

# Mains Parallel Controller for Multiple Gensets

## INTRODUCTION

The MC400 controller is used where one or more mains supplies are required to parallel with the GC400 generator bus.

The MC400 provides both mains monitoring and automatic transfer switch control functions (AMF). In addition it can be configured to provide both forward and back synchronizing with the mains supply and genset bus, allowing a 'no-break' transfer in either direction.

While the generators are in parallel to mains, the MC400 monitors the incoming mains supply and should a failure be detected the mains circuit breaker will be opened to isolate the genset bus from the mains.

The MC400 provide control of both a Mains Circuit Breaker (MCB) and a Master Gensets Circuit Breaker (MGCB).

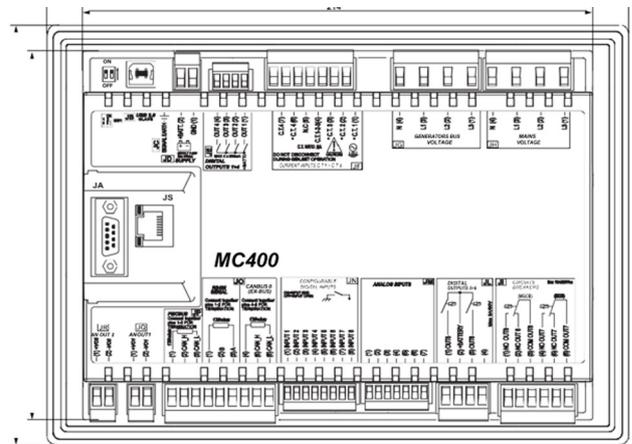
The MC400 will synchronize all gensets (controlled by a GC400 parallel controller) to the mains, with a soft transfer of the load from the gensets to the mains, thus avoiding any blackout on the load.

The embedded 'gensets management' logics will allow selection of the number of running sets according to the load, and integrates perfectly with the same load management present in the GC400 parallel controllers.

The MC400 can be combined only with a GC400 parallel controller. In addition, if the plant includes a tie breaker, it can be controlled by the BTB200 controller. Communication between devices is managed with a single CANBUS connection (PMCBUS).

## MAIN FEATURES

- Start/stop commands for the generators via the PMCBUS
- An internal synchronizer with voltage, frequency and phase differences control
- Management of active power setpoints for the generators, to allow the gradual transfer of the load
- Management of power factor setpoints for the generators, when operating in parallel with the mains
- Fixed power control when in parallel to mains (BASE LOAD), with the power setpoint for the generators adjustable by parameter or by analogue input
- Variable power control when in parallel to mains (IMPORT EXPORT, or variable kW on the generators to guarantee a fixed power on the mains), with power setpoint for the mains adjustable by parameter or by analogue input
- The loss of mains protections, to isolate the generators from the mains in case of failure of the mains itself
- The LOAD SHEDDING function (non-priority loads disconnection), with 4 available levels
- The PEAK SHAVING and PEAK LOPPING functions (start of generators due to excessive demand of the load from the mains)
- Embedded alarm sounder.
- Multi-language display (EN, IT, FR, PT, ES, RU)



- Using the internal calendar clock (with rechargeable backup battery):
  - Periodical genset start-up with programmable rate (this test can be done without load, in parallel to the mains or in island mode by transferring the loads from the mains to the generators)
  - Selectable days and time intervals in which the generators must never be started.
  - Selectable days and time intervals in which the generators must be started even if the mains is present
  - Periodical and 'on-event' history logs

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## EMBEDDED FUNCTIONS

The MC400 offers true RMS measures for:

- Mains voltages
- Genset bus bars voltages
- Circulating currents
- Active, reactive, apparent power and power factor on the mains (total and by phase)
- Active, reactive, apparent power and power factor on gensets bus bars (total)

The MC400 is equipped with inputs and outputs, both digital and analogue, all freely configurable, to meet the specific needs of the application.

Thanks to the configurable AND/OR 'Logics' it is possible to configure specific operating sequences for each type of application.

The controller is equipped with a graphic monochrome display 128 x 64 pixel 70 x 38 mm, with icons and symbols, for a quick review of measurements (mains and gensets) and system status. It also allows the manual opening and closing of both the mains circuit breaker (MCB) and the master genset circuit breaker (MGCB), via two dedicated buttons.

## COMMUNICATIONS

- USB port (Modbus RTU)
- RS232 serial port (Modbus RTU) - it supports an external GSM/GPRS modem
- Isolated RS485 serial port (Modbus RTU)
- Ethernet port with RJ45 connector (Modbus TCP)
- Insulated CANBUS interface for the connection of the expansion modules (EXBUS)
- Insulated CANBUS interface for the connection of the other Mecc Alte controllers (PMCBUS)

## Options

- REWIND - GPRS/GSM/GPS device (for SIMONE)

## TECHNICAL DATA

- Supply voltage 7-32V DC
- Power consumption typically less than 5W (standby, controller switched on, LCD lamp switched off)
- Operating frequency 50Hz or 60Hz
- Transflective graphic LCD display, monochrome, with backlight
- Graphic display resolution 128 x 64 pixel
- Graphic display dimensions visible surface 70 x 38 mm
- Recommended operating temperature -30°C to +70°C
- Storage temperature -30°C to +80°C
- Protection degree IP65 (only with gasket correctly installed)
- Weight 1100grammes
- Overall dimension 244 (W) x 178 (H) x 40 (D)
- Panel cut-out 218 (L) x 159 mm (H)
- EMC conforms to EN61326-1
- Safety built in conformity to EN61010-1



**Mecc Alte Kit**  
Bundle Option



**Lower Costs**  
Smart Logistics



**User Friendly**  
Intuitive

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The information contained in this document is substantially correct at the time of publication but may be subject to change. Please work with your Mecc Alte contact to confirm details.



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**POWER FROM WITHIN**