样电压高于此值，即认为市电电压过高。当设为 60000V 时，不检测电压过高信号。
5	开关转换间隔	(0-99.9) S	1.0	从市电分闸到发电合闸或从发电分闸到市电合闸中间两个开关动作的间隔时间。
6(1)	开机延时	(0-3600) s	1	从市电异常或远端开机信号有效到机组开机的时间。
7(2)	停机延时	(0-3600) s	1	从市电正常或远端开机信号无效到机组停机的时间。
8(3)	起动次数	(1-10) 次	3	发动机起动不成功时，最多起动的次数。当达到设定的起动次数时，控制器发出起动失败信号。
9(4)	预热时间	(0-300) s	0	在起动机加电前，预热塞预加电的时间。
10(5)	起动时间	(3-60) s	8	每次起动机加电的时间。
11(6)	起动间隔时间	(3-60) s	10	当发动机起动不成功时，在第二次加电开始前等待的时间。
12(7)	安全运行时间	(1-60) s	10	在此时间内油压低、水温高、欠速、欠频、欠压、充电失败报警量均无效。
13(8)	开机怠速时间	(0-3600) s	0	开机时发电机组怠速运行的时间。
14(9)	高速暖机时间	(0-3600) s	10	发电机进入高速运行后，在合闸之前所需暖机的时间。
15(10)	高速散热时间	(3-3600) s	10	在发电机组卸载后，在停机前所需高速散热的的时间。
16(11)	停机怠速时间	(0-3600) s	0	停机时发电机组怠速运行的时间。
17(12)	得电停机时间	(0-120) s	20	当要停机时，停机电磁铁加电的时间。
18(13)	等待停稳时间	(0-120) s	0	当“得电停机输出时间”设为 0s 时，从怠速延时结束到停稳所需时间；当“得电停机输出时间”不等于 0s 时，从得电停机延时结束到停稳所需的时间。
19(14)	开关合闸时间	(0.0-10.0) s	5.0	市电合闸及发电合闸脉冲宽度，当为 0 时表示为持续输出。
20(15)	发动机齿数	(10-300)	118	发动机上飞轮的齿数，用于起动机分离条件的判断及发动机转速的检测。
21(16)	发电异常延时	(0-20.0) s	10.0	发电电压过高或过低报警延时。
22(17)	发电过压停机阈值	(30-60000) V	264	当发电电压高于此值且持续设定的“发电异常延时”时间，认为发电电压过高，发出发电异常停机报警。当设为 60000V 时，不检测电压过高信号。
23(18)	发电欠压停机阈值	(30-60000) V	196	当采样电压低于此值且持续设定的“发电异常延时”时间，即认为发电电压过低，发出发电异常停机报警。当设为 30V 时，不检测电压过低信号。
24(19)	欠速停机阈值	(0-6000) r/min	1200	当发动机转速低于此值且持续 10s，即认为欠速，发出报警停机信号。
25(20)	超速停机阈值	(0-6000) r/min	1710	当发动机转速超过此值直接停机，即认为超速，发出报警停机信号。
26(21)	发动机额定怠速	(0-6000) r/min	750	发动机启动成功达到要求的额定怠速。

27 (22)	发动机额定转速	(0-6000) r/min	1500	发动机高速运行要求的额定转速。
28 (23)	发电欠频停机阈值	(0-75.0) Hz	45	当发电机频率低于此值且不为零持续 10s, 即认为欠频, 发出报警停机信号。
29 (24)	发电过频停机阈值	(0-75.0) Hz	57	当发电机频率超过此值且持续 2s, 即认为超频, 发出报警停机信号。
30 (25)	温度过高停机阈值	(80-300) °C	98	当外接温度传感器的温度值大于此值时, 发出温度过高信号。此值仅在安全延时结束后开始判断, 仅对温度传感器输入口外接的温度传感器判断。当设置值等于 300 时, 不发出温度过高信号 (仅对温度传感器, 不包括可编程输入口输入的温度过高报警信号)。
31 (26)	油压过低停机阈值	(0-400) kPa	103	当外接压力传感器的压力值小于此值时, 开始油压过低延时。此值仅在安全延时结束后开始判断。当设置值等于 0 时, 不发出油压过低信号 (仅对压力传感器, 不包括可编程输入口输入的油压低报警信号)。
32 (27)	燃油位低报警阈值	(0-100)%	10	当外接液位传感器的液位小于此值且持续 10s, 发出液位过低信号, 此值仅报警不停机。
33 (28)	燃油位低停机阈值	(0-100)%	5	当外接液位传感器的液位小于此值且持续 5s, 发出液位过低停机信号。
34 (29)	速度信号丢失延时	(0-20.0) s	5.0	速度信号丢失停机延时, 若设为 0s, 只报警不停机。
35 (30)	充电失败电压差	(0-30) V	6.0	在发电机组正常运行过程中, 当 B+与充电机 D+(WL) 的电压差大于此值且持续 5s 时, 发出充电失败报警。
36 (31)	电池过压报警阈值	(12.0-40.0) V	33	当电池电压高于此值且持续 20s 时, 发出电池电压异常信号, 此值仅报警不停机。
37 (32)	电池欠压报警阈值	(4.0-30.0) V	8	当电池电压低于此值且持续 20s 时, 发出电池电压异常信号, 此值仅报警不停机。
38 (33)	电流互感器变比/5	(5-6000) /5	500	外接的电流互感器的变比。
39 (34)	满载电流	(5-6000) A	500	指发电机的额定电流, 用于负载过流的计算。
40 (35)	过流保护动作	(0-2)	2	根据选择的动作, 对发电过流进行 0: 无动作、1: 分闸或者 2: 报警停机动作。
41 (36)	过流百分比	(50-130)%	120	当负载电流大于此百分数时, 开始过流延时。
42 (37)	过流延时	(0-3600) s	30	定时限过流延时值, 当负载电流大于设定值且持续设定的时间, 即认为过流。
43 (38)	燃油泵开阈值	(0-100)%	25	当燃油位低于设定值且持续 2s 时, 输出燃油泵开信号。
44 (39)	燃油泵关阈值	(0-100)%	80	当燃油位高于设定值且持续 2s 时, 输出燃油泵关信号。
45 (40)	可编程输出 1 功能	(0-25)	2	出厂默认为: 得电停机 详情参照表 8
46 (41)	可编程输出 2 功能	(0-25)	3	出厂默认为: 怠速控制 详情参照表 8
47 (42)	可编程输出 3 功能	(0-25)	5	出厂默认为: 发电合闸 详情参照表 8
48 (43)	可编程输出 4 功能	(0-25)	6	出厂默认为: 市电合闸 详情参照表 8
49 (44)	可编程输入 1 功能	(0-25)	1	出厂默认为: 温度高报警输入 详情参照表 9
50 (45)	可编程输入 1 有效	(0-1)	0	出厂默认为: 闭合。
51 (46)	可编程输入 1 延时	(0-20.0) s	2	输入口信号有效延时。
52 (47)	可编程输入 2 功能	(0-25)	2	出厂默认为: 油压低报警输入 详情参照表 9
53 (48)	可编程输入 2 有效	(0-1)	0	出厂默认为: 闭合。

54 (49)	可编程输入 2 延时	(0-20.0) s	2	输入口信号有效延时。
55 (50)	可编程输入 3 功能	(0-25)	10	出厂默认为：远端开机输入 详情参照表 9
56 (51)	可编程输入 3 有效	(0-1)	0	出厂默认为：闭合。
57 (52)	可编程输入 3 延时	(0-20.0) s	2	输入口信号有效延时。
58 (53)	可编程输入 4 功能	(0-25)	11	出厂默认为：燃油位低警告报警输入 详情参照表 9
59 (54)	可编程输入 4 有效	(0-1)	0	出厂默认为：闭合
60 (55)	可编程输入 4 延时	(0-20.0) s	2	输入口信号有效延时
61 (56)	可编程输入 5 功能	(0-25)	12	出厂默认为：冷却液位低报警输入 详情参照表 9
62 (57)	可编程输入 5 有效	(0-1)	0	出厂默认为：闭合。
63 (58)	可编程输入 5 延时	(0-20.0) s	2	输入口信号有效延时。
64 (59)	模块上电模式	(0-2)	0	0：停机模式；1：手动模式；2：自动模式
65 (60)	模块地址	(1-254)	1	控制器通讯地址。
66 (61)	口令设置	(0-9999)	1921	可设置全部参数。见注 4：
67 (62)	起动成功时转速	(0-3000) r/min	360	当发动机转速超过此值时，认为机组起动成功，起动机将分离。
68 (63)	起动成功时频率	(0.0-30.0) Hz	14	在起动过程中发电机频率超过此值，认为机组起动成功，起动机将分离。
69 (64)	起动成功时油压	(0-400) kPa	200	在起动过程中发动机油压超过此值，认为机组起动成功，起动机将分离。
70 (65)	温度高禁止停机使能	(0-1)	0	出厂默认为：当温度过高时，报警停机。功能详见注 2
71 (66)	油压低禁止停机使能	(0-1)	0	出厂默认为：当油压过低时，报警停机。功能详见注 3
72 (67)	交流线制	(0-2)	0	0 三相四线 (3P4W)；1 二相三线 (2P3W)； 2 单相两线 (1P2W)；
73 (68)	温度传感器曲线类型	(0-10)	8	SGX 详见表 10
74 (69)	压力传感器曲线类型	(0-9)	8	SGX 详见表 10
75 (70)	液位传感器曲线类型	(0-3)	3	SGD 详见表 10
76 (71)	发电极数	(2-64)	4	发电机磁极的个数，此值可用于没有安装速度传感器时发动机转速的计算。
77 (72)	温度传感器开路动作	(0-2)	1	0 无效； 1 报警； 2 报警停机。
78 (73)	油压传感器开路动作	(0-2)	1	0 无效； 1 报警； 2 报警停机。
79 (74)	液位传感器开路动作	(0-2)	1	0 无效； 1 报警； 2 报警停机。
80 (75)	起动成功油压延时	(0-20.0) s	0	当起动成功条件项包括油压时，发动机油压大于设置的起动成功油压值且延时大于该设置值时，认为机组起动成功，起动机将分离。
81 (76)	过功率设置	(0-2)	0	0 无效；1 报警；2 报警停机。当功率大于设置值时且持续时间大于延时值时，过功率报警有效。返回值与延时值

				也可设。
82 (77)	开机界面设置	(0-1)	1	0:不使能；1:使能。 开机界面延时也可设置。
83 (78)	维护口令设置	(0-9999)	1234	进入维护配置项的密码。
84 (78)	日期设置			控制器日期。
85 (79)	燃油输出时间	(1-60) s	1	开机时发电机组燃油输出的时间。
86 (80)	手动模式 ATS 动作	(0-1)	0	0:按键转换；1:自动转换。
87 (81)	升速脉冲时间	(0-20.0) s	0.2	机组进入高速暖机时，升速脉冲输出时间。
88 (83)	降速脉冲时间	(0-20.0) s	0.2	机组进入停机怠速时，降速脉冲输出时间。
89 (84)	ATS 分闸时间	(1.0-60.0) s	3.0	ATS 分闸时间
90 (85)	自定义传感器曲线	(0-2)	0	0 自定义温度传感器； 1 自定义压力传感器； 2 自定义液位传感器。 选择需要设置的传感器，然后输入曲线每个点的电阻值（或电流或电压）及对应的数值，需输入 8 个点。
91 (86)	发动机类型	(0-29)	00	00 普通机组； 01 通用 J1939 机组； 其他见表 11。
92 (87)	CAN 地址	(0-255)	3	
93 (88)	额定有功功率	(0-6000) kW	100	用于计算有功功率/额定功率百分比。
94 (89)	启动成功条件	(0-6)	04	起动机分离的条件。起动机与发动机分离的条件有发电、磁传感器和油压，目的是使起动机与发动机尽快分离。
95 (90)	超速报警阈值	(0-6000) r/min	1650	当发动机转速超过此值且持续 2S，即认为超速，发出报警信号。
96 (91)	欠速报警阈值	(0-6000) r/min	1300	当发动机转速低于此值且持续 10S，即认为欠速，发出报警信号。
97 (92)	发电欠压报警阈值	(30-60000) V	200	发电 A/B/C 相电压低报警阈值。
98 (93)	发电过压报警阈值	(30-60000) V	260	发电 A/B/C 相电压高报警阈值。
99 (94)	发电欠频报警阈值	(0-75.0) Hz	43	当发电机频率低于此值且不为零持续 5s，即认为欠频，发出报警信号。
100 (95)	发电过频报警阈值	(0-75.0) Hz	54	当发电机频率超过此值且持续 1s，即认为超频，发出报警信号。
101 (96)	D+使能		不使能	

注：序号栏第一列默认为 GEC6120D 参数，括号里面的序号为 GEC6110D 参数序号

6. 可编输出口功能选择

序号	项目	功能描述
0	未使用	当选择此项时，输出口不输出
1	公共报警输出	包括所有报警停机和报警，当仅有报警输入时，此报警不自锁，当停机报警发生时，此报警自锁，直到报警复位。
2	得电停机控制	用于某些具有停机电磁铁的油机，当停机怠速结束时吸合。当设定的“得电停机延时”结束时断开。
3	怠速控制	用于某些有怠速的机器，在起动时吸合，进入高速暖机时断开，在停机怠速过程中吸合，在机组停稳时断开。
4	预热控制	在开机前闭合，起动机加电前断开。
5	发电合闸	发电机合闸。
6	市电合闸	市电合闸控制，GEC6110D 没此项功能。
7	分闸	当合闸时间设为 0 时，即为持续合闸时，无此功能
8	升速控制	在进入高速暖机过程时吸合，吸合时间为高速暖机延时时间。升速辅助输入有效时断开。
9	降速控制	在进入停机怠速过程或者得电停机过程(报警停机时)时吸合，吸合时间为停机怠速延时时间。降速辅助输入有效时断开。
10	机组运行输出	机组正常运行时输出，非正常运行状态不输出。
11	燃油泵控制	当燃油位低于设定的燃油泵开阈值或输入口油位低报警输入有效时吸合；当燃油位高于设定的燃油泵关阈值且输入口油位低报警输入无效时断开。
12	高速控制	进入高速暖机时输出，高速散热后断开。
13	系统在自动模式	控制器工作于自动模式。
14	停机报警输出	停机报警信号输出
15	音响报警	当停机报警和报警时，音响报警输出，在音响报警输出时，“报警静音”输入有效，可禁止其输出。
16	未使用	
17	燃油输出	发电机开机时动作，等待停稳时断开。
18	起动输出	发动机组在起动输出状态输出，其他状态断开。
19	未使用	
20	未使用	
21	未使用	
22	未使用	
23	未使用	
24	升速脉冲输出	机组进入高速暖机时输出设置的升速时间。
25	降速脉冲输出	机组进入停机怠速时输出设置的降速时间。

7. 可编输入口功能选择

序号	描述	备注
0	未使用	
1	温度高报警输入	在发电机组起动成功后，若此信号有效，发电机组将立即报警停机
2	油压低报警输入	在发电机组起动成功后，若此信号有效，发电机组将立即报警停机
3	外部告警输入	若此信号有效，仅警告，不停机
4	外部停机报警输入	若此信号有效，则发电机组将立即报警停机
5	温度过高时散热停机	当此信号有效且油机正常运行时，若出现温度过高时，控制器先经过高速散热延时后才停机；当此信号无效时，若出现温度过高时，控制器直接高速停机。（使能为1默认带此功能）
6	发电合闸状态输入	连接发电带载开关上的辅助点。
7	市电合闸状态输入	连接市电带载开关上的辅助点。
8	温度高停机禁止	当温度过高时，仅警告不停机
9	油压低停机禁止	当油压过低时，仅警告不停机
10	远端开机输入	在自动模式下，当输入有效时，可自动地起动发电机组，发电机正常运行后则带载。当输入无效时，可自动地停止发电机组。
11	燃油位低警告输入	接传感器开关量输入，输入有效时，控制器发出警告报警。
12	冷却液位低警告输入	
13	燃油液位低停机输入	接传感器开关量输入，输入有效时，控制器发出停机报警。
14	冷却液位低停机输入	
15	自动开机禁止	在自动模式下，若此信号有效，无论市电是否异常，发电机组均不起动，若发电机组已经正常运行，则发电机组不执行停机操作。当此信号无效时，发电机组根据市电异常与否，自动执行起动或停机操作。
16	远程控制模式输入	输入有效时，面板除设置键有效，其他按键均无效，模块LCD显示远程模式。远程控制模块可通过面板按键切换模块模式，开停机操作。
17	充电器充电失败警告	接充电器充电失败报警输出。
18	面板按键禁止	当输入有效时，面板上除了设置键有效，其他按键不起作用，面板 LCD 首页第一行左边显示  图标。
19	报警静音	当有效时，可禁止输出配置里的“音响报警”输出。
20	怠速模式	此时不保护欠压，欠频，欠速。
21	燃油泄漏	当装有燃油泄漏开关时，输入一个燃油泄漏信号。
22	升速脉冲输入	发动机类型为通用电喷机组时，输入有效时，目标发动机转速增加5RPM。
23	降速脉冲输入	发动机类型为通用电喷机组时，输入有效时，目标发动机转速减少5RPM。
24	过流故障停机输入	输入有效时，控制器发出过流故障停机报警。
25	超速停机输入	输入有效时，控制器发出超速报警停机。

8. 传感器选择

序号		内容	备注
1	温度传感器	0 未使用 1 自定义电阻型 2 VDO 3 SGH 4 SGD 5 CURTIS 6 DATCON 7 VOLVO-EC 8 SGX 9 PT100 10 欧 III	自定义电阻型输入电阻范围为 0-6000 欧，出厂默认为 SGX 传感器
2	压力传感器	0 未使用 1 自定义电阻型 2 VDO 10Bar 3 SGH 4 SGD 5 CURTIS 6 DATCON 10Bar 7 VOLVO-EC 8 SGX 9 未使用 10 24V/12V 电压型	自定义电阻型输入电阻范围为 0-6000 欧，出厂默认为 SGX 传感器
3	燃油位传感器	0 未使用 1 自定义电阻型 2 SGH 3 SGD	自定义电阻型输入电阻范围为 0-6000 欧，出厂默认为 SGD 传感器

GEC6110D 典型应用图

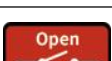


This document provides a brief operation instruction for using GEC6110D series controllers. Please refer to the standard user manual for details.

GEC6100D series include the following two types:

Type	Function
GEC6110D	It is used for single machine automation, controlling the start and stop of genset by remote signal.
GEC6120D	It adds the functions of mains monitoring and AMF on the basis of GEC6110D.

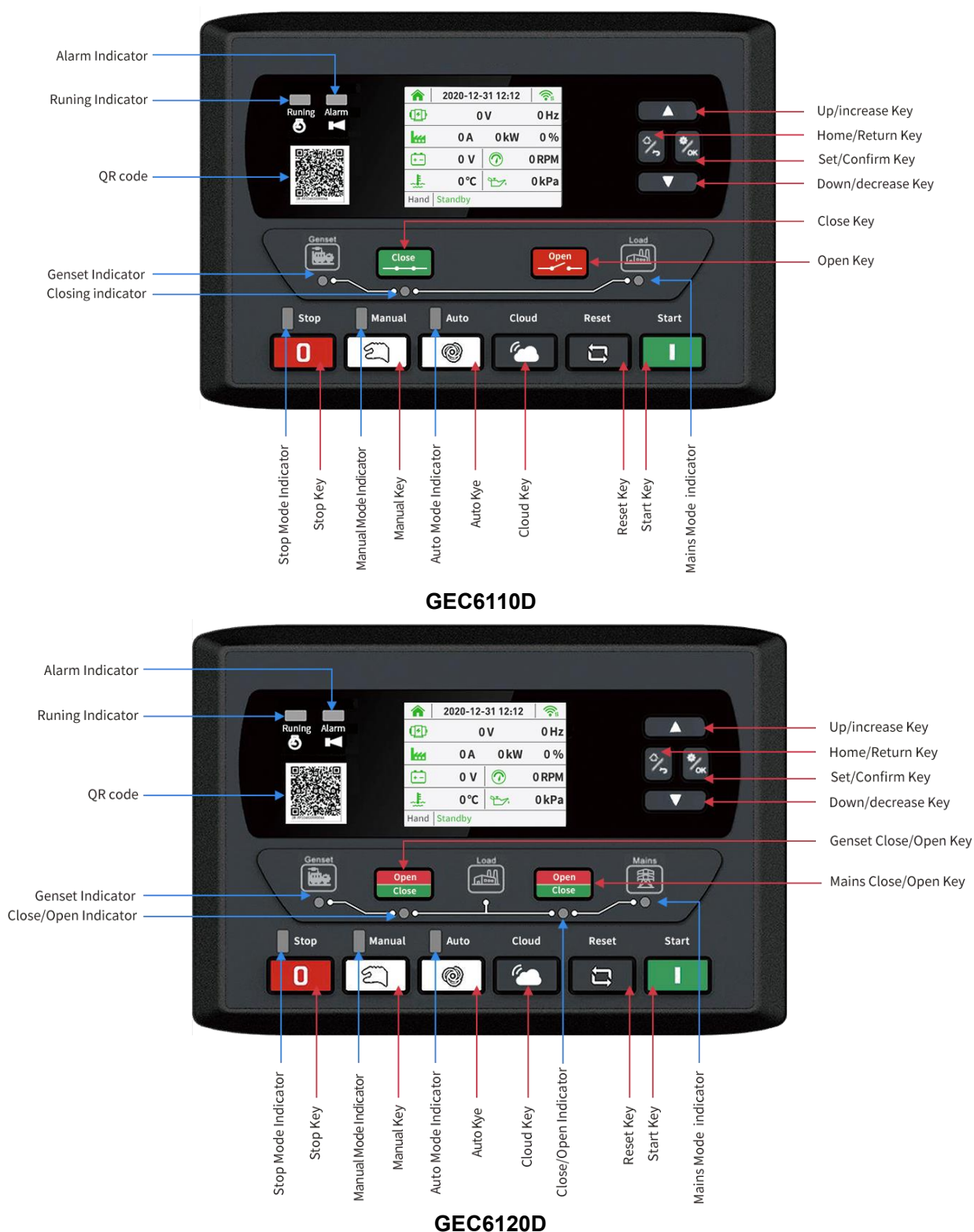
1. KEY DESCRIPTIONS

	Stop	In manual/auto mode, it can stop the running genset. During stopping process, press this key again can stop generator immediately.
	Start	In manual mode, pressing this key can start the genset.
	Manual	Pressing this key will set the controller as Manual mode.
	Auto	Pressing this key will set the controller as Auto mode.
	Close/Open	Can control gens to switch on or off in Manual mode. NOTE: It is only fit for GEC6120D.
	Close	Can control gens to switch on in Manual mode. NOTE: It is only fit for GEC6110D.
	Open	Can control gens to switch off in Manual mode. NOTE: It is only fit for GEC6110D.
	Set/Confirm	Pressing this key to enter menu interface; Shift cursor to confirm in parameters setting menu.
	Up/Increase	Screen scroll; Up cursor and increase value in setting menu.
	Down/Decrease	Screen scroll; Down cursor and decrease value in setting menu.
	Home/Return	Return to homepage when in main interface; Exit when in parameters setting interface.
	Reset	In the state of alarm, the alarm light is on, the sixth line of the screen shows the alarm. Press this key to reset, and the screen alarm display bar disappears; If the fault still exists, the screen alarm is still displayed, and the alarm light is still on.
	Cloud Service	Press this key to enter the cloud service mode. Press this key to enter the Interface of WIFI connection with TWO-DIMENSIONAL code. Press it again to exit and enter the main interface. This key only takes effect on the home page of the controller. You can item 10 of Mobile cloud Service Functions For more details.

2. DIMENSION

Overall Dimension	Panel Cutout
197mm x 152mm x 51mm	185mm x 139mm

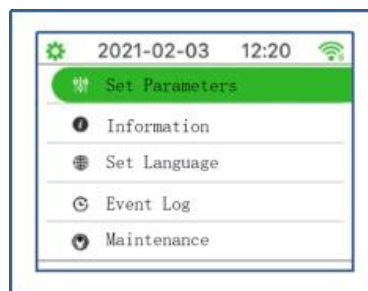
3. CONTROLLER PANEL



4. PARAMETER SETTING

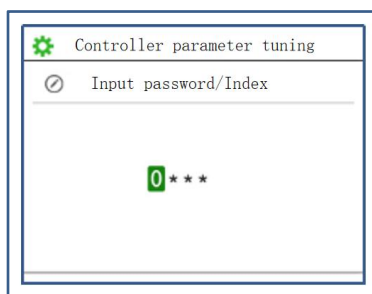
1. Parameters Setting

9) After the controller starts up, press the  button to enter the menu, as chart 1.



10) Press the cursor  (up/increase) or  (down/decrease) to select the controller's information.

11) Press the  button transferring setting the parameter to inputting the password, as chart 2.

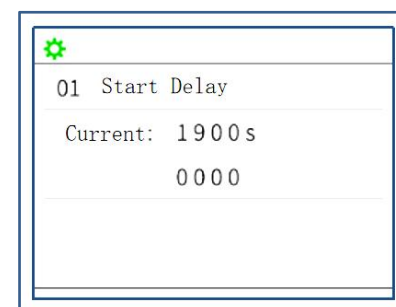


12) Press the button to enter the interface for parameter setting and password input, and then enter the password" 1921" to set all the parameters. The setting method is as step 5 and 6.

13) Press the  button (up/increase) or  (down/decrease) to move the item up and down or modify the value. Press the  button (set/confirm) to confirm the current value and move the cursor to the right.

14) Press the  button (home/return) to return to the previous menu.

15) If the input configuration password is correct, then we enter the parameter setting interface (the first line is setting page flag line, the second is setting parameter item, the third is the current value, the fourth is setting parameter value). Press the  button (up/increase) or  (down/decrease) to select the parameter configuration items. Click the button to enter the correct parameter configuration mode as chart 3.



16) Set the parameter according to the step 5 and 6. If the value is within the range, it will be saved. If it is out of the range, it cannot be saved.

5. PARAMETER SETTING

NO.	ITEM	Range	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	5	
3	Mains Under Voltage	(30-60000) V	184	When mains voltage is under the point, mains under voltage active. When the value is 30, mains under voltage disabled. voltage .
4	Mains Over Voltage	(30-60000) V	276	When mains voltage is higher than the point, mains over voltage active. When the point is 360V, mains over voltage disabled.
5	Transfer Delay	(0-99.9)S	1.0	It' s the delay from mains open to generator closed or from generator open to mains closed.
6(1)	Start Delay	(0-3600)s	1	Time from mains abnormal or remote start signal is active to start genset.
7(2)	Stop Delay	(0-3600)s	1	Time from mains normal or remote start signal is inactive to stop genset.
8(3)	Start Times	(1-10)次	3	When engine start failure, it' s the maximum cranking times. When setting crank times out, controller sends start fail signal.
9(4)	Preheat Delay	(0-300)s	0	Time of pre-powering heat plug before starter is powered up.
10(5)	Cranking Time	(3-60)s	8	Time of starter power up each time.
11(6)	Crank Rest Time	(3-60)s	10	The second waiting time before power up when engine start fail.
12(7)	Safety On Time	(1-60)s	10	Alarm for low oil pressure, high temp, under speed, under frequency/voltage, failed to charge are all inactive.
13(8)	Start Idle Time	(0-3600)s	0	Idle running time of genset when starting.
14(9)	Warm-up Time	(0-3600)s	10	Warming time between genset switch on and high speed running.
15(10)	Cooling Time	(3-3600)s	10	Time for cooling before stopping.
16(11)	Stop Idle Time	(0-3600)s	0	Idle running time when genset stop.
17(12)	ETS Solenoid Hold	(0-120)s	20	Stop electromagnet ' s power-on time when genset is stopping.
18(13)	Wait for Stop Time	(0-120)s	0	If "ETS Solenoid Hold" set as 0, it is the time from end of idle delay to genset at rest; if not 0, it is from end of ETS solenoid delay to genset at rest.
19(14)	Switch Close Delay	(0.0-10.0)s	5.0	Mains' or generator' s switch closing pulse width, when it is 0, output is continuous.
20(15)	Flywheel Teeth	(10-300)	118	Number of flywheel teeth, it can detect disconnection conditions and engine speed.
21(16)	Gen Abnormal Delay	(0-20.0)s	10.0	Over or under voltage alarm delay.

22(17)	Gen Over Voltage Shutdown	(30-60000)V	264	When genset voltage is over the point, generator over voltage is active. When the point is 60000V, generator over voltage is disabled.
23(18)	Gen Under Voltage Shutdown	(30-60000)V	196	When generator voltage is under the point, generator under voltage is active. When the point is 30V, generator under voltage is disabled.
24(19)	Under Speed Shutdown	(0-6000)r/min	1200	When the engine speed is under the point for 10s, shutdown alarm signal is sent.
25(20)	Over Speed Shutdown	(0-6000)r/min	1710	When the engine speed is over the point, shutdown alarm signal is sent.
26(21)	Engine Rated Idle	(0-6000)r/min	750	The engine started successfully and reached the required rated idle.
27(22)	Engine Rated Speed	(0-6000)r/min	1500	Rated speed required by high speed engine operation.
28(23)	Gen Under Frequency Shutdown	(0-75.0)Hz	45	When generator frequency is lower than the point (not equal to 0) for 10s, shutdown alarm signal is sent.
29(24)	Gen Over Frequency Shutdown	(0-75.0)Hz	57	When generator's frequency is over the point and continues for 2s, generator overfrequency is active.
30(25)	High Temperature Shutdown	(80-300)°C	98	When the temperature sensor value is over this point, it sends out high temp. alarm. When the value is 300, warning alarm won't be sent. (only suited for temperature sensor, except for high temp. pressure alarm signal inputted by programmable input port.)
31(26)	Low Oil Pressure Shutdown	(0-400)kPa	103	When the oil pressure sensor value is under this point, Low Oil Pressure alarm is sending out. When the value is 0, warning alarm won't be sent. (only suited for oil pressure sensor, except for low oil pressure alarm signal inputted by programmable input port.)
32(27)	Low Fuel Level Alarm	(0-100)%	10	When fuel level sensor value is under this point and remains for 10s, genset sends out warning alarm, only warn but not shutdown.
33(28)	Low Fuel Level Stop	(0-100)%	5	If the liquid level of the external liquid level sensor is lower than this value and lasts for 5 seconds, the shutdown signal will be sent.
34(29)	Speed Signal Loss Delay	(0-20.0)s	5.0	When the delay setting as 0s, it only warn but not shutdown.
35(30)	Charging Failure Volt. Difference	(0-30)V	6.0	During genset normal running, when B+ and charger D+ (WL) voltage difference is above this value for 5s, the controller issues "Charging Failure" warning.
36(31)	Battery Over Voltage	(12.0-40.0)V	33	When generator battery voltage is over the point and remains for 20s, battery over voltage signal is active. it only sends warn but not shutdown.
37(32)	Battery Under Voltage	(4.0-30.0)V	8	When generator battery voltage is under the point and remains for 20s, battery under voltage signal is active. it only sends warn but not shutdown.
38(33)	CT Ratio	(5-6000)/5	500	External current transformer ratio.

39(34)	Full Load Rating	(5-6000)A	500	Rated current of generator, used for calculating over load current.
40(35)	Over Current Protection	(0-2)	2	According to the selected action, action for the power generation over current 0: no action, 1: break or 2: alarm shutdown.
41(36)	Over Current Percentage	(50-130)%	120	When load current is over the point, the over current delay is initiated.
42(37)	Over Current Delay	(0-3600)s	30	When load current is over the point, over current signal is sent. When the delay is 0, only warn but not shutdown.
43(38)	Fuel Pump On	(0-100)%	25	When the fuel level lower than the set value for 2s, it sends a signal to open fuel pump.
44(39)	Fuel Pump Off	(0-100)%	80	When the fuel level higher than the set value for 2s, it sends a signal to close fuel pump.
45(40)	Aux. Output 1 Function	(0-25)	2	Factory default: Energized to stop. See table 8.
46(41)	Aux. Output 2 Function	(0-25)	3	Factory default: Idle control. See table 8.
47(42)	Aux. Output 3 Function	(0-25)	5	Factory default: Gens closed. See table 8.
48(43)	Aux. Output 4 Function	(0-25)	6	Factory default: Mains closed. See table 8.
49(44)	Aux. Input 1 Function	(0-25)	1	Factory default: High temperature alarm input. See table 9.
50(45)	Aux. Input 1 Effective	(0-1)	0	Factory default: closed.
51(46)	Aux. Input 1 Delay	(0-20.0)s	2	Input signal active delay
52(47)	Aux. Input 2 Function	(0-25)	2	Factory default: low oil pressure alarm input. See table 9.
53(48)	Aux. Input 2 Effective	(0-1)	0	Factory default: closed.
54(49)	Aux. Input 2 Delay	(0-20.0)s	2	Input signal active delay
55(50)	Aux. Input 3 Function	(0-25)	10	Factory default: remote start input. See table 9.
56(51)	Aux. Input 3 Effective	(0-1)	0	Factory default: closed.
57(52)	Aux. Input 3 Delay	(0-20.0)s	2	Input signal active delay
58(53)	Aux. Input 4 Function	(0-25)	11	The factory default: low fuel level alarm input. See table 9.
59(54)	Aux. Input 4 Effective	(0-1)	0	Factory default: closed.
60(55)	Aux. Input 4 Delay	(0-20.0)s	2	Input signal active delay
61(56)	Aux. Input 5 Function	(0-25)	12	The factory default: low cooling liquid level alarm input. See table 9.
62(57)	Aux. Input 5 Effective	(0-1)	0	Factory default: closed.
63(58)	Aux. Input 5 Delay	(0-20.0)s	2	Input signal active delay
64(59)	Power On Mode	(0-2)	0	0: Stop; 1: Manual; 2: Auto
65(60)	Module Address	(1-254)	1	Module communication address.
66(61)	Password	(0-9999)	1921	All parameters can be set. See note 4.
67(62)	Engine Speed of Crank Disconnect	(0-3000)r/min	360	When engine speed is over this point, starter will disconnect.
68(63)	Frequency of Crank Disconnect	(0.0-30.0)Hz	14	When generator frequency is over this point, starter will disconnect.
69(64)	Oil Pressure of Crank Disconnect	(0-400)kPa	200	When engine oil pressure is over this point, starter will disconnect.

70(65)	High Temp. Stop Inhibit	(0-1)	0	Default: when temperature is overheat, the genset alarm and shutdown. Details see NOTE2.
71(66)	Low OP Inhibit Stop Inhibit	(0-1)	0	Default: when oil pressure is too low, it sends alarm and shutdown. Details see NOTE3.
72(67)	Communication Wire	(0-2)	0	0 Three phase four wire(3P4W); 1 Two phase three wire(2P3W); 2 Single phase two wire(1P2W);
73(68)	Temp. Sensor Curve Type	(0-10)	8	SGX See table 10.
74(69)	Pressure Sensor Curve Type	(0-9)	8	SGX See table 10.
75(70)	Fuel Level Sensor Curve Type	(0-3)	3	SGD See table 10.
76(71)	Generator Poles	(2-64)	4	Number of magnetic poles, used for calculating rotating speed of generator without speed sensor.
77(72)	Temp. Sensor Open Circuit Action	(0-2)	1	0: Not used; 1: Warning; 2: Shutdown
78(73)	Oil Pressure Sensor Open Circuit Action	(0-2)	1	0: Not used; 1: Warning; 2: Shutdown
79(74)	Fuel Level Sensor Open Circuit Action	(0-2)	1	0: Not used; 1: Warning; 2: Shutdown
80(75)	Disconnect Oil Pressure Delay	(0-20.0)s	0	When disconnect conditions include oil pressure and engine oil pressure is higher than disconnect oil pressure delay, the genset is regarded as start successfully and starter will disconnect.
81(76)	Over Power	(0-2)	0	0: Not used; 1: Warning; 2: Shutdown When the power is greater than the set value and the duration is greater than the delay value, the overpower alarm is effective. The return value and delay value can also be set.
82(77)	Start Interface	(0-1)	1	0: Disabled; 1: Enabled. Start interface delay can be set.
83(78)	Maintenance Password	(0-9999)	1234	Enter password interface of maintenance configuration.
84(78)	Date/Time			Set the date/time of controller.
85(79)	Fuel Output Time	(1-60)s	1	It is the time of the genset fuel output during power on.
86(80)	Manual Mode ATS	(0-1)	0	0: Key Switch; 1: Auto Switch.
87(81)	Speed Raise Pulse	(0-20.0)s	0.2	It is the speed-up pulse output time, when the unit enters the high-speed warm-up.
88(83)	Speed Drop Pulse	(0-20.0)s	0.2	It is the speed-drop pulse output time, when the unit enters the stop idling.
89(84)	ATS Open Time	(1.0-60.0)s	3.0	ATS Open Time
90(85)	Flexible Sensor Curve Type	(0-2)	0	0 User-defined temperature sensor 1 User-defined pressure sensor 2 User-defined level sensor

				Choose sensor which need to be set, input every point resistance (or current, voltage) and corresponding value of curve, 8 points need to be input
91(86)	Engine Type	(0-29)	00	00 Conventional Gen-set 01 Standard J1939 See Table 11 for others
92(87)	CAN Address	(0-255)	3	
93(88)	Rated Active Power	(0-6000)kW	100	Used to calculate active power/rated power percentage
94(89)	Crank Disconnect Condition	(0-6)	04	Conditions of disconnecting starter (generator, magnetic pickup sensor, oil pressure), each condition can be used alone and simultaneously to separating the startermotor and genset as soon as possible.
95(90)	Over Speed Alarm	(0-6000)r/min	1650	When the engine speed is over the point for 2s, alarm signal is sent.
96(91)	Under Speed Alarm	(0-6000)r/min	1300	When the engine speed is under the point for 10s, alarm signal is sent.
97(92)	Gen Under Voltage Alarm	(30-60000)V	200	Gen A/B/C phase low voltage alarm value
98(93)	Gen Over Voltage Alarm	(30-60000)V	260	Gen A/B/C phase high voltage alarm value
99(94)	Gen Under Frequency Alarm	(0-75.0)Hz	43	When generator frequency is lower than the point (not equal to 0) for 5s, alarm signal is sent.
100(95)	Gen Over Frequency Alarm	(0-75.0)Hz	54	When generator' s frequency is over the point and continues for 1s, alarm signal is sent.
101(96)	D+ Enable		Disable	

Note:The value in first line of “Number” column is for GEC6120D and the value in brackets is for GEC6110D.

6. DEFINED CONTENTS OF PROGRAMMABLE OUTPUT

NO.	Items	Description
0	Non used	Output is disabled when this item is selected.
1	Common Alarm	Including all shutdown alarm and warning alarm. When warning alarm occurs, the alarm won' t self-lock; When a shutdown alarm occurs, the alarm will self-lock until alarm is reset.
2	Energize to Stop	Used for the gen-set with stop solenoid. Pick-up when idle speed is over while disconnect when ETS delay is over.
3	Idle Control	Used for the gen-set with idle speed. Pick-up when crank while disconnect when enter into warming up. Pick-up when stop idle while disconnect when gen-set stop completely.

NO.	Items	Description
4	Preheat Control	Close before started and disconnect before powered on.
5	Close Gen Output	When close time is set as 0, it is continuous closing.
6	Close Mains Output	GEC6110 without.
7	Open Breaker	When close time is set as 0, Open Breaker is disabled.
8	Speed Raise Relay	Pick-up when enter into warming up time. Disconnect when raise speed auxiliary input active.
9	Speed Drop Relay	Pick-up when enter into stop idle or ETS solenoid stop (shutdown alarm). Disconnect when droop speed auxiliary input active.
10	Run Output	Output when gen-set is in normal running, disconnect when rotating speed is lower than engine speed after fired.
11	Fuel Pump Control	Pick-up when the fuel level lower than the open threshold or low fuel level warning is active; disconnect when the fuel level over the close threshold and the low fuel level warning input is disabled.
12	High Speed Control	Output when it enters into warming up time, and disconnect after cooling.
13	Auto Mode	The controller is in Auto Mode.
14	Shutdown Alarm	Output when shutdown alarm occurs.
15	Audible Alarm	When shutdown alarm and warn alarm occur, audible alarm is set as 300s. In audible alarm output duration, when panel any key or "alarm mute" input is active, it can remove the alarm.
16	Non used	
17	Fuel Output	Action when genset is starting and disconnect when stop is completed.
18	Start Output	Genset output in start output status and open in other status.
19	Non used	
20	Non used	
21	Non used	
22	Non used	
23	Non used	
24	Speed Raise Pulse	Raising speed time is output while the unit entering into high-speed warming up.
25	Speed Drop Pulse	Dropping speed time is output while the unit entering into stop idling.

7. DEFINED CONTENTS OF PROGRAMMABLE INPUT

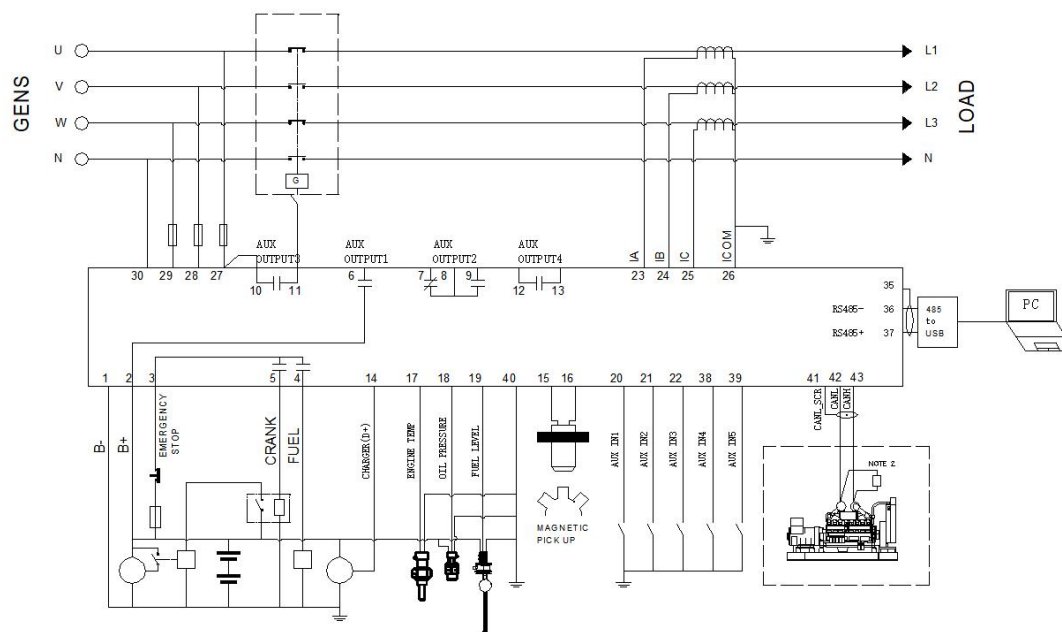
NO.	Items	Description
0	Non Used	
1	High Temperature Shutdown	If the signal is active after safety run delay over, gen-set will immediately alarm to shutdown.
2	Low Oil Pressure Shutdown	If the signal is active after safety run delay over, gen-set will immediately alarm to shutdown.
3	Warn Input	Only warning, not shutdown.
4	Shutdown Input	If the signal is active, gen-set will immediately alarm to shutdown.
5	WTH STOP by Cool	During engine running and the input is active, if high temperature occurs, controller will stop after high speed cooling; when the input is disabled, controller will stop immediately. ()
6	Generator Closed Auxiliary	Connect to auxiliary port of gen load breaker.
7	Mains Closed Auxiliary	Connect to auxiliary port of mains load breaker.
8	Inhibit WTH STOP	When it is active, high oil temperature stop is inhibited.
9	Inhibit OPL STOP	When it is active, low oil pressure stop is inhibited.
10	Remote Start	In Auto mode, when input active, gen-set can start and take load after gen-set is OK; when input inactive, gen-set will stop automatically.
11	Fuel Level Low Warning	Connected to sensor digital input. The controller sends an warning alarm signal when active.
12	Coolant Level Low Warning	
13	Fuel Level Low Shutdown	Connected to sensor digital input. The controller sends an shutdown alarm signal when active.
14	Coolant Level Low Shutdown	
15	Inhibit Auto Start	In Auto Mode, when the input is active, no matter mains normal or not, gen-set won't start. If gen-set is in normal running, stop process won't be executed. When input is disabled, gen-set will automatically start or stop judging by mains normal or not.
16	Remote Control	All buttons in panel is inactive except and Remote Mode is displayed on LCD. Remote module can switch module mode and start/stop operation via panel buttons.
17	Charge Alt Fail IN	Connect to failed to charge output.
18	Panel Lock	All keys in panel are inactive except set-keys and there is  in the first row of the front page in LCD when input is active.
19	Alarm Mute	Can prohibit "Audible Alarm" output when input is active.
20	Idle Contro	In this mode, under voltage, under frequency and under speed

NO.	Items	Description
	I Mode	are not protected.
21	Fuel Leakage	When input is active, controller will initiate Fuel leakage alarms.
22	Raise Speed Pulse	If engine type is common J1939, when input is active, engine target speed will increase 5RPM.
23	Drop Speed Pulse	If engine type is common J1939, when input is active, engine target speed will decrease 5RPM.
24	Over Current Fault Shutdown	When input is active, controller will initiate shutdown alarms.
25	Over Speed Shutdown	When input is active, controller will initiate shutdown alarms.

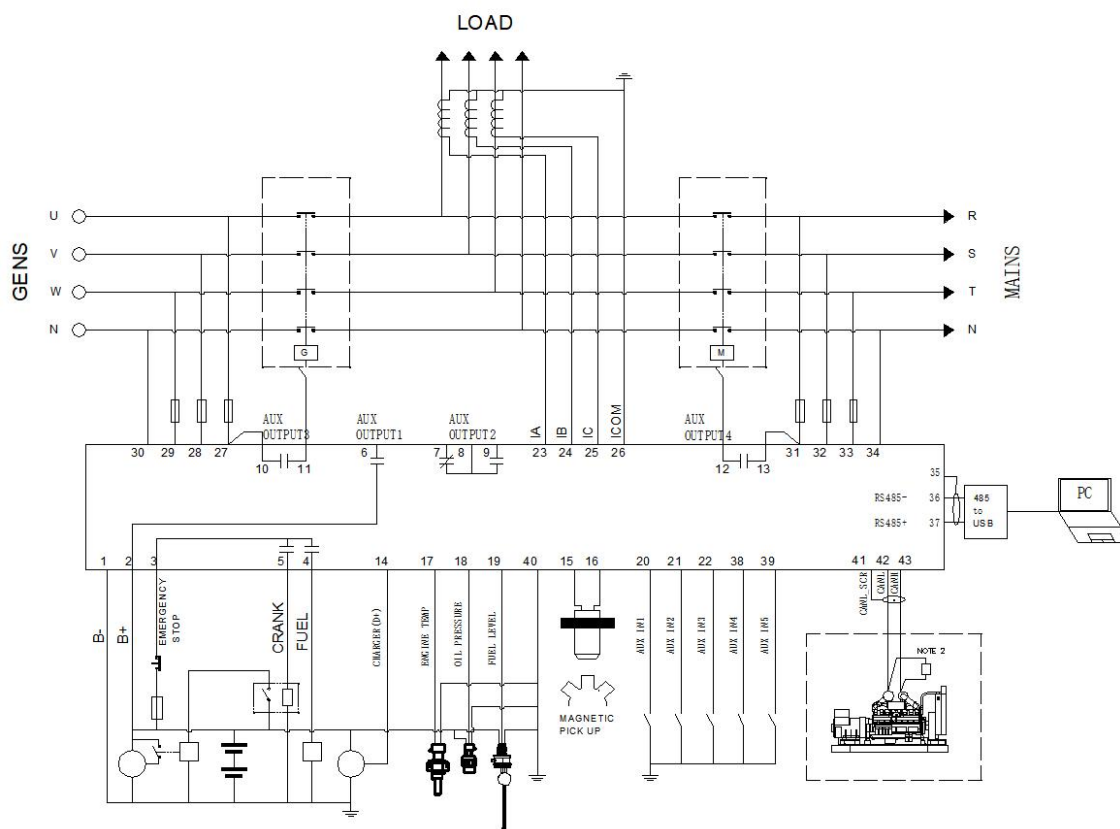
8. Sensors

No.		Contents	Notes
1	Temp. Sensor	0 Non used 1 User Configured 2 VDO 3 SGH 4 SGD 5 CURTIS 6 DATCON 7 VOLVO-EC 8 SGX 9 PT100 10 Euro III	Defined input resistance range is 0Ω ~6000Ω, factory default is SGX Sensor.
2	Press Sensor	0 Non Used 1 User Configured 2 VDO 10Bar 3 SGH 4 SGD 5 CURTIS 6 DATCON 10Bar 7 VOLVO-EC 8 SGX 9 Non Used 10 24V/12V Voltage Type	Defined input resistance range is 0Ω ~6000Ω, factory default is SGX Sensor.
3	Fuel Level Sensor	0 Non Used 1 User Configured 2 SGH 3 SGD	Defined input resistance range is 0Ω ~6000Ω, factory default is SGX Sensor.

9. Typical Application



GEC6110D Typical Application



GEC6120D Typical Application