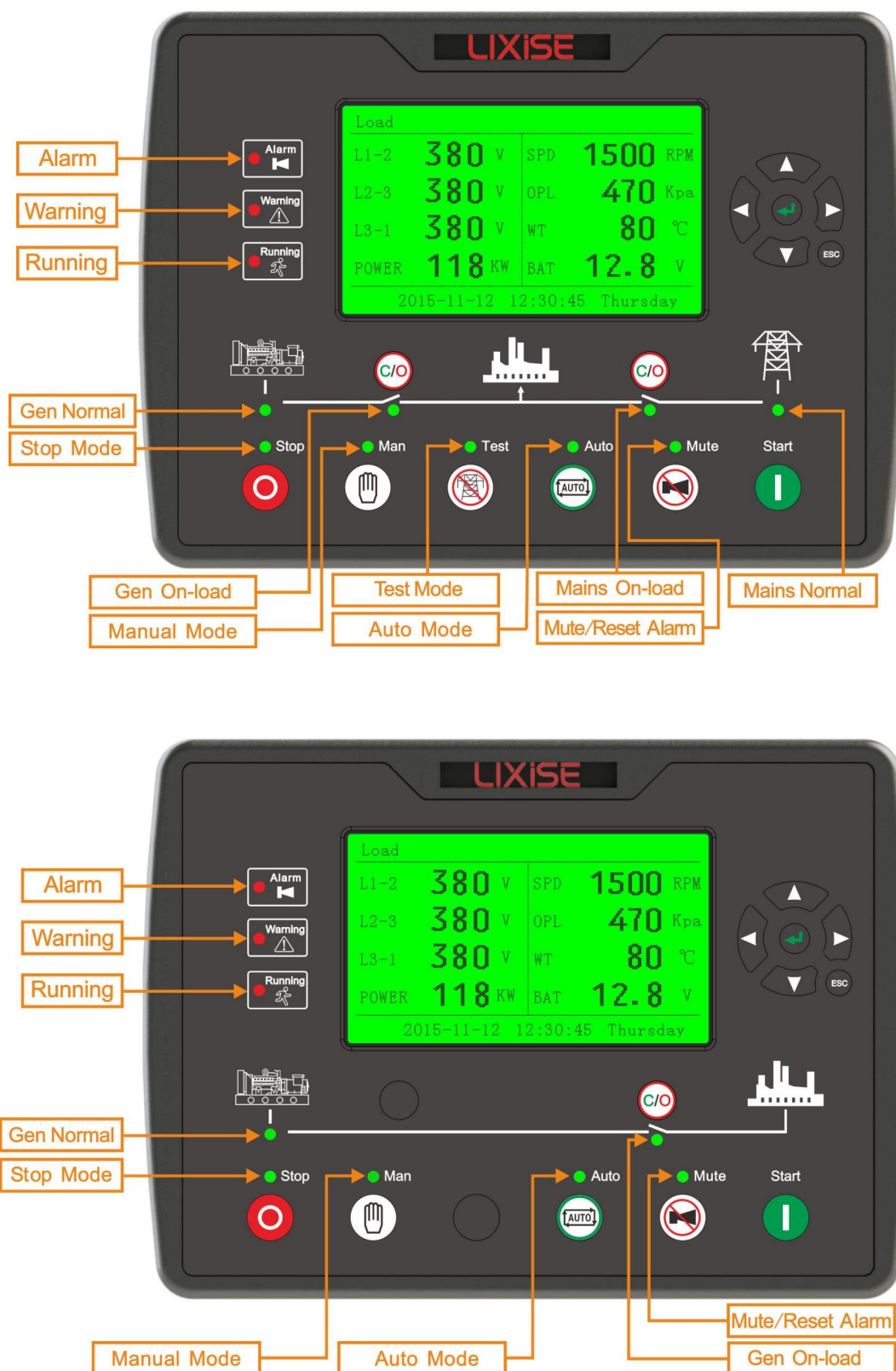
















(LXC66X0B/66X0BC/66X0BCAN/66X0N/66X0NC/66X0NCAN/)







1.Indicator light








2.Instruction for the push-buttons

	Stop/Reset	It can let the genset be stopped under the manual / automatic mode. Reset alarm in stop mode; During stopping process, press this button again to stop generator immediately.
	Start	Start genset in Manual mode or Manual Testing mode.
	Manual Mode	Press this key and controller enters in Manual mode.
	Auto Mode	Press this key and controller enters in Auto mode.
	Running With Load	Press this key and controller enters in Manual Testing mode. (except LXC6610)
	Mute/Reset Alarm	1. Eliminate the alarm 2. When a tripping alarm is not stopped, press this button to reset the alarm. But it is not possible to reset other types of alarm
	Gen Closed/Open	Can control generator to switch on or off in manual mode.
	Mains Closed/Open	Can control mains to switch on or off in manual mode.(except LXC6610)
	Confirm	1.press Key can set the parameters 2.press the Key can confirm the parameters 3. Long press this key , can enter the advanced parameter Settings.
	Up/Increase	This key can move up or increase
	Down/Decrease	This key can move down or decrease
	Move left	1. swipe screen 2. Swipe left
	Move right	1. 1. swipe screen 2. Swipe right
	Exit	1.When the screen displays other parameters, press this key to return to the home screen. 2. Press this key can cancel parameter settings that are not confirmed. 3. Long press this button to return to the home screen quickly.

3. Parameter setting

3.1: Long press  for more than 3 minutes to enter "Input Password" interface,   these two keys can add and subtract numbers,   these two keys can move left or right, After enter the password, press , it will enter the "advanced parameter setting" if the password is correct, otherwise it will exist to the home interface. Initial password is "0000"

3.2: The initial password is "0000", the password is modifiable, to prevent others from changing the controller's advanced configuration at random. Please keep in mind after changing the password, if you forget the password, please contact the customer service of the manufacturer. Long press , feedback all the information from the page to the customer service personnel. (detail as follow picture)

3.3: Existing the configuration interface, and pressing   at the same time, it can increase the contrast of the LCD screen, and press   at the same time it can decrease the contrast of the LCD screen.

Input Password

0000

1 Module LXC6620

2 Hardware Version: 00023

3 Software Version: 00043

4 Serial Number: 0303006070

5 Request Code: 3095

4.Adjustable parameters

New controller usage setting guid:

1. Setting up the ratio of rated current and current transformer
2. Set rated voltage;
3. Set the type of temperature and oil pressure sensor;
4. Set the generator series, set the 1500 speed to 4, and 3000 turn to 2 level.;
5. If you use the speed sensor, you need to set the number of flywheels. The simple way is to choose from the engine menu.;

No.		Items	Range	Factory Default	Description
The timer Settings	1	Start Delay	(0-3600)s	1	Time from the abnormal mains or the remote boot signal to the genset is turned on.
	2	Stop Delay	(0-3600)s	1	Time from normal mains or remote boot signal is invalid to the genset is turned off.
	3	Preheat Delay	(0-300)s	0	Power-on time of heater plug before starter is powered up.
	4	Boot Time	(1-60)s	8	Power-on time of starter.
	5	Boot Interval Time	(3-60)s	10	The waiting time before the second power up when engine boot fail.
	6	Safe running time	(1-60)s	10	Alarms for low oil pressure, high temperature, under speed, under frequency/voltage, charge alt failure are inactive.
	7	Boot Idle time	(0-3600)s	0	Idle running time of genset when starting.
	8	Warming Up Time	(0-3600)s	10	Warming time between genset switch on and high speed running.
	9	Radiating time	(3-3600)s	10	Radiating time before genset stop, after it unloads
	10	Stop Idle Time	(0-3600)s	0	Stop idle time when genset boot .
	11	ETS Solenoid Hold	(0-120)s	20	Stop electromagnet's power on time when genset is stopping.
	12	Waiting time of completing stopping	(0-120)s	0	Time between ending of genset idle delay and stopped when “ETS time” is set as 0; Time between ending of ETS hold delay and stopped when “ETS time” is not 0.
	13	Switch shift delay time	(0-99.9)s	1.0	Interval time from mains switch off to generator switch on; or from generator switch off to mains switch on.
	14	Switch closing pulse delay	(0-100.0)s	5.0	Pulse width of mains/generator switch on.
	15	Open fuel delay	(0-360)s	1.5	
Engine set		Engine ECU type	(0-46)	0	Select according to the engine type (only LXC6620-CAN from this option)
	1	Rated Speed	(0-6000RPM)	1500	Offer standard to judge over /under/ loading speed.
	2	Using speed sensor	Enable / prohibit	Enable	

	3	Flywheel Teeth	(10-300)	118	Tooth number of the engine, for judging of starter crank disconnect conditions and inspecting of engine speed. See the following installation instructions.
	4	Automatic calculation of tooth number (when normal generating)			When the generator is running normally, the number of teeth is automatically calculated by the frequency of the power generation and the rated speed. The specific use method : through the "confirmation" when the generator is running normally. Reference use guide 5
	5	Boot trial times	(1-10)	3	The number of times that the engine starts at the most unsuccessful boot. When the set number of boot is reached, the controller will send out the boot failure signal.
	6	Engine alarm setting			
	6.1	Speed signal loss delay	(0-20.0)s	3.0	Speed signal loss time delay
	6.2	Speed signal loss action	Warning /Shutdown	Shut down	
	6.3	Overspeed stop threshold	(0-6000)RPM	1710	When the engine speed exceeds this value and lasts for 2S, that means overspeeding, and an overspeed alarm stop signal is issued.
	6.4	Under speed stop threshold	(0-6000)RPM	1200	If the engine speed is lower than this value and lasts for 10s, it is considered to be under speed, an under speed alarm stop signal is issued.
	6.5	Charging failure warning threshold	(0-30)V	6.0	During the normal operation of the genset, the D+ (WL) voltage of the charger is lower than this value and continues. After 5S, the charging failure alarm is sent out. (the return difference is 1V).
	6.6	Battery overvoltage warning threshold	(12-40)V	33.0	When battery voltage exceeds this value and remains for 20s, It will initiate a warning alarm signal. Only warning and not to shutdown the generator. (Return value is 1V)
	6.7	Battery undervoltage warning threshold	(4-30)V	8.0	When battery voltage has fallen below the set value and remains for 20s, It will initiate a warning alarm signal. Only warning and not to shutdown the generator. (Return value is 1V)
	6.8	Actuator overvoltage option	Enable / prohibit	enable	
	6.9	Actuator overvoltage threshold	(0-5999)V	55.0	
	6.10	Actuator overvoltage delay	(0-3600)S	2.0	
	7	Separation condition of starting motor			
	7.1	successful start conditions	(0-8)	6	The conditions for the separation of the starters. The separation of starter and engine is based on power generation, magnetic sensor and oil pressure. The purpose is to separate the starting motor from the engine as soon as possible.
	7.2	successful start frequency	(10.0-30.0)Hz	14.0	During the starting process ,when the generator frequency exceeds this value, it means the genset is booted successfully,and the starter will be separated.
	7.3	successful start speed	(0-3000)RPM	360	when the engine speed exceeds this value, it means the genset is booted successfully,and the starter will be separated.
	7.4	successful start oil pressure	(0-400)kPa	200	when the engine oil pressure exceeds this value, it means the genset is booted successfully,and the starter will be separated
	7.5	successful start D+ voltage	(3.0-32.0)V	8	when the engine D+ exceeds this value, it means the genset is booted successfully,and the starter will be separated
Generator settings	1	Gen Rated Volt	(30-620V)	230	Provide reference for overvoltage, undervoltage and load voltage estimation
	2	Gen Rated Freq	(10-65Hz)	50	Provide reference for over frequency, under frequency and load frequency estimation.
	3	Gen Rated Current	(5-6000)A	500	It refers to the rated current of the generator, which is used to calculate the load overcurrent.
	4	Gen Rated Active	(1-59999)Kw	110	
	5	Change of current transformer	(5-6000)/5	500	The ratio of the external current transformer.

	6	AC power supply mode	(0-3)	0	0 Three phase four wire; 1 Two phase three wire 2 Single phase two wire; 3 Three phase three wire。 Detailed function see note 3。
	7	Gen Poles	(2-16)	4	
	8	Automatic calculation of polar (when power generation is normal)			
	9	Generator alarm setting			
	9.1	Abnormal generation voltage delay	(0-20.0)s	10	When the generation voltage is too high or too low to alarm delay
	9.2	Overvoltage shutdown protection for power generation	Enable / prohibit	Enable	
	9.3	Overvoltage shutdown threshold of power generation	(30-620)V	262	When the generation voltage is higher than this value and the "power generation abnormal delay" is continuously set, it means that the generation voltage is too high and the shutdown alarm of abnormal power generation is issued at the same time.
	9.4	Undervoltage shutdown protection for power generation	Enable / prohibit	Enable	
	9.5	Undervoltage shutdown threshold of power generation	(30-620)V	196	When the sampling voltage is lower than this value and the "power generation abnormal delay" is continuously set, it means that the generation voltage is too low and the shutdown alarm of abnormal power generation is issued at the same time.
	9.6	Over frequency shutdown protection of power generation	Enable / prohibit	Enable	
	9.7	Over frequency shutdown threshold of power generation	(0-75.0)Hz	57.0	When the generator frequency exceeds this value and lasts 2s, that means overfrequency, and the shutdown alarm of overfrequency is issued.
	9.8	Under frequency shutdown protection for power generation	Enable / prohibit	Enable	
	9.9	Over frequency shutdown threshold of power generation	(0-75.0)Hz	45.0	When the generator frequency is lower than this value and is not zero and continuous 10s, that means underfrequency, and the shutdown alarm of underfrequency is issued
	9.10	Excitation overvoltage option	Enable / prohibit	Enable	
	9.11	Excitation overvoltage threshold	(0-5999)V	55.0	
	9.12	Excitation overvoltage delay	(0-3600)S	2	
	10	Overcurrent protection setting			
	10.1	Overcurrent protection threshold	(50-130)%	100.0	When the load current is greater than this percentage, the overcurrent delay begins.
	10.2	Overcurrent protection action	Warning / shutdown / trip stop	stop	
	10.3	Overcurrent delay type	Fixed delay / multiplex delay	Fixed	
	10.4	Overcurrent protection delay	(0-3600)s	30	When the load current and the continuous setting time are greater than the set value it means overcurrent.
Mains settings	1	Rated voltage of mains	(30-620V)	230	Providing benchmarks for overvoltage and undervoltage judgment
	2	Confirmation time of normal mains	(0-3600)s	10	The time is for switching ATS,that when the mains voltage is from abnormal to normal or from normal to abnormal.
	3	Confirmation time of abnormal mains	(0-3600)s	5	
	4	Mains overvoltage alarm	Enable / prohibit	Enable	

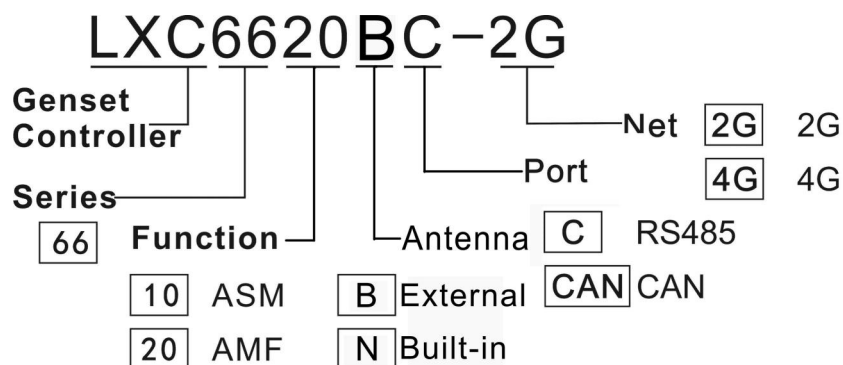
The sensor is settings	5	Mains overvoltage threshold	(30-620)V	276	When the sampling voltage is higher than this value, it is considered that the mains voltage is too high. The return difference is 10V. (time delay is 1s)
	6	Mains undervoltage alarm	Enable / prohibit	Enable	
	7	Mains undervoltage threshold	(30-620)V	184	When the sampling voltage is lower than this value, it is considered that the mains voltage is too low. The return difference is 10V. (time delay is 1s)
	8	Mains detection	Enable / prohibit	Enable	
	1	Temperature sensor setting			
	1.1	Selection of temperature sensor	(0-12)	5	SGX
	1.2	Open operation of temperature sensor	No / warning / shutdown	shutdown	The instruction is displayed on the display position of the temperature sensor LCD screen as "+ + +".
	1.3	High water temperature alarm	Enable / prohibit	Enable	
	1.4	High water temperature threshold	(80-140)°C	98	When the temperature value of the external temperature sensor is greater than this value, an excessive temperature signal is issued. This value is only judged after the end of the safety delay. And it is only for the external temperature sensor judgement
	1.5	High water temperature action	Warning / shutdown	shutdown	1. Warning; 2. shutdown
	1.6	Heating option	Enable / prohibit	Prohibit	
	1.7	Heating on threshold	(0-300)°C	50	
	1.8	Heating off threshold	(0-300)°C	55	
	1.9	The longest time of heating	(0-3600)M	60	
	1.10	Custom sensor curve setting	(0-8)		Custom resistance curve
	2	Oil pressure sensor setting			
	2.1	Selection of oil pressure sensor	(0-9)	5	SGX
	2.2	Open operation of oil pressure sensor	No / warning / shutdown	shutdown	The instruction is displayed on the display position of the oil pressure sensor LCD screen as "+ + +".
	2.3	Low oil pressure alarm	Enable / prohibit	Enable	
	2.4	Low oil pressure threshold	(0-400)kPa	103	When the pressure value of the external pressure sensor is less than this value, the oil pressure is too low to delay. This value is judged only after the end of the security delay.
	2.5	Low oil pressure action	Warning / shutdown	shutdown	1. Warning; 2. shutdown
	2.6	Custom sensor curve setting			Custom resistance curve
	3	Liquid level sensor setting			
	3.1	Liquid level sensor option	(0-9)	0	The factory default: Unused
	3.2	Opening action of liquid level sensor	No / warning / shutdown	warning	The instruction is displayed on the display position of the liquid level sensor LCD screen as "+ + +".
	3.3	Low fuel level alarm	Enable / prohibit	Enable	
	3.4	Fuel level low threshold	(0-100)%	10	When the liquid level of the external liquid level sensor is less than this value and lasts 10s,
	3.5	Low fuel level action	Warning / shutdown / trip stop	shutdown	
	3.6	Fuel pump on threshold	(0-100)%	25	When the fuel level is below the set value and lasts for 10s, the fuel pump on signals is outputed.
	3.7	Fuel pump off threshold	(0-100)%	80	When the fuel level is higher than the set value and lasts 10s, the fuel pump off signals is outputed
	3.8	Custom sensor curve setting			Custom resistance curve
	4.1	Configurable sensor 1			The factory default: Unused
	5.1	Configurable sensor 2			The factory default: Unused

Input settings	1	Programmable input port 1 setting			
	1.1	Function selection of programmable input port 1	(0-33)	3	High temperature outage input
	1.2	Effective logic of programmable input port 1	Closure / disconnection	Closure	Closed validity
	2	Programmable input port 2 setting			
	2.1	Function selection of programmable input port 2	(0-33)	4	Low oil pressure outage input
	2.2	Effective logic of programmable input port 2	Closure / disconnection		Effective Closure
	3	Programmable input port 3 setting			
	3.1	Function selection of programmable input port 3	(0-33)	14	Remote booting (load)
	3.2	Effective logic of programmable input port 3	Closure / disconnection		Effective Closure
	4	Programmable input port 4 setting			
	4.1	Function selection of programmable input port 4	(0-33)	7	Low oil level warning input
	4.2	Effective logic of programmable input port 4	Closure / disconnection		Effective Closure
	5	Programmable input port 5 setting			
	5.1	Function selection of programmable input port 5	(0-33)	29	unused
	5.2	Effective logic of programmable input port 5	Closure / disconnection		Effective Closure
	6	Programmable input port 6 setting			
	6.1	Function selection of programmable input port 6	(0-33)	29	unused
	6.2	Effective logic of programmable input port 6	Closure / disconnection		Effective Closure
	7	Programmable input port 7 setting			
	7.1	Function selection of programmable input port 7	(0-33)	29	unused
	7.2	Effective logic of programmable input port 7	Closure / disconnection		Effective Closure
Output settings	1	Function selection of programmable input port 1	(0-93)	16	Factory default: electricity-obtaining stop control
	2	Function selection of programmable input port 2	(0-93)	13	Factory default: Idle speed control
	3	Function selection of programmable input port 3	(0-93)	17	Factory default: Power generation closing output
	4	Function selection of programmable input port 4	(0-93)	20	Factory default: Mains closing output
	5	Function selection of programmable input port 5	(0-93)	0	Factory default: unused.
	6	Function selection of programmable input port 6	(0-93)	0	Factory default: unused.
Scheduling and maintenance settings	1	maintenance 1 alarm	Enable / prohibit	prohibit	
	2	maintenance 1 time	(1-5000) H	10	
	3	maintenance 1 time to action	Warning / shutdown / trip stop	Warning	
	4	Maximum maintenance 1 interval enabling	Enable / prohibit	prohibit	
	5	Maximum maintenance 1 interval	(1-24) month	1	
	6	maintenance 2 alarm	Enable / prohibit	prohibit	
	7	maintenance 2 time	(1-5000) H	10	
	8	maintenance 2 time to action	Warning / shutdown / trip stop	prohibit	

Model Setting	9	Maximum maintenance 2 interval enabling	Enable / prohibit	prohibit	
	10	Maximum maintenance 2 interval	(1-24) month	1	
	11	maintenance 3 alarm	Enable / prohibit	prohibit	
	12	maintenance 3 time	(1-5000) H	10	
	13	maintenance 3 time to action	Warning / shutdown / trip stop	Warning	
	14	Maximum maintenance 3 interval enabling	Enable / prohibit	prohibit	
	15	Maximum maintenance 3 interval	(1-24) month	1	
	16	Timing booting enable option	Enable / prohibit	prohibit	
	17	Timing boot load option	Load / no load	no load	
	18	Timing boot cycle option	date/week/month	month	
	19	Timing boot 1 setting			
	19.1	Timing boot time (Number of weeks)	(1-5) weeks	1	
	19.2	Timing boot time (week)	(1-7)	7	
	19.3	Timing boot time (clock)	(0-24)	00:00	
	19.4	Running time	(0-30000) min	0	
	20	Timing boot 2 setting			
	20.1	Timing boot time (Number of weeks)	(1-5) w	1	
	20.2	Timing boot time (week)	(1-7)	7	
	20.3	Timing boot time (clock)	(0-24)	00:00	
	20.4	Running time	(0-30000) min	0	
	1	Controller information	Factory information		Controller factory information
	2	Language selection	English / Chinese / Spanish / Russian	Chinese	
	3	Selection of power supply mode	(0-2)	0	0: Downtime mode 1: manual mode 2: automatic mode
	4	Pump controller	Enable / prohibit	prohibit	
	5	ATS Controller	Enable / prohibit	prohibit	
	6	Generation detection	Enable / prohibit	Enable	
	7	Forced Start	Enable / prohibit	Enable	
	8	Magnifying display	Enable / prohibit	Enable	
	9	Prohibit load display	Enable / prohibit	prohibit	
	10	Close the power generation forcibly	Enable / prohibit	prohibit	
	11	Sensor 1 Abnormal startup	Enable / prohibit	prohibit	
	12	Sensor 2 Abnormal startup	Enable / prohibit	prohibit	
	13	Screensaver display	Enable / prohibit	prohibit	
	14	Controller address	(1-247)	1	Controller address.
	15	Module date			The module date can be set by users automatically, and the time will be updated automatically after power off.
	16	Module time			Module time, users can set up automatically, and the time will automatically update after power off.
	17	Factory setting	Restore	Restore	Restore the controller to the factory configuration state.
	18	Report the record automatically	Enable / prohibit	Enable	
	19	Time interval of real time recording	(0-3600) S	120	
	20	Fault record time	(0-3600) S	18	
	23	Technician password	(0-9999)	0000	You can view and modify the configuration.
	24	Operator password	(0-9999)	1111	Only view configuration, no permission to modify.

25	GPRS Power -on mode	(0-1)	1	0: No 1: Cloud server mode
26	Negative number display	Enable / prohibi	Enable	Negative number page parameters do not display negative numbers
27	Selection of communication protocols	LXISE/Modbus	LIXISE	LXISE Modbus

5: Model naming rules



Attention:

1: When the "communication" position above is not suffix, the controller is the basic type, if you need other suffix instructions ,please contact the service personnel.

2: The network band above is default to 2G or 4G/CE. If you need other areas, please agree with the service staff.

Network settings: It can be automatically connected to the cloud service by installing the SIM card . If you need the private cloud service, please contact the service personnel.

5.1 Model comparison

Product Selection Table	LXC 6620B	LXC 6610B	LXC 6620BC	LXC 6610BC	LXC 6620B CAN	LXC 6610B CAN	LXC 6620N	LXC 6610N	LXC 6620NC	LXC 6610NC	LXC 6620N CAN	LXC 6610N CAN
Switch input port quantity	7	7	7	7	7	7	7	7	7	7	7	7
Relay output port quantity	8	8	8	8	8	8	8	8	8	8	8	8
Sensor quantity	5	5	5	5	5	5	5	5	5	5	5	5
Mains detection	•		•		•		•		•		•	
Cloud service (remote monitoring)	•	•	•	•	•	•	•	•	•	•	•	•
CAN(J1939)							•	•	•	•	•	•
RS485					•	•					•	•
RS232	•	•	•	•	•	•	•	•	•	•	•	•
USB			•	•	•	•			•	•	•	•
Real-time Clock	•	•	•	•	•	•	•	•	•	•	•	•
History record	•	•	•	•	•	•	•	•	•	•	•	•
Fault record	•	•	•	•	•	•	•	•	•	•	•	•
Network	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G	2G 或 4G

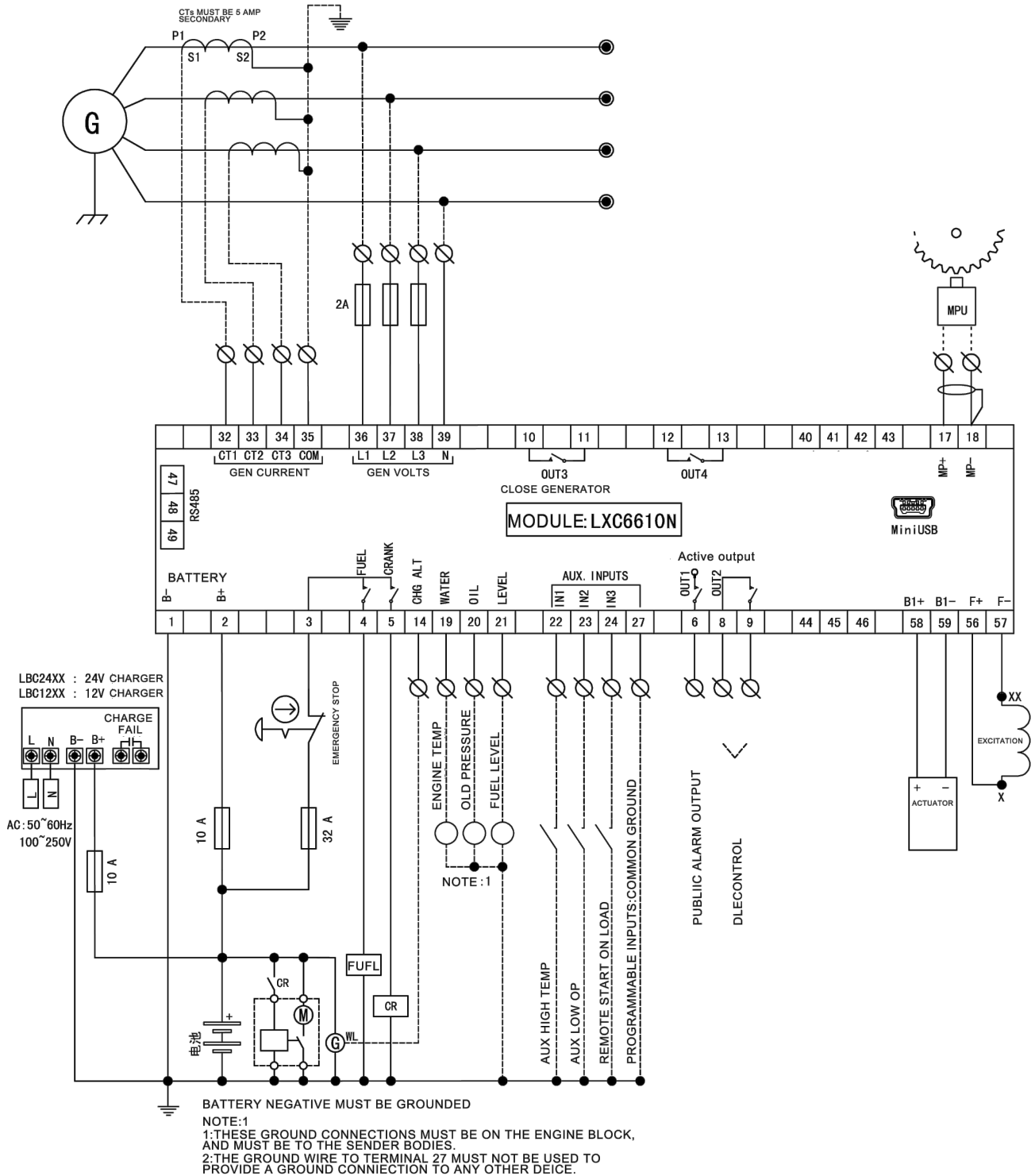
6.Installation

LXC66X0: The controller is designed to be embedded in the panel and fixed by the card when installed. The outline size and the hole size are shown as below.

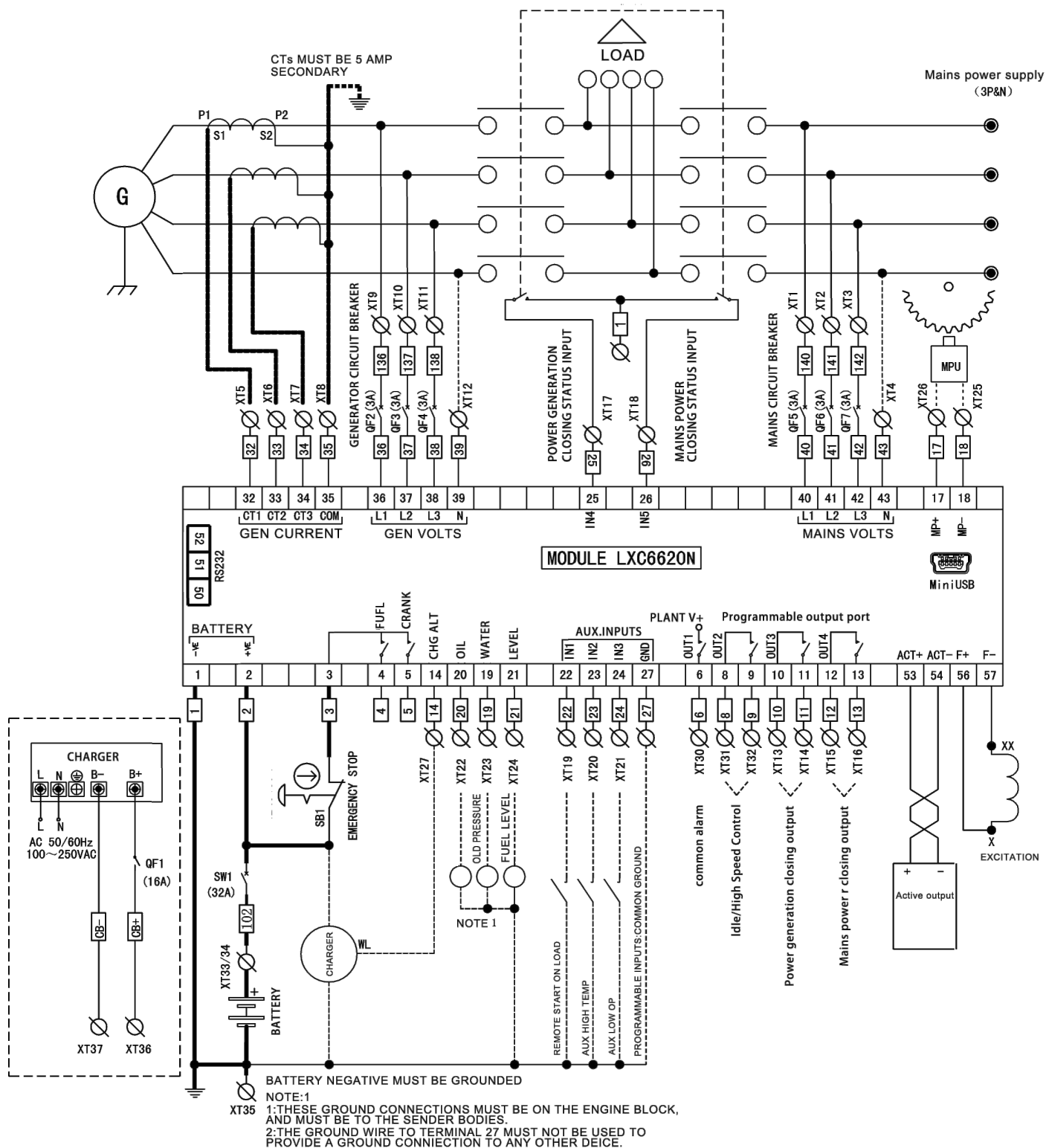
Outline size: 210mm x 152mm x 46mm

Installation hole size: 186mm x 141mm

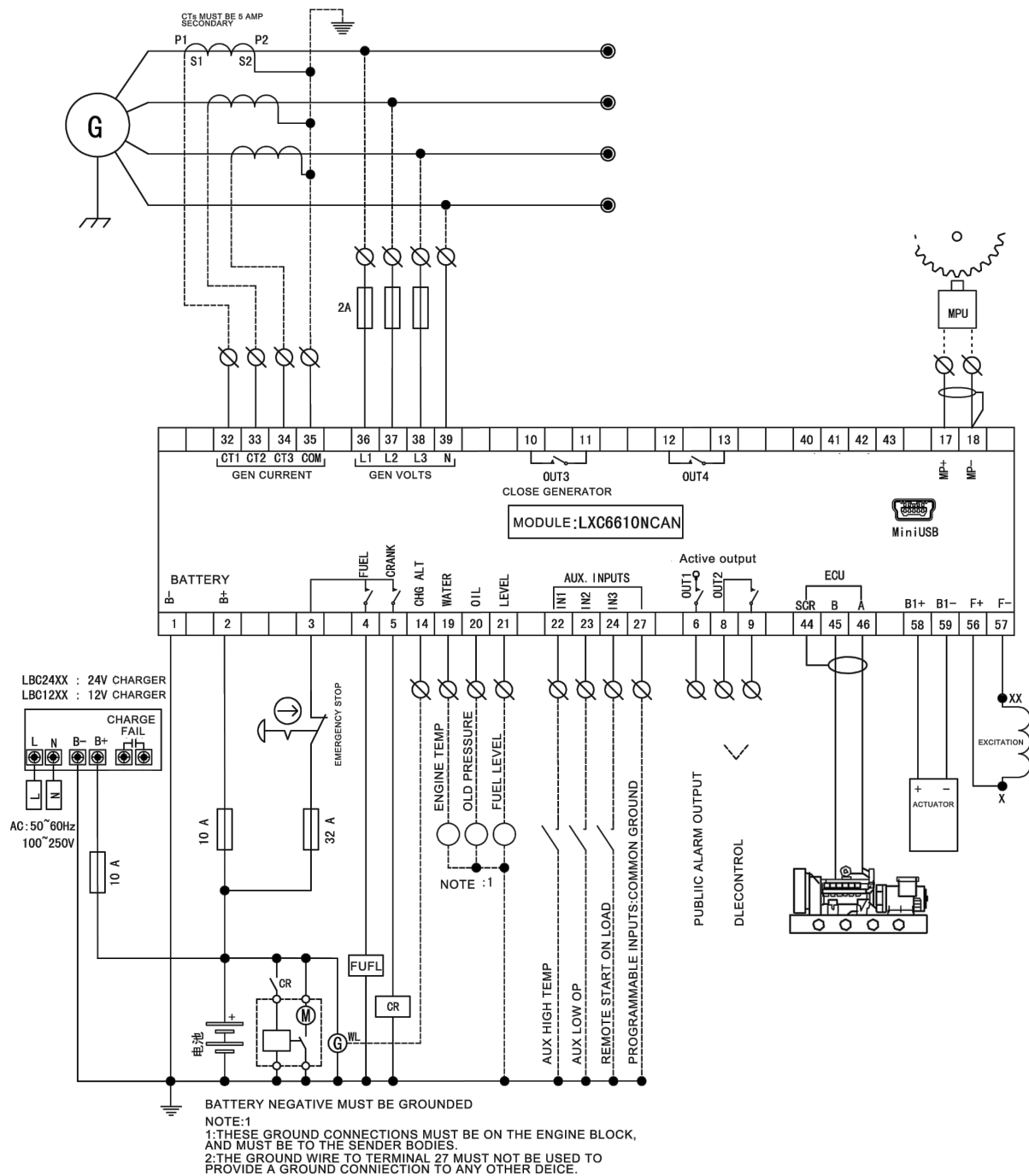
LXC6610B/LXC6610BC/LXC6610N/LXC6610NC Typical application diagram



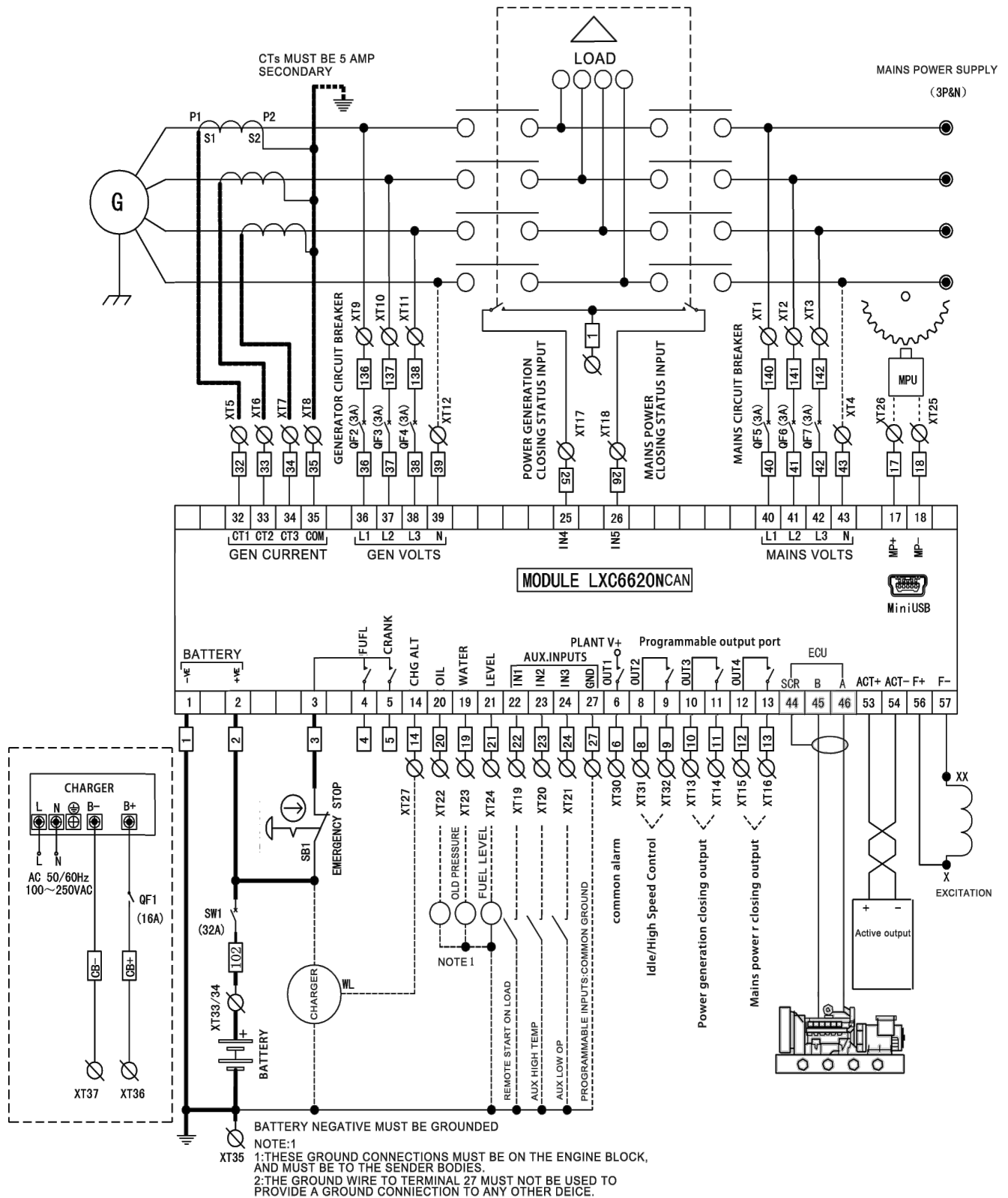
LXC6620B/LXC6620BC/LXC6620N/LXC6620NC Typical application diagram



LXC6610BCAN/LXC6610NCAN Typical application diagram



LXC6620BCAN/LXC6620NCAN Typical application diagram



7.CONNECTIONS OF CONTROLLER WITH J1939 ENGINE

7.1 CUMMINS ISB/ISBE

Table13 – Connector B

Terminals of controller	Connector B	Remark
Configurable output 1	39	Set configurable output 1 as “Fuel Relay Output”
Starting relay output	-	Connect with starter coil directly.
Configurable output 2	Expand 30A relay, battery voltage of 01, 07, 12, 13 is supplied by relay.	ECU power; Set configurable output 2 as “ECU power”.

Table 14 – 9 Pins Connector

Terminals of controller	9 pins connector	Remark
CAN_SCR	SAE J1939 shield	CAN communication shielding line (connect to ECU terminal only).
CAN(H)	SAE J1939 shield	Using impedance 120Ω connecting line.
CAN(L)	SAE J1939 shield	Using impedance 120Ω connecting line.

Engine type: Cummins ISB.

7.2CUMMINS QSL9

Suitable for CM850 engine control module.

Table 15 – 50 Pins Connector

Terminals of controller	50 pins connector	Remark
Configurable output 1	39	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	-	Connect to starter coil directly.

Table 16 – 9 Pins Connector

Terminals of controller	9 pins connector	Remark
CAN_SCR	SAE J1939 shield-E	CAN communication shielding line (connect to ECU terminal only).
CAN(H)	SAE J1939 shield-C	Using impedance 120Ω connecting line.
CAN(L)	SAE J1939 shield-D	Using impedance 120Ω connecting line.

Engine type: Cummins-CM850.

7.3 CUMMINS QSM11 (IMPORT)

It is suitable for CM570 engine control module. Engine type is QSM11 G1, QSM11 G2.

Table 17 – C1 Connector

Terminals of controller	C1 connector	Remark
Configurable output1	5&8	Set configurable output 1 as “Fuel Relay Output”. Outside expand relay, when fuel output, making make port 5 and port 8 of C1 be connected.
Starting relay output	-	Connect to starter coil directly.

Table 18 – 3 Pins Data Link Connector

Terminals of controller	3 pin data link connector	Remark
CAN_SCR	C	CAN communication shielding line (connect to ECU terminal only).
CAN(H)	A	Using impedance 120Ω connecting line.
CAN(L)	B	Using impedance 120Ω connecting line.

Engine type: Cummins ISB.

7.4 CUMMINS QSX15-CM570

It is suitable for CM570 engine control module. Engine type is QSX15.

Table 19 – 50 Pins Connector

Terminals of controller	50 pins connector	Remark
Configurable output1	38	Oil spout switch; Set configurable output 1 as "Fuel Relay Output".
Starting relay output	-	Connect to starter coil directly.

Table 20 – 9 Pins Connector

Terminals of controller	9 pins connector	Remark
CAN_SCR	SAE J1939 shield-E	CAN communication shielding line (connect to ECU terminal only).
CAN(H)	SAE J1939 shield-C	Using impedance 120Ω connecting line.
CAN(L)	SAE J1939 shield-D	Using impedance 120Ω connecting line.

Engine type: Cummins QSX15-CM570.

7.5 CUMMINS GCS-MODBUS

It is suitable for GCS engine control module. Use RS485-MODBUS to read information of engine. Engine types are QSX15, QST30, QSK23 / 45/60/78 and so on.

Table 21 – D-SUB Connector 6

Terminals of controller	D-SUB connector 06	Remark
Configurable output1	5&8	Set configurable output 1 as "Fuel Relay Output". Outside expand relay, when fuel output, connect port 06 and 08 of the connector.
Starting relay output	-	Connect to starter coil directly. .

Table 22 – D-SUB Connector 06

Terminals of controller	D-SUB connector 06	Remark
RS485 GND	20	CAN communication shielding line (connect to ECU terminal only).
RS485+	21	Using impedance 120Ω connecting line.
RS485-	18	Using impedance 120Ω connecting line.

Engine type: Cummins QSK-MODBUS, Cummins QST-MODBUS, Cummins QSX-MODBUS.

7.6 CUMMINS QSM11

Table 23 – Engine OEM Connector

Terminals of controller	OEM connector of engine	Remark
Configurable output 1	38	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	-	Connect with starter coil directly.
CAN_SCR	-	CAN communication shielding line (connect with controller’s this terminal only).
CAN (H)	46	Using impedance 120Ω connecting line
CAN (L)	37	Using impedance 120Ω connecting line

Engine type: common J1939.

7.7 CUMMINS QSZ13

Table 24 – Engine OEM Connector

Terminals of controller	OEM connector of engine	Remark
Configurable output1	45	
Starting relay output	-	Connect to starter coil directly.
CAN_SCR	16&41	Setting to idle speed control, normally open output. Making 16 connect to 41 during high-speed running of controller via external expansion relay
Configurable output 3	19&41	Setting to pulse raise speed control, normally open output. Making 19 connect with 41 for 0.1s during high-speed warming of controller via external expansion relay.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	1	Using impedance 120Ω connecting line.
CAN(L)	21	Using impedance 120Ω connecting line.

Engine type: Common J1939.

7.8 DETROIT DIESELDDEC III/IV

Table 25 – Engine CAN Connector

Terminals of controller	CAN port of engine	Remark
Configurable output 1	Expand 30A relay, battery voltage is supplied by relay.	Set configurable output 1 as “Fuel Relay Output”
Starting relay output	-	Connect to starter coil directly.
CAN_SCR	-	CAN communication shielding line
CAN(H)	CAN(H)	Using impedance 120Ω connecting line.
CAN(L)	CAN(L)	Using impedance 120Ω connecting line.

Engine type: Common J1939.

7.9 DEUTZ EMR2

Table 26 – F Connector

Terminals of controller	F connector	Remark
Configurable output 1	Expand 30A relay, battery voltage is supplied by relay.	Set configurable output 1 as “Fuel Relay Output”
Starting relay output	-	Connect to starter coil directly.
-	1	Connect to starter coil directly.
CAN_SCR	-	CAN communication shielding line
CAN(H)	12	Using impedance 120Ω connecting line.
CAN(L)	13	Using impedance 120Ω connecting line.

Engine type: VolvoEDC4.

7.10 JOHN DEERE

Table 27 – 21 Pins Connector

Terminals of controller	21 pins connector	Remark
Configurable output 1	G, J	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	D	
CAN_SCR	-	CAN communication shielding line
CAN(H)	V	使 Using impedance 120Ω connecting line.
CAN(L)	U	Using impedance 120Ω connecting line.

Engine type: John Deere.

7.11 MTU ADEC (SMART MODULE)

It is suitable for MTU engine with ADEC (ECU8) and SMART module

Table 28 – ADEC (X1 port)

Terminals of controller	ADEC (X1 port)	Remark
Configurable output 1	X1 10	Set configurable output 1 as “Fuel Relay Output”. X1 Terminal 9 Connected to negative of battery.
Starting relay output	X1 34	X1 Terminal 33 Connected to negative of battery.

Table 29 – SMART (X4 port)

Terminals of controller	SMART(X4 port)	Remark
CAN_SCR	X4 3	CAN communication shielding line.
CAN(H)	X4 1	Using impedance 120Ω connecting line.
CAN(L)	X4 2	Using impedance 120Ω connecting line.

Engine type: MTU-ADEC.

7.12 MTU ADEC (SAM MODULE)

It is suitable for MTU engine with ADEC (ECU7) and SAM module.

Table 30 – ADEC (X1 port)

Terminals of controller	ADEC (X1 port)	Remark
Configurable output 1	X1 43	Set configurable output 1 as “Fuel Relay Output”. X1 Terminal 28 Connected to negative of battery.
Starting relay output	X1 37	X1 Terminal 22 Connected to negative of battery.

Table 31 – SAM (X23 port)

Terminals of controller	SAM (X23 port)	Remark
CAN_SCR	X23 3	CAN communication shielding line
CAN(H)	X23 2	Using impedance 120Ω connecting line.
CAN(L)	X23 1	Using impedance 120Ω connecting line.

Engine type: Common J1939

7.13 PERKINS

It is suitable for ADEM3/ ADEM4 engine control mode. Engine type is 2306, 2506, 1106, and 2806

Table 32 – Connector

Terminals of controller	Connector	Remark
Configurable output 1	1, 10, 15, 33, 34	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	-	Connect to starter coil directly.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	31	Using impedance 120Ω connecting line
CAN(L)	32	Using impedance 120Ω connecting line

Engine type: Perkins.

7.14 SCANIA

It is suitable for S6 engine control mode. Engine type is DC9, DC12, and DC16.

Table 33 – B1 Connector

Terminals of controller	B1 connector	Remark
Configurable output 1	3	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	-	Connect to starter coil directly.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	9	Using impedance 120Ω connecting line
CAN(L)	10	Using impedance 120Ω connecting line

Engine type: Scania.

7.15 VOLVO EDC3

Suitable engine control mode is TAD1240, TAD1241, and TAD1242.

Table 34 – “Stand alone” Connector

Terminals of controller	”Stand alone” connector	Remark
Configurable output 1	H	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	E	
Configurable output 2	P	ECU power; Set configurable output 2 as “ECU power”.

Table 35 – “Data bus” Connector

Terminals of controller	”Data bus”connector	Remark
CAN_SCR	-	CAN communication shielding line.
CAN(H)	1	Using impedance 120Ω connecting line
CAN(L)	2	Using impedance 120Ω connecting line

Engine type: VVolvo.

NOTE: When this engine type is selected, preheating time should be set to at least 3 seconds.

7.16 VOLVO EDC4

Suitable engine types are TD520, TAD520 (optional), TD720, TAD720 (optional), TAD721, TAD722, and TAD732.

Table 36 – Connector

Terminals of controller	Connector	Remark
Configurable output 1	Expanded 30A relay, and relay offers battery voltage to terminal 14. Fuse is 16	Set configurable output 1 as “Fuel Relay Output”.
Starting relay output	-	Connect to starter coil directly.
	1	Connected to negative of battery.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	12	Using impedance 120Ω connecting line.
CAN(L)	13	Using impedance 120Ω connecting line.

Engine type: VolvoEDC4.

7.17 VOLVO-EMS2

Volvo Engine types are TAD734, TAD940, TAD941, TAD1640, TAD1641, and TAD16

Table 37 – Engine CAN Port

Terminals of controller	Engine’s CAN port	Remark
Configurable output 1	6	ECU stop; Configurable output 1 “ECU stop”.
Configurable output 2	5	ECU stop; Configurable output 1 “ECU stop”.
	3	Negative power.
	4	Positive power.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	1(Hi)	Using impedance 120Ω connecting line.
CAN(L)	2(Lo)	Using impedance 120Ω connecting line.

Engine type: Volvo-EMS2.

NOTE: When this engine type is selected, preheating time should be set to at least 3 seconds.

7.18 YUCHAI

It is suitable for BOSCH common rail electronic-controlled engine.

Table 38 – Engine 42 Pins Port

Terminals of controller	Engine 42 pins port	Remark
Configurable output 1	1.40	Set configurable output 1 as “Fuel Relay Output”. Connect to engine ignition lock.
Starting relay output	-	Connect to starter coil directly.
CAN_SCR	-	CAN communication shielding line.
CAN(H)	1.35	Using impedance 120Ω connecting line
CAN(L)	1.34	Using impedance 120Ω connecting line

Table 39 – Engine 2 Pins Port

Battery	Engine 2 pins	Remark
Battery negative	1	Wire diameter 2.5mm ²
Battery negative	2	Wire diameter 2.5mm ²

Engine type: BOSCH.

6.19 WEICHAI

It is suitable for Weichai BOSCH common rail electronic-controlled engine.

Table 40 – Engine Port

Terminals of controller	Engine port	Remark
Fuel relay output	1.40	Connect to engine ignition lock.
Starting relay output	1.61	
CAN_SCR	-	CAN communication shielding line.
CAN(H)	1.35	Using impedance 120Ω connecting line.
CAN(L)	1.34	Using impedance 120Ω connecting line.

Engine type: GTSC1

注意：如控制器与 ECU 通信中有任何问题，请与我公司服务人员联系。