



TECHNICAL MANUAL

6120MKIII

Generator Control Module

<https://gensetpart.com/generator-controller/>

COMPATIBLE REPLACEMENT PART

POPULACE has manufactured generator electronic parts in Xiamen, China since 2006. 1000+ SKUs in stock, 1-5 day dispatch, every unit burn-in tested before shipment.

Document contents

- Specification and technical characteristics
- Terminal assignment and wiring diagram
- Installation, adjustment and settings
- Troubleshooting table

This document is supplied by POPULACE Electronic Co., Ltd. as an installation and operating guide for a POPULACE compatible replacement part. It is not an original equipment manufacturer (OEM) document. Any brand names or part numbers mentioned are for cross-reference and identification purposes only and do not indicate affiliation with, or endorsement by, the respective manufacturers.

Why source this part from POPULACE

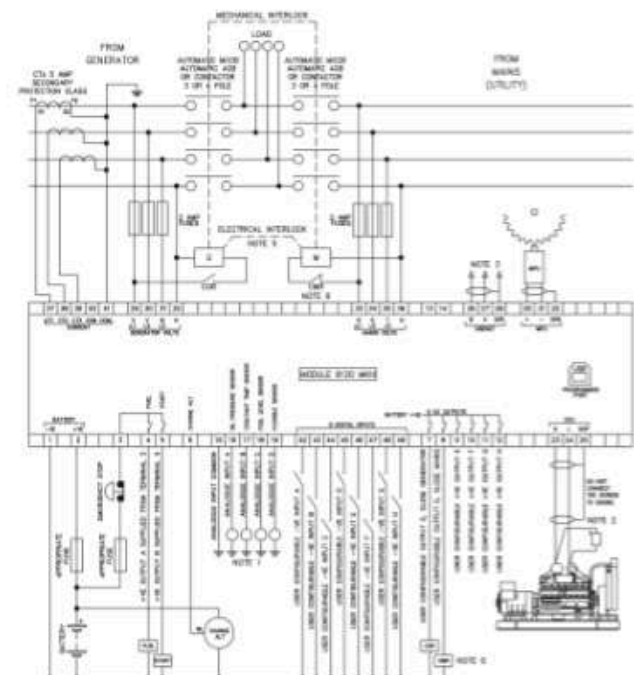
- Factory in Xiamen, China - operating since 2006 (20 years)
- Over 1000 SKUs held in stock; dispatch within 1-5 days
- Every unit burn-in tested at 65 C before shipment
- CE and ISO 9001 production system; full batch traceability
- Free technical support for wiring, settings and fault diagnosis

Get a quote / technical support

Web: <https://gensetpart.com>
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Phone / WhatsApp: +86-138-5038-3550

No.702 Xiniya Building, No.90 Anling Second Road, XIAMEN, FUJIAN, China

TYPICAL WIRING DIAGRAM



DIMENSIONS AND MOUNTING

Parameter	Specification
Dimensions	216mm x 159mm x 43mm (8.5" x 6.2" x 1.5")
Panel Output	184mm X 137mm (7.2" X 5.3")
Weight	0.5 kg (1.1 lb)
Operating Temperature	-40°C to +70°C (-40°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)

OUTPUT SOURCES CONTINUED

Output Sources Continued		
63 DPF Forced Regen Requested	140 Lamp Test	217 System In Auto Mode
64 DPF Non Mission	141 Load Freq Not Reached	218 System In Man Mode
65 DPF Regen Active	142 Load Volts Not Reached	219 System In Stop Mode
66 DPF Regen Interlock	143 Loss Of MPU Signal	220 System In Test Mode
67 DPTC Filter	144 Louvre Control	221 Telemetry Active
68 Droop Enable	145 Low Coolant Temp	222 Telemetry Data Active
69 ECU (ECM) Data Fail	146 Low Load	223 Temp Sensor OC
70 ECU (ECM) Power	147 Low Oil Pressure Sch	224 Low Freq Alarm
71 ECU (ECM) Shutdown	148 Low Oil Pressure Wng	225 Low Freq Warning
72 ECU (ECM) Stop	149 Main Config Selected	226 Low Speed Alarm
73 ECU (ECM) Warning	150 Mains Closed Aux	227 Low Speed Warning
74 ECU Pre-Heat	151 Mains Failure	228 Wait For Man Restore
75 EJP1	152 Mains High Freq	229 Water In Fuel
76 EJP2	153 Mains High Volts	

Abbreviation Table Overlay

Output Sources Continued Overlay

OUTPUT SOURCES

Output Sources		
0 Not Used	77 Emergency Stop	154 Mains Load Inhibit
1 Air Flap Relay	78 Engines To Stop	155 Mains Low Freq
2 Alarm Mute	79 External Panel Lock	156 Mains Low Volts
3 Alarm Reset	80 Fail To Start	157 RESERVED
4 Alt Config 1 Selected	81 Fail To Stop	158 Maintenance Alarm 1 Due
5 RESERVED	82 Fan Control	159 Maintenance Alarm 2 Due
6 RESERVED	83 Flex Sensor A High Alarm	160 Maintenance Alarm 3 Due
7 RESERVED	84 Flex Sensor A High Pre-Alarm	161 Manual Restore Contact
8 RPS/RMFD	85 Flex Sensor A Low Alarm	162 MPU Open Circuit
9 Analogue Input A	86 Flex Sensor A Low Pre-Alarm	163 RESERVED
10 Analogue Input B	87 Flex Sensor A OC	164 Oil Pressure Sensor OC
11 Analogue Input C	88 Flex Sensor B High Alarm	165 Oil Pressure Switch
12 Analogue Input D	89 Flex Sensor B High Pre-Alarm	166 Open Gen Output
13 Arm Safety On Alarms	90 Flex Sensor B Low Alarm	167 Open Gen Pulse
14 Audible Alarm	91 Flex Sensor B Low Pre-Alarm	168 Open Mains Output
15 Auto Restore Inhibit	92 Flex Sensor B OC	169 Open Mains Pulse
16 Auto Start Inhibit	93 Flex Sensor C High Alarm	170 Over Current DMT Alarm
17 Auxiliary Mains Failure	94 Flex Sensor C High Pre-Alarm	171 Over Current Imm Warning
18 Battery High Volts	95 Flex Sensor C Low Alarm	172 Over Freq Runaway
19 Battery Low Volts	96 Flex Sensor C Low Pre-Alarm	173 Over Freq Warning
20 Call For Scheduled Run	97 Flex Sensor C OC	174 Over Speed Runaway
21 Charge Alt Fail Shutdown	98 Flex Sensor D High Alarm	175 Over Speed Shutdown
22 Charge Alt Fail Warning	99 Flex Sensor D High Pre-Alarm	176 Over Speed Warning
23 Close Gen Output	100 Flex Sensor D Low Alarm	177 Overspeed Delayed Alarm
24 Close Gen Pulse	101 Flex Sensor D Low Pre-Alarm	178 Overspeed Delayed Wng
25 Close Mains Output	102 Flex Sensor D OC	179 Overspeed Overshoot Alarm
26 Close Mains Pulse	103 Fuel Level High Alarm	180 Overspeed Overshoot Wng
27 Combined Mains Failure	104 Fuel Level High Pre-Alarm	181 Pre-heat During Pre-heat Timer
28 Maintenance Alm 1,2,3	105 Fuel Level Low Alarm	182 Pre-heat Until Crank End
29 Common Lo-Hi Freq Alm	106 Fuel Level Low Pre-Alarm	183 Pre-heat Until End Of Safety
30 Combined Lo-Hi Freq Warning	107 Fuel Pump Control	184 Pre-heat Until End Of Warning
31 Combined Lo-Hi Volt Alm	108 Fuel Relay	185 Protections Disabled
32 Combined Lo-Hi Volt Wng	109 Fuel Sensor OC	186 Remote Control 1
33 Common Alarm	110 Fuel Tank Bund Level High	187 Remote Control 10
34 Common E Trip	111 RPS/RMFD	188 Remote Control 2
35 Common Shutdown	112 Gas Choke On	189 Remote Control 3
36 Common Warning	113 Gas Injection	190 Remote Control 4
37 Config CAN 1 Active	114 Gen Loading Freq Not Reached	191 Remote Control 5
38 Config CAN 10 Active	115 Gen Loading Volts Not Reached	192 Remote Control 6
39 Config CAN 2 Active	116 Gen Hi Freq Overshoot Alm	193 Remote Control 7
40 Config CAN 3 Active	117 Gen Hi Freq Overshoot Wng	194 Remote Control 8
41 Config CAN 4 Active	118 Gen Available	195 Remote Control 9
42 Config CAN 5 Active	119 Gen Closed Aux	196 Remote Start Off Load
43 Config CAN 6 Active	120 Gen Excite	197 Remote Start On Load
44 Config CAN 7 Active	121 Gen High Volts Alarm	198 Reset Maintenance 1
45 Config CAN 8 Active	122 Gen High Volts Warning	199 Reset Maintenance 2
46 Config CAN 9 Active	123 Gen High Volts Shutdown	200 Reset Maintenance 3
47 Coolant Cooler Control	124 Gen Load Inhibit	201 Scheduled Auto Start Inhibit
48 Coolant Heater Control	125 Gen Low Volts Alarm	202 SCR Inducement
49 Coolant Temp Switch	126 Gen Low Volts Warning	203 Sensitive Active
50 Cooling Down	127 Gen High Freq Alarm	204 Shutdown Flackert
51 Data Logging Active	128 Gen High Freq Delayed Alm	205 Simulate Auto Button
52 DEF Level Low	129 Gen High Freq Delayed Warning	206 Simulate Close Gen
53 DEF Level Low Alarm	130 RESERVED	207 Simulate Lamp Test
54 Digital Input A	131 RESERVED	208 Simulate Mains Available
55 Digital Input B	132 H-EST Active	209 Simulate Mains Trip
56 Digital Input C	133 High Coolant Temp E Trip	210 Simulate Open Gen
57 Digital Input D	134 High Coolant Temp Sch	211 Simulate Start
58 Digital Input E	135 High Coolant Temp Warning	212 Simulate Stop
59 Digital Input F	136 High Inlet Temp Shutdown	213 Simulate Test On Load
60 Digital Input G	137 High Inlet Temp Warning	214 Smoke Limiting
61 Digital Input H	138 Inhibit Scheduled Run	215 Start Relay
62 HTR Fitted and ON	139 kW Overload Alarm	216 Stop And Panel Lock

Abbreviation Table Overlay

Output Sources Continued Overlay

6110 MKIII & 6120 MKIII
Installation Instructions

ACCESSING THE MAIN CONFIGURATION EDITOR

- Ensure the engine is at rest and the module is in STOP mode by pressing the (Stop/Reset) button.
- Press the (Stop/Reset) and (Tick) buttons simultaneously.
- If a module security PIN has been set, the PIN number request is then shown:
- The first '#' changes to '0'. Press the (Up) or (Down) button to adjust it to the correct value.
- Press the (Right) button when the first digit is correctly entered. The digit previously entered now shows '#' for security.
- Repeat this process for the other digits of the PIN number. If required press the (Left) button to move back to adjust one of the previous digits.
- PIN is checked for validity when the (Tick) button is pressed. If the number is not correct, the PIN must be re-entered.
- If the PIN has been successfully entered (or the module PIN has not been entered), the editor is displayed:

EDITING A PARAMETER

Enter the editor as described above.

- Press the (Right) or (Left) buttons to cycle to the section to view/change.
- Press the (Up) or (Down) buttons to select the parameter to view/change within the currently selected section.
- To edit the parameter, press the (Tick) button to enter edit mode. The parameter begins to flash to indicate editing.
- Press the (Up) or (Down) buttons to change the parameter to the required value.
- Press the (Tick) button to save the value. The parameter ceases flashing to indicate that it has been saved.
- To exit the editor and save the changes, press and hold the (Tick) button.
- To exit the editor without saving the changes, press and hold the (Stop/Reset) button.

ACCESSING THE 'RUNNING' CONFIGURATION EDITOR

- The 'running' editor can be entered while the engine is running. All protections remain active if the engine is running while the running editor is entered.
- Press and hold the (Tick) button to enter the running editor.

RUNNING CONFIGURATION EDITOR PARAMETERS

Section	Parameter As Shown On Display	Section	Parameter As Shown On Display
Module	Contrast	Engine Continued	Frequency Adjust
	Language		DPF Auto Regen Inhibit
Engine	Manual Freq Trim		DPF Man Regen Request
	Speed Bias		ECU Service Mode
	Governor Gain		

NOTE: If the editor is inactive for the duration of the LCD Page Timer, it is automatically exited to ensure security.

NOTE: The PIN number is automatically reset when exiting the editor (manually or automatically) to ensure security.

MAIN CONFIGURATION EDITOR PARAMETERS

Section	Parameter As Shown On Display
Module	Contrast
	Language
	Current Date and Time
	Fast Loading
	Warnings Latched
	Lamp Test At Start Up
	Power Save Mode
	Backlight Power Saving
	Event Log Display Format
	Maintenance Pin Protect
	Cool Down In Stop Mode
	Hold Start Button To Crank
	Power Up In Voice
	Audible Alarm Timer
	Suppress Instrument Generator Voltage
	Suppress Instrument Generator Frequency
	Suppress Instrument Mains Voltage
	Suppress Instrument Mains Frequency
	Suppress Instrument Current
	Suppress Instrument kW
	Suppress Instrument Heat
	Suppress Instrument kVA
	Suppress Instrument Power Factor
	Suppress Instrument kWh
	Suppress Instrument kWh
	Suppress Instrument kWh
	Suppress Instrument Charge Alternator
Alt Config	Alternate Configuration
Engine	Start Attempts
	Gas Engine Choke (Gas Engine Only)
	Gas Engine Delay (Gas Engine Only)
	Ignition Off Delay (Gas Engine Only)
	Crank Disconnect Oil Pressure
	Oil Pressure Check Prior to Starting
	Crank Disconnect Frequency
	Crank Disconnect Engine Speed
	Crank Disconnect Oil Pressure
	Oil Pressure Low Shutdown
	Oil Pressure Low Pre-Alarm
	Coolant Temp Low Warning
	Coolant Temp High Pre-Alarm
	Coolant Temp High Electrical Trip
	Coolant Temp High Shutdown
	Fuel Usage Running Rate
	Fuel Usage Stopped Rate
	Specific Gravity
	Pre-Heat Temp
	Pre-Heat Timer
	Post-Heat Temp
	Post-Heat Timer
	Droop (Enable)
	Droop Control
	Under Speed Shutdown (Enable)
	Under Speed Shutdown Trip
	Under Speed Warning (Enable)
	Under Speed Warning Trip
	Under Speed Delay
	Under Voltage Return
	Under Voltage (Enable)
	Under Voltage Return
	Over Speed Warning (Enable)
	Over Speed Warning
	Over Speed Shutdown Trip
	Over Speed Delay
	Overspeed Overshoot
	Overspeed Overshoot Delay
	Battery Under Voltage Warning (Enable)
	Battery Under Voltage Warning
	Battery Under Voltage Warning Return

Section	Parameter As Shown On Display
Engine Continued	Battery Under Voltage Warning Delay
	Battery Over Voltage Warning (Enable)
	Battery Over Voltage Warning Return
	Charge Alternator Failure Warning (Enable)
	Charge Alternator Failure Warning
	Charge Alternator Failure Warning Delay
	Charge Alternator Failure Shutdown (Enable)
	Charge Alternator Failure Shutdown
	Charge Alternator Failure Shutdown Delay
	Low Battery Start (Enable)
	Low Battery Run On Load (Enable)
	Low Battery Start Threshold
	Low Battery Start Delay
	Low Battery Run Time
	Magnetic Pickup (Enable)
	Flywheel Teeth
Generator	AC System
	Alternator Fitted
	Alternator Poles
	Under Voltage Alarm (Enable)
	Under Voltage Alarm Trip
	Under Voltage Pre-Alarm (Enable)
	Under Voltage Pre-Alarm Trip
	Under Voltage Delay
	Loading Voltage
	Nominal Voltage
	Over Voltage Pre-Alarm (Enable)
	Over Voltage Pre-Alarm Return
	Over Voltage Pre-Alarm Trip
	Over Voltage Shutdown Trip
	Over Voltage Delay
	Under Frequency Alarm (Enable)
	Under Frequency Alarm Trip
	Under Frequency Pre-Alarm (Enable)
	Under Frequency Pre-Alarm Trip
	Under Frequency Delay
	Loading Frequency
	Nominal Frequency
	Over Frequency Pre-Alarm (Enable)
	Over Frequency Pre-Alarm Return
	Over Frequency Pre-Alarm Trip
	Over Frequency Shutdown Trip
	Over Frequency Delay
	Frequency Overshoot Shutdown
	Frequency Overshoot Delay
	CT Location
	CT Primary
	Full Load Rating
	Immediate Over Current (Enable)
	Delayed Over Current (Enable)
	Delayed Over Current
	Full Load kW Rating
	kW Overload Alarm (Enable)
	kW Overload Alarm Action
	kW Overload Alarm Return
	kW Overload Alarm Trip
	kW Overload Alarm Delay
Mains 6120 MKIII Only	Mains Failure Detection
	Immediate Mains Dropout
	Under Voltage (Enable)
	Under Voltage Trip
	Under Voltage Return
	Over Voltage (Enable)
	Over Voltage Return
	Over Voltage Trip
	Under Frequency (Enable)
	Under Frequency Trip
	Under Frequency Return
	Over Speed Delay
	Overspeed Overshoot
	Overspeed Overshoot Delay
	Battery Under Voltage Warning (Enable)
	Battery Under Voltage Warning
	Battery Under Voltage Warning Return

Section	Parameter As Shown On Display
Timers Continued	Start Delay Mains Fail
	Start Delay Telemetry
	Mains Transient Delay
	Cranking
	Cranking Rest
	Smoke Limiting
	Smoke Limiting Off
	DPF Ramp
	Safety On Delay
	Warning
	ECU Override
	Mains Transfer Time
	Breaker Close Pulse
	Breaker Trip Pulse
	Return Delay
	Cooling
	Cooling At Idle
	ETS Solenoid Hold
	Fail To Stop Delay
	LCD Page Delay
	LCD Scroll Delay
	Backlight Timer
	Sleep Timer
	Audible Alarm
CAN ECU	Alternate Engine Speed
	ECU Data Fail
	ECU Data Fail Action
	ECU Data Fail Delay
	Use Module Oil Pressure
	Use Module Coolant Temp
	Use Module Engine Hours
	Use Module RPM
	Use Module Charge Alt
Maintenance Alarms	Maintenance Alarm 1 (Enable)
	Maintenance Alarm 1 Action
	Maintenance Alarm 1 Engine Hours
	Maintenance Alarm 1 On Due Date
	Maintenance Alarm 1 Interval
	Maintenance Alarm 2 (Enable)
	Maintenance Alarm 2 Action
	Maintenance Alarm 2 Engine Hours
	Maintenance Alarm 2 On Due Date (Enable)
	Maintenance Alarm 2 Interval
	Maintenance Alarm 3 (Enable)
	Maintenance Alarm 3 Action
	Maintenance Alarm 3 Engine Hours
	Maintenance Alarm 3 On Due Date (Enable)
	Maintenance Alarm 3 Interval
Outputs	Digital Output A Source
	Digital Output A Polarity
	Digital Output B Source
	Digital Output B Polarity
	Digital Output C Source
	Digital Output C Polarity
	Digital Output D Source
	Digital Output D Polarity
	Digital Output E Source
	Digital Output E Polarity
	Digital Output F Source
	Digital Output F Polarity
	Digital Output G Source
	Digital Output G Polarity
	Digital Output H Source
	Digital Output H Polarity
	Digital Output I Source
	Digital Output I Polarity
	LCD Indicator 1 Source
	LCD Indicator 1 Polarity
	LCD Indicator 2 Source
	LCD Indicator 2 Polarity
	LCD Indicator 3 Source
	LCD Indicator 3 Polarity
Schedule	Schedule Enable
	Schedule Period Bank 1

Section	Parameter As Shown On Display
Schedule Continued	Bank 1 Schedule 1 to 8
	Schedule Period Bank 2
	Bank 2 Schedule 1 to 8

ABBREVIATION KEY TABLE

Abbreviation	Meaning
Alm	Alarm
Wng	Warning
Shd	Shutdown
E Trip	Electrical Trip
OC	Open Circuit
Lo	Low/Under
Hi	High/Over
Alt	Alternative
Freq	Frequency
Gen	Generator
Ph	Phase
Grey Coloured Item	6120 MKIII Only

REQUIREMENTS FOR UL CERTIFICATION

Specification	Description
Screw Terminal Tightening Torque	4.5 lbf-in (0.5 Nm)
Conductors	Terminals suitable for connection of conductor size 13 AWG to 20 AWG (0.5 mm² to 25 mm²). Conductor protection must be provided in accordance with NFPA 70, Article 240. Low voltage circuits (35 V or less) must be supplied from the engine starting battery or an isolated secondary circuit. The communication, sensor, and/or battery derived circuit conductors shall be separated and secured to maintain at least 1/4" (6 mm) separation from the generator and mains connected circuit conductors unless all conductors are rated 600 V or greater.
Current Inputs	Must be connected through UL Listed or Recognized Isolating current transformers with the secondary rating of 5 A max.
Communication Circuits	Must be connected to communication circuits of UL Listed equipment.
DC Output Pilot Duty	0.5 A
Mounting	Suitable for flat surface mounting in Type 1 Enclosure Type rating with surrounding air temperature -22°F to +122°F (-30°C to +50°C). Suitable for pollution degree 3 environments when voltage sensing inputs do not exceed 300 V. When used to monitor voltages over 300 V device to be installed in an unventilated or filtered ventilation enclosure to maintain a pollution degree 2 environment.
Operating Temperature	-22°F to +122°F (-30°C to +50°C)