



The worldwide energy monitoring
and control system



GC 315

A.M.F. Single Genset Controller

- Automatic Mains Failure microprocessor based genset controller, perfect for all ATS+AMF genset applications
- Available in three versions: GC315 - GC315^{Plus} - GC315^{Link}
- Remote control systems
- True RMS readings on generator and mains voltages and currents. Neutral measure included.
- Active, Reactive and Apparent power measurement
- Frequency and power measurement on Mains input
- Engine speed measurement by frequency, pick-up or W
- 8+1+4 Inputs and 8 Outputs (6 programmable)
- Additional current measurement for neutral or ground fault protection (50N + 87N)
- Graphic display with self or manual adjustable contrast based on the temperature
- Isolated and Auto-supplied J1939 and MTU MDEC CAN interface
- USB serial port
- RS232 serial port with MODBUS RTU protocol
- RS485 isolated serial port with MODBUS RTU protocol
- Ethernet interface with MODBUS TCP/IP protocol
- GPRS Modem
- Possible connection to the software SI.MO.NE.
- Real Time Clock with rechargeable battery
- Events and data recording
- Free SICES Supervisor

- **GC315^{Link}**

*Perfect for groups of
RENTAL Gensets*

- **GC315^{Plus}**

Several communication tools

- **GC315**

Price attractive controller

- *Great performances and assured reliability*
- *AND/OR Logics and configurable TIMERS*
- *User friendly, intuitive and easy to use*
- *Italian design*



General info

Automatic Mains Failure microprocessor genset controller for managing the most common three-phases generator applications (**Single Prime Mover** and **Single Stand-by gensets**).

GC315 is designed for electronic engines with **CAN interface J1939 protocol** (available in GC315^{Plus} and GC315^{Link}). These controllers can be used also for traditional non-electronic engines.

The adjustable parameters of the controller allow the use of this device for standard and customized tasks. Parameters are programmed using the **free software tool (BoardPrg)**, which can be downloaded through Sices website. It is also possible to set them directly by the keyboard of GC315.

The **self adjustable graphic display** (it automatically changes the contrast, based on the temperature) is a user-friendly human interface useful for an immediate visualization of measures and alarms coming from the genset.

GC315, in all versions, is able to measure the Mains frequency and compute the power and energy also when the load is connected to the Mains. In addition, GC315, as well as GC315^{Plus} and GC315^{Link}, is able to measure the Neutral of mains and generator voltage.

Thanks to the separated push buttons, one for the MCB (Mains Circuit Breaker) and one for the GCB (Generator Circuit Breaker), the control of the genset in manual mode becomes easier.

Events and DTC logs can be accessed from the front panel and read on the display.

GC315 supports **several communication devices/tools** for local or remote control. In particular, GC315^{Link} provides a direct interface with the software **SI.MO.NE.**, offering an immediate and real time monitoring system, without any external devices.

Measures

Mains Voltage:

L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1

True RMS measure.

Lx-N max. voltage < 300Vac cat. IV

Option 100V available on demand

Generator Voltages:

L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1

True RMS measure

Lx-N max. voltage < 300Vac cat. IV

Option 100V available on demand

Generator Currents:

L1, L2, L3, N (*)

True RMS measure.

Rated current: 5Aac

Overload measurable current : 4 x 5Aac (sinusoidal).

(*) Neutral generator current as alternative to differential protection or to be used for measure mains power from CT (Standard) or Tore (option).

Generator and Mains Frequency meter:

Resolution = 0.1 Hz.

Accuracy = $\pm 50\text{ppm}$, $\pm 35\text{ppm}/^\circ\text{C}$ (typical)

Battery Voltmeter:

Resolution = 0.1V

Oil Pressure Gauge:

VDO 0-10 Bar, VDO 0-5 Bar, Veglia 0-8 Bar

(Settable curve based on sensors available)

Water or Oil Thermometer:

VDO, Veglia, BERU

(Settable curve based on sensors available)

Fuel Level:

VDO, Veglia

(Settable curve based on sensors available)

Engine revolution counter:

By pick-up. Programmable teeth number.

Same Input can be used by W signal.

D+ for the measure of the voltage alternator battery charger

Power and power factor measures are available as total measure and also for each single phase.

Maximum power and current reached values are logged with date and time.

Additional measures available based on the isolated and Auto-supplied CAN J1939 .

Protections

A set of high efficiency LEDs are used for signalling the current status of the Generator Set and for the visualization of alarm occurred. By means of textual messages, it is possible to realize the type of the alarm/shutdown occurred.

Status

- Mains live
- Generator live
- Mains contactor closed
- Generator contactor closed
- Engine running
- Engine Cooling
- Engine start and stop

Engine protections

- Fuel reserve
- Min./Max. fuel level
- Min./Max. battery voltage
- Min./Max. oil pressure
- Min./Max. engine temperature
- Power direction (32P)
- Closing of mains contactor or gen set contactor failed
- Engine over crank
- Over speed from generator frequency or pick-up or W
- Belt breakage
- Operating conditions not reached
- Min./Max. auxiliary current
- Emergency Stop

Generator protections

- Underfrequency (81U)
- Overfrequency (81O)
- Undervoltage (27)
- Overvoltage (59)
- Loss of excitation (Reverse reactive 32RQ)
- Time dependent overcurrent (51)

- Phase overcurrent with voltage restraint/control (51V)
- Instantaneous overcurrent (50, 50V)
- Phase sequence (47)
- Current and Voltage unbalance (46/47)
- Differential protection (50N)
- Ground fault protection (87N)
- Negative sequence (46-I2)

Mains protections

- Min./Max. mains voltage (27/59)
- Min./Max. mains frequency (81U/81O)
- Mains failure

Inputs, outputs and aux. functions

- N. 8+1 Programmable digital Inputs (N.1 for the Emergency stop push button)
- N. 3 Analogue Inputs, if not used, can be used as not isolated digital Inputs + N.1 Input for D+ (if not used in this way, they can be used as digital)
- N. 2 Aux. Relay (5A) for fuel solenoid + Crank
- N. 4 Digital programmable and static Outputs
- N. 2 Relays (10A) for power changeover management

Further virtual Inputs and Outputs are available with AND / OR logics for selectable functions.

As option:

- N. 32 Additional and configurable digital I/O with DITEL module
- N. 10 Additional and configurable analogical Input for sensors measure from Pt100 (DIGRIN), Thermocouples (DITHERM) or 0...10mA - 0...20mA (DIVIT)
- N. 10 Additional and fixed analogical Input listed in CANBUS J1939 protocol
- N. 4 Additional and configurable analogical Output (DANOUT)

Embedded functions

- Engine diagnostic code
- Real Time Clock with internal rechargeable Lithium battery
- Periodical test
- Hour counter for the maintenance schedule
- Starter counters with delays counters.
- Daily counter with embedded calendar for the maintenance
- Smart weekly and monthly calendar for selecting specific days of the year
- Configuration of the automatic daylight save time cob
- AND/OR and configurable TIMERS.
- Remote start and stop
- 126 Events log
- Fuel pump management
- Pre-glow and coolant heater management
- Override function
- Embedded alarm horn
- Engine speed measurement by pick-up, frequency or W
- Possibility of graphic customization with low costs

- Programmable by PC or using the controller keyboard
- Remote firmware update
- SMS communication
- NTP Support
- N.1 Threshold as load shedding
- **Multilingual device.** The display languages available are: IT, EN, FR, RU, ES, PT/BR.

Communication

GC 315

- N.1 USB Port

GC315^{Plus}

- N.1 USB Port
- N.1 Serial port RS232 Modbus RTU for external modem
- N.1 Isolated serial port RS485 Modbus RTU
- N.1 RJ45 Port as Ethernet interface TCP/IP
- N.1 Isolated CANBUS J1939 Interface

GC315^{Link}

- N.1 USB Port
- N.1 Serial port RS232 Modbus RTU
- N.1 Isolated serial port RS485 Modbus RTU
- N.1 Isolated CANBUS J1939 Interface
- GPRS Modem
- GPS Antenna
- Motion sensor, accelerometer and gyroscope
- Compliance with CE1588

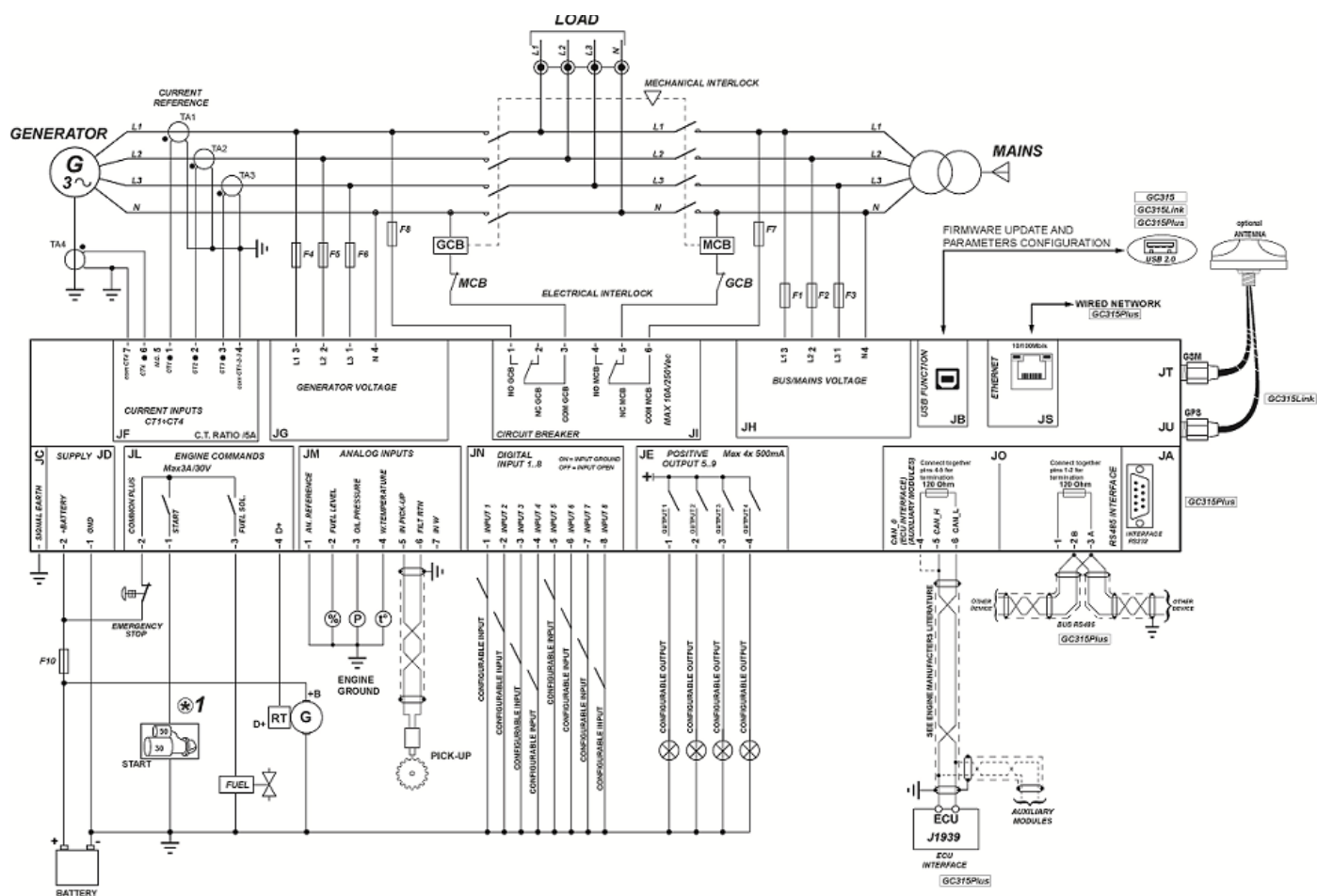
As option:

- REWIND - GPRS/GSM/GPS Device (needed for SI.MO.NE)
- DANCE - Ethernet interface needed for Si.MO.NE
- ANTENNA GPRS or GPRS+GPS

Additional technical data

- Supply voltage: 7...32 Vdc
- Power consumption: typical less than 2W (Auto mode, Stand-by, AMF active, LCD Lamp Saving active)
- Operating frequency: 50Hz or 60Hz
- Voltage measurement range: 30-520V L-L (50Hz)
35-520V L-L (60Hz)
- Operating temperature: -25 °C to +60 °C
- Available a tropicalized version -25 °C to +70 °C
- Burn in @ 50°C for 48h with test report for each controller
- LCD with backlight
- Protection degree: IP65 (gasket included)
- Weight: 600gr
- Overall dimension: 244 (W) x 178 (H) x 50 (D) mm
- Panel cut-out: 218(W) x 159(H) mm
- Graphic display dimensions: 70x38 mm - 128x64 pixel
- Specific function for French market EJP / EJP-T
- EMC: conform to EN61326-1
- Safety: built in conformity to EN61010-1

A tropicalized version for harsh environment is available on demand.



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