MC 200

Supervisor controller for multiple synchro/parallel applications

- Powerful dual microprocessor-based controller aimed for the safe management of single or multi-mains with automatic transfer switch capability.

- Graphic colour display TFT 4.3'' - 480x272 pixel - Visual area 95 x 54 mm

- PLC functions included

- MC200 is recommended for those power plants requiring the management of the MCB (Mains Circuit Breaker) and MGCB (Master Gensets Circuit Breaker), like:
  - **MSB + MSTP** (Multiple Stand-by + Multiple Short Time Parallel)
  - **MPtM** (Multiple Parallel to Mains)
  - **MSB + MPtM** (Multiple Stand-by + Multiple Parallel to Mains)

- MC200 is designed to synchronize multiple gensets equipped with SICES Controllers with single or multiple Mains/Grids, controlling the transfer of the load (SOFT LOAD TRANSFER) between the Mains and the Gensets to provide NO-BREAK to load .

- Multiple generators can be automatically started/stopped by MC200 upon Mains Failure.

- MC200 is able to carry out MCB and MGCB common bus synchronization.

- MC200 includes a SMART Load Management logic that overlaps the Load Management integrated into SICES genset controllers.

- LOAD SHEDDING function with 4 steps available.

- Centralized management of the BASE LOAD REFERENCE.

- IMPORT/EXPORT power control.

- Management of the POWER FACTOR.

- MC200 can be used with an extended range of SICES controllers like: DST4602Evolution, DST4602, GC600, GC500Plus, GC500, DST4601/PX for paralleling/synchronizing applications, communicating via PMCBus over Can.

- *Easy solution for complex systems, less wiring and components*

- *Loss of Mains protection*

- *Gensets automatic activation/deactivation*

- *Configurable logics and full PLC functions*

- *Common bus synchronization*

- *Italian design*

MADE IN ITALY

General info

MC200 is a powerful controller designed for synchro/ parallel applications including multiple gensets operating in parallel to the Mains/Grid.

MC200 is able to control MCB (Mains Circuit Breaker) and MGCB (Master Gensets Circuit Breaker), allowing the transfer of the load between the Mains and the Gensets to provide NO-BREAK to load (REVERSE SYNCHRONIZATION & SOFT LOAD TRANSFER).

MC200 offers two separated push buttons for the management of the MCB and MGCB in Manual Mode

In addition, the big TFT colour display 4.3'' offers a clear visualization of breakers status and for the reading of the measures.

Several functions and instruments are available such as: Internal synchroniser, Import/Export and Base load operation, Loss of mains protections and Load shedding functions.

Furthermore, the new MC200 includes two powerful features to operate in parallel with the mains: PEAK SHAVING and PEAK LOPPING (*).

MC200 is used for measuring the mains voltage, the voltage on the bus, the current and the power on the connection with the mains.

Extensive programmable I/O is available for any customised requirement. The configurable AND/OR logic and the PLC functions make complex systems easier, less wiring and components

MC200 can be used with an extended range of SICES controllers such as: DST4602Evolution, DST4602, GC600, GC500Plus, GC500, DST4601/PX for paralleling/synchronizing applications.

In case of the plant includes a BTB200 for the tie breaker control, the communication among the devices is powered through PMCBus over Can.

The powerful graphic display including icons, symbols and bar graphs offers intuitive operation together with high set of functions.

(*) PEAK SHAVING is the use of an additional power source (such as a generator) in synchronisation with the mains power supply, to deliver enough power to meet the peak demand that cannot be met by the mains supply.

(*) PEAK LOPPING is similar to the peak shaving actually the gensets operate in stand-alone.

Measured Values

Bus Voltages:
L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1
True RMS measure
Lx-N max. voltage < 300Vac cat. IV
High voltage pulse = 6KV 1.2/50 us
100/400V Nominal Voltage input reading available with auto adjustment.

Currents:
L1, L2, L3, N (*)
True RMS measure
Nominal max. current: 5Aac and 1Aac.
Max. nominal current = 6000A (by external CT)

It's possible to choose where you monitor the currents: Mains, Load or Bus Bar.

Auxiliary Currents:
The same as above

Mains Voltages:
L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1
True RMS measure
Lx-N max. voltage < 300Vac cat. IV
100/400V Nominal Voltage input reading available with auto adjustment.

Mains and Bus Frequency meter:
Resolution = 0.1 Hz
Accuracy = ± 50ppm, ±35ppm/°C (typical)

Battery Voltmeter:
Resolution = 0.1V

Computed Measures

- Active power meter
- Reactive power meter
- Apparent power meter
- Power factor: Total and phase by phase.
- Active and reactive energy counter.
- Total active and reactive power of all generator sets with GCB closed.
- Total active and reactive Energy counter of all generator sets with GCB closed.
- Max. nominal power available on the bus bar.
- Load percentage of generators running with GCB closed

Loss of Mains protections

- Undervoltage (27)
- Overvoltage (59)
- Underfrequency (81U)
- Overfrequency (81O)
- ROCOF (df/dt, 81R)
- Vector jump

Inputs and outputs

- N. 18+1 Configurable digital inputs (N.1 for the Emergency stop push button)
- N. 4 Configurable Analogue inputs 0...10V
- N. 2 Additional analogue inputs 0...10V
- N. 1 Analogue input for D+ signal
- N.18 Programmable digital outputs
- N. 2 Analogue and insulated outputs -10 / +10V for the regulation of the speed control and AVR

Further virtual inputs and outputs are available.

Communication

- N.1 USB FUNCTION for the configuration and N.1 HOST as data logger (available soon)
- N.1 RS232 Serial port Modbus RTU for external modem
- N.1 RS485 Insulated serial port Modbus RTU
- N.1 RJ45 Port as Ethernet interface TCP/IP
- N.1 Insulated CANBUS J1939 Interface
- N.1 Insulated CANBUS (PMCBUS) for the load sharing

AS OPTION:
- REWIND - GPRS/GSM/GPS Device (needed for SI.MO.NE)

Embedded functions

- MCB management.
- MGCB management.
- Contemporary synchronisation of many gen sets on MCB.
- Contemporary synchronisation of many gen sets on MGCB
- Voltage matching in synchronizing operation.
- Automatic SMART Load sharing (automatic start and stop).
- AMF mode in case of stand by generators.
- Load shedding function to disconnect not essential loads.
- Import/Export for MPtM (Multiple Parallel to Mains) plants.
- Base load management for MPtM (Multiple Parallel to Mains) plants.
- Peak shaving and Peak lopping.
- Power factor management/regulation for MPtM (Multiple Parallel to Mains) plants.
- Soft transfer Load (or Back synchro) from Mains to Gen sets and vice versa.
- Loss of mains protections for gen sets running in parallel with the Mains.
- Current measure at switch point, or vice versa, on the bus bar.
- Directional power measures at switch point on the bus bar.
- Measure of gen sets total power.
- Real Time Clock.
- Periodical test.
- Automatic running hours balancing.
- Events a data logging.
- Built in alarm horn.
- Insulated CAN interface for PMCBUS applications.
- Multilanguage device (EN, IT, FR, PT, ES)

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
- LCD with backlight
- Operating temperature: -25 °C to +65 °C
- Storage temperature: -30 °C to +80 °C
- Burn in @ 50°C for 48h with test report for each controller
- Protection degree: IP65 (gasket included)
- Weight: 1100g

- Overall dimension: 244 (W) x 178 (H) x 83 (D) mm
- Panel cut-out: 218 (W) x 159 (H) mm
- Graphic display resolution: 480x272 pixel
- Display dimensions: Visual area 95 x 54 mm
- Specific function for French market EJP / EJP-T
- EMC: conform to EN61326-1
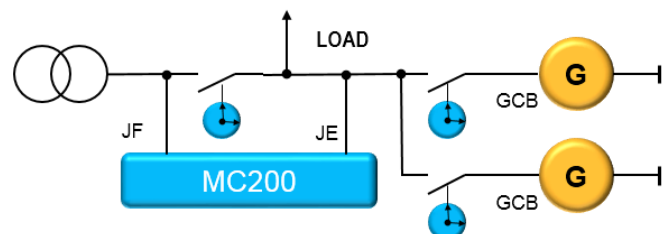- Safety: built in conformity to EN61010-1

Tropicalized version for hazardous areas available on demand.

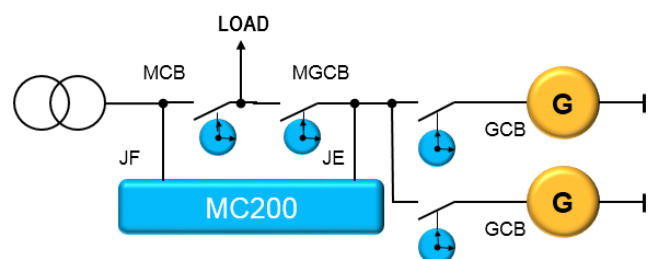## Typical plant configurations

- **MSB + MSTP**
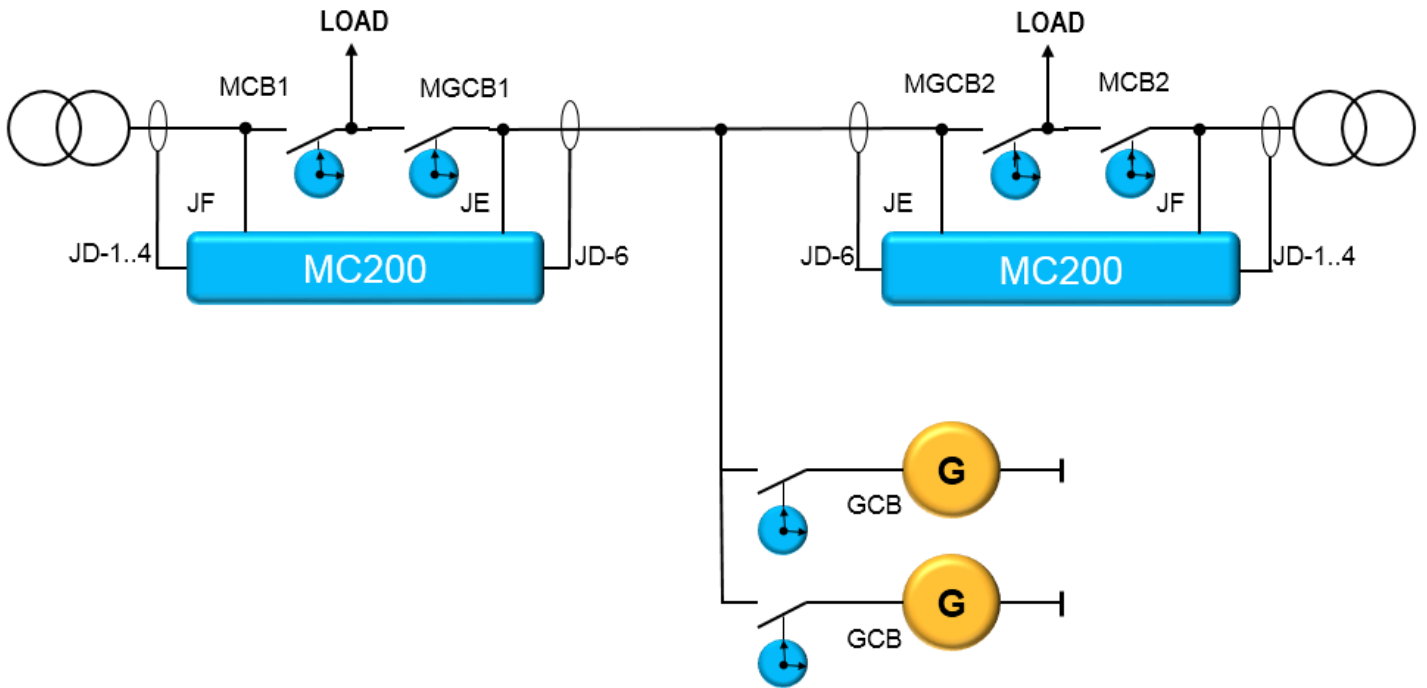 (Multiple Stand-by + Multiple Short Time Parallel)
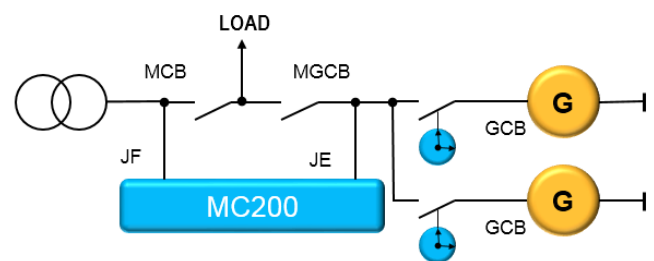
- **MPtM**
  (Multiple Parallel to Mains)

- **MSB + MPtM**
  (Multiple Stand-by + Multiple Parallel to Mains)

- **Multiple Mains & Multiple Gensets**

LOAD

MCB1 MGCB1 MGCB2 MCB2

JF JE JE JF

JD-1..4 MC200 JD-6 JD-6 MC200 JD-1..4

G GCB

G GCB