

GC315

AUTO START AND AUTOMATIC MAINS FAILURE CONTROLLER



Mecc Alte GC315 advanced genset controller for Auto-Start and AMF applications

SYSTEM DESCRIPTION

GC315 is a powerful multi-application controller for non-synchronising genset with built-in communication options for local and remote access. GC315 includes the engine, alternator and mains protections that the application needs, such as oil pressure, coolant temperature, frequency, voltage, current, power and fuel level. With configurable inputs, outputs and protections, the GC315 can be easily adapted to suit a wide range of applications. GC315 offers a wide graphic display, for providing alarms and warnings, and for signalling the status of the engine, controller and data logs.

APPLICATIONS

The GC315 can be operated in three applications: Auto-Start for prime-mover supply, Auto-Mains-Fail for grid backup and supply failure, and the Drive application for engine control and protection when used as a drive for non-genset applications.

In addition to physical inputs, outputs and built-in protections, the GC315 offers Smart Logic functions, to provide a wide support for customised application controls.

The controller can be used for electronic engines with CAN interface J1939 and MTU MDEC protocols or used on traditional (non-electronic) engines.

The GC315 is available in Plus and Link hardware variants, boasting a variety of communication interfaces, supporting Modbus RTU, Modbus TCP, as well as GPRS communication over Ethernet or 2G, 5G (LTE Cat-M, Nb-IoT), with GPS compatibility.

Users can access the GC315 remotely by the GC315 Remote display, the SCADA of SS3 software or by the cloud-based monitoring and control system of SmartCloud, making the GC315 controller a perfect fit for any mobile or rental application.

MAIN FEATURES

- AUTO-START application for a prime-mover genset
- AUTO MAINS FAIL application to back-up the mains with a stand-by genset
- Engine DRIVE application for engine control, monitoring and protection
- Large LCD display with LED backlight and application diagram
- 3 Phase mains (utility) sensing
- 3 Phase generator sensing
- 3 CT inputs
- 4th CT input for neutral or ground fault protection (50N + 64)
- True RMS measurements: kW, kVA, kVAr, pf, kWh (phase and total)
- 8 Configurable digital inputs
- 4 Configurable analogue inputs - convertible into 4 digital inputs
- 8 Configurable digital outputs
- Configurable Charge alternator D+ input
- Configurable expansion modules for more I/O's
- Interface for traditional MPU, W and J1939 engines
- Interface for Mecc Alte AVR modules by CAN bus
- USB serial port for configuration and encrypted FW update
- Data recording: 126 events log, 64 (slow) + 42 (fast) periodical recordings
- GC315 Plus version with RS232 and (insulated) RS485 serial ports with Modbus RTU and Ethernet port with Modbus TCP
- GC315 LINK version with in-built wireless 2G/5G and GPS
- Option of multiple GC315 Remote displays
- Free configuration and SCADA software
- Free cloud-based remote user interface of SmartCloud



8 Digital Inputs



8 Digital Outputs



4 Analogue Inputs



3 apps in 1 unit



Smart logic



126 history logs



IP65 Front Display



Cyber secure SmartCloud



Ethernet or 2G/5G and GPS

TECHNICAL DATA

Supply voltage	GC315, GC315 Plus: 7-32V DC
	GC315 Link: 8-32V DC
	Reverse polarity protection with self-resetting fuse
Maximum power consumption	GC315, GC315 Plus: < 9W
	GC315 Link: < 11W
Maximum stand-by current	GC315, GC315 Plus: 300mA @13.5V; 170mA @27V
	GC315 Link: 650mA @13.5V; 350mA @27V (with internal battery in charge)
Maximum operation current	GC315, GC315 Plus: 600mA @7V
	GC315 Link: 1400mA @8V
Starting voltage minimum	≥ 5.0VDC for indefinite time

MEASUREMENTS

Rated genset frequency	50 or 60Hz
Measurement range	3-99Hz
Voltage nominal range	30-520 VAC (Ph-Ph)
Max. applicable voltage	CAT. III: 600 VAC (Ph-Ph) CAT. IV: 520 VAC (Ph-Ph)
Max. measurable voltage	Max. 613 VAC (Ph-Ph)
Measurement details	True RMS. 12-bit resolution. 10 kHz sampling rate
Voltage accuracy	±0.5% of full-scale reading
Current accuracy	±0.2% of full-scale reading
CT scale	1A or 5A
CT burden per phase	< 1 VA
Measurement range	5.3 AAC

8 DIGITAL INPUTS

Type	Non-insulated
8 Inputs	Activated to ground

8 DIGITAL OUTPUTS

2 NO relay Outputs	3A @ 30VDC each +VBatt output fed from emergency stop terminal – for fuel and crank
2 volt-free NO/NC relay Outputs	10A @ 250VAC each – for AC breaker controls
4 NO Outputs	500mA @ 30VDC each or 1A total across all +VBatt output

4 ANALOGUE INPUTS

Type	Non-insulated
Supported	Resistive, or set to digital inputs 12-bit resolution. 10 kHz sampling rate.
4 Inputs	0 - 500 Ohms @ <0.2% meas. error 0 - 2,000 Ohms @ <1% meas. error

CHARGE ALTERNATOR

D+ or analogue /digital input	1 excitation input/output for +D charge alternator
	Configurable as 0-32VDC analog input or digital input activated by +VBatt

MAGNETIC PICKUP

Mag pickup or "W" input	60 VAC max.
	1 - 10,000 Hz

COMMUNICATIONS

1 Ethernet port GC315 Plus	10/100Mbps full-duplex
	Protocols: Modbus/TCP, DHCP, DNS, SNMP, NTP
	Insulation voltage: 1,500 Vrms
	Secure connection to Mecc Alte SmartCloud
1 CANBUS port GC315 GC315 Plus GC315 Link	Galvanically insulated
	ECU / AVR
	Insulation voltage: 560 VDC (1kVDC <60s)
	In-built terminating resistor
2 MODBUS RTU serial ports GC315 Plus GC315 Link	RS232 Modbus RTU Slave, GC315 Remote Display
	RS485 Galvanic insulated, Modbus Engines, Modbus RTU Slave/Master
1 USB port GC315 GC315 Plus GC315 Link	USB Slave mode for Mecc Alte software connection
2G/5G + GPS interface GC315 Link	LTE Cat. M1 LTE Cat. NB-IoT GSM/GPRS/EDGE
	GPS, GLONASS, GALILEO, BeiDou
	Motion sensor, 3D Accelerometer, 3D Gyroscope
	< 6h back-up internal Li-Ion battery
	Secure connection to Mecc Alte SmartCloud

PHYSICAL AND ENVIRONMENTAL

Case construction	Polycarbonate
Weight	GC315: 600g GC315 Plus: 620g GC315 Link: 650g (with internal battery)
Overall dimensions	244 (W) x 178 (H) x 40 (D) mm
Panel cut-out	214 (W) x 156 (H) mm
Panel mounting	4 fixing clamps. 1-4mm panel thickness
Protection grade	IP55 external with panel gasket IP20 internal
Operating temperature	-25°C to +60°C -25°C to +50°C for GC315 Link with internal battery
Storage temperature	-30°C to +80°C -25°C to +50°C for GC315 Link with internal battery
Relative humidity	5-95% with no condensation

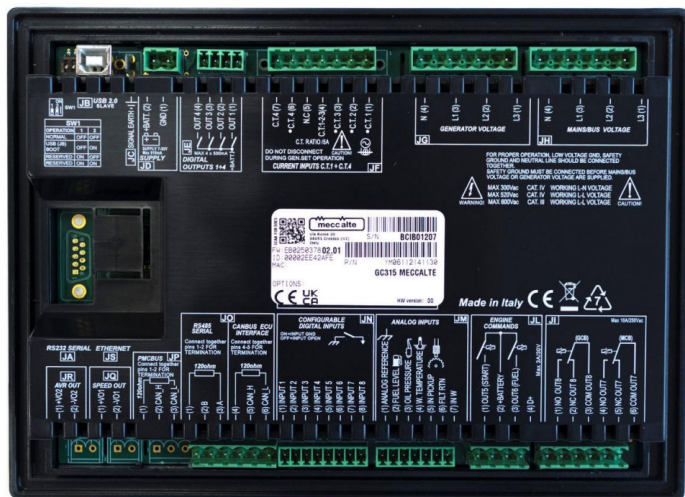
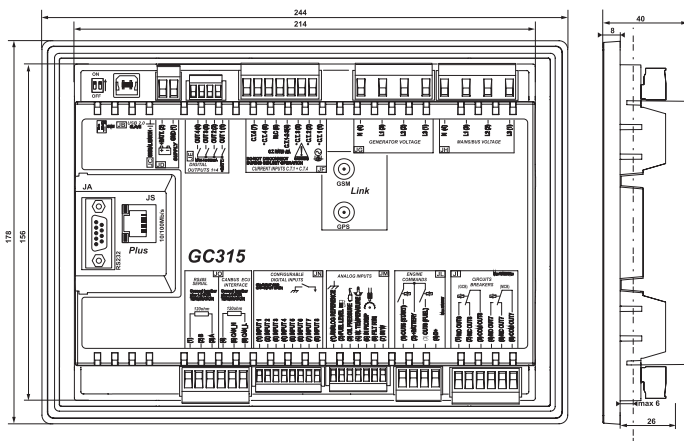
DISPLAY

Display type	LCD, transfective graphic monochrome with LED backlight
Active display area	70 x 39 mm
Display resolution	128 x 64 pixel
Pixel size	0.48 x 0.48 mm

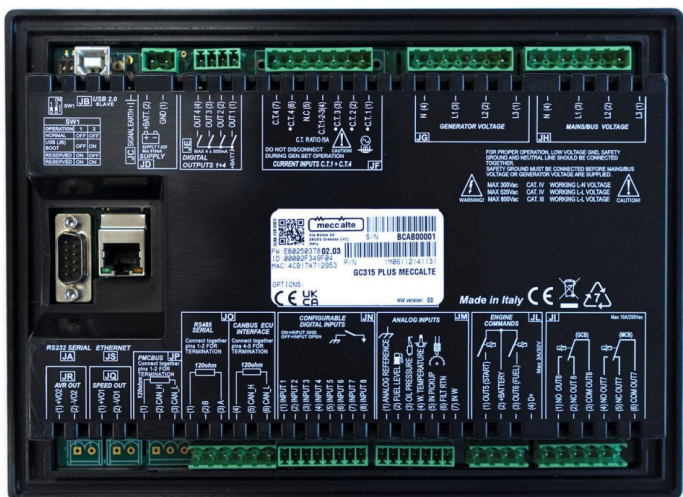
COMPLIANCES

EMC:	EN 61326-1
Safety:	EN 61010-1

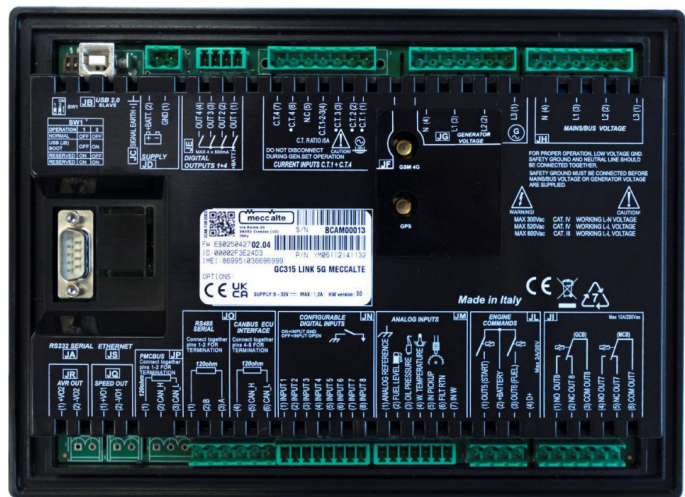
GC315



GC315 PLUS



GC315 LINK



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The information contained in this document is accurate at the time of publication and may be subject to change without notice. Please work with your Mecc Alte contact to confirm details.



POWER FROM WITHIN

SYSTEM

AUXILIARY FUNCTIONS

- Engine diagnostic codes
- Real time clock with internal rechargeable lithium battery
- Periodical test, Periodical Start/Stop
- Remote start and stop
- Hours counter for the maintenance schedule
- Start time with crank and rest timers
- Day counter with embedded calendar for the maintenance
- Smart weekly and monthly calendar for selecting specific days of the year
- Configurable automatic daylight saving
- AND/OR logics, configurable TIMERS and COMPARATORS
- 16 configurable virtual DIGITAL inputs
- 8 configurable virtual analog inputs
- 4 alternative configurations
- 16 of independent calendars
- 126 events log
- Fuel pump management for external fuel tank
- Pre-heat and coolant heater management
- Ad-Blue pump management
- DPF regeneration managements
- Embedded alarm sounder
- Customised front panel with customer branding available
- Programmable via PC or controller's keyboard
- Remote encrypted firmware update
- SMS communication
- NTP, DHCP and DNS
- Load shedding

PROTECTION

Grid voltage protections

- Undervoltage (27<<)
- Overvoltage (59>>)
- Under frequency (81U<<)
- Over frequency (81O>>)
- Voltage unbalance (47)
- Phase sequence (47)
- Grid stability after prot. Trip (27, 59, 81U, 81O, Time)

Generator protections

- Underfrequency (81U<<)
- Over frequency (81O>>)
- Undervoltage (27<<)
- Overvoltage (59>>)
- Reverse power (32R)
- Loss of excitation (reverse reactive 40)
- Time dependent overcurrent (51) IDMT
- Instantaneous overcurrent (50)
- Phase overcurrent with voltage restraint/control (50V/51V)
- Phase sequence (47)
- Current and voltage unbalance (46/47)
- Ground fault protection (64) as alternative to neutral protection (50N)

Engine protections

- Overspeed (12)
- Incomplete sequence (48)
- Belt-break
- Temperature warnings and alarms
- Pressures warning and alarms
- Maximum engine power (32)
- Fuel levels
- Emergency stop