

Automatic Parallel Running Synchronization System

Automatic Parallel Running Synchronization System

- Applicable for operation of at least 2 paralleled gensets, to enlarge supply of electricity capacity.
- It's capable of parallelly running the genset under various voltage from 190V to 13.8KV
- Equipped with POWERTEC GC9510 digital synchronization controller or other famous controller can be customized.
- Both single-control and parallel-control are optional. integrated.
- With GOV and AVR function it can automatically synchronize and divide active load and reactive load equally
- Free switch between manual control and auto control
- Total automatically start-up, parallel on, parallel off, shut-down.
- Automatically initiates or shut down the parallelly working genset according to the load demand.
- With SAE J1939 interface to monitor and control genset electronic fuel injection
- Four kinds of remote controls can be activated through RS485/232C RS485/232C communication interface of MODBUS protocol
- LCD Panel display genset working data
- Able to parallelly run with city power in different modes
- The main breaker can be customized as Delixi/ABB/Schneider
- Floor stand cabinet or genset mounted parallel system can be optioned
- Genset mounted parallel system--the whole parallel systems are mounted inside the genset control cabinet making operation will be more easy and simple
- Floor stand cabinet--Standard low voltage cabinet or middle type switch cabinet easy to connect with other electric power distribution cabinet.



Genset Mounted Parallel System



Floor Standing Parallel System



Middle Mounted Parallel System Cabinet

Detection--Cumulative power generation

- 3 phase voltage-- U_a, U_b, U_c Unit: V
- 3 line voltage -- U_{ab}, U_{bc}, U_{ca} Unit: V
- 3 phase electric current-- I_a, I_b, I_c Unit: A
- Frequency F1 Unit: Hz
- Sub-phase active power--PA, PB, PC Unit: kW
- All phase active power Total P Unit: kW
- Sub-phase reactive power RA, RB, RC Unit: kvar
- All phase active power Total P Unit: kvar
- Sub-phase apparent powers SA, SB, SC Unit: kVA
- All Phase apparent power Total S Unit: KVA
- Sub-phase power factor PF1, PF2, PF3
- Average power factor Average P
- Accumulated active electricity power Unit: kWh
- Accumulated reactive electricity power Unit: kvarh
- Accumulated apparent electricity Unit: kvah
- 3 Phase sequence and phase angle detection

Detection-Busbar Electricity

- 3-phase phase voltage U_a, U_b, U_c Unit: V
- 3 line voltage U_{ab}, U_{bc}, U_{ca} Unit: V
- Frequency F1 Unit: Hz
- 3 Phase sequence and phase angle detection

Detection-Engine Parameters

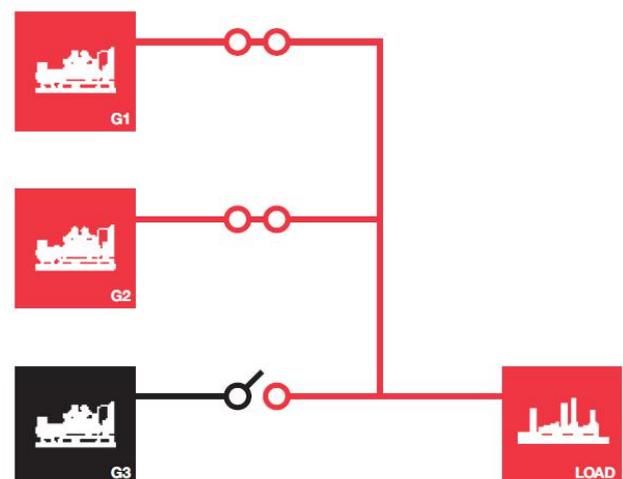
- Coolant temperature WT Display $^{\circ}C/^{\circ}F$
- Oil pressure OP Display kPa/Psi/Bar
- Rotating speed RP Unit: RPM
- Voltage of Battery VB Unit: V
- Time meter HC. 999999 hrs accumulatable
- Accumulative start times, 999999 hrs accumulatable



GC9510 controller

Protection-Engine Parameters

- High coolant temperature alerting and shutdown warning
- Low oil pressure alerting and shutdown warning
- Over speed shutdown warning
- Low fuel level warning
- Battery high/low voltage warning
- Overcurrent shutdown warning
- Start failure warning
- Shutdown failure warning
- Emergency shutdown warning
- ECU communication failure

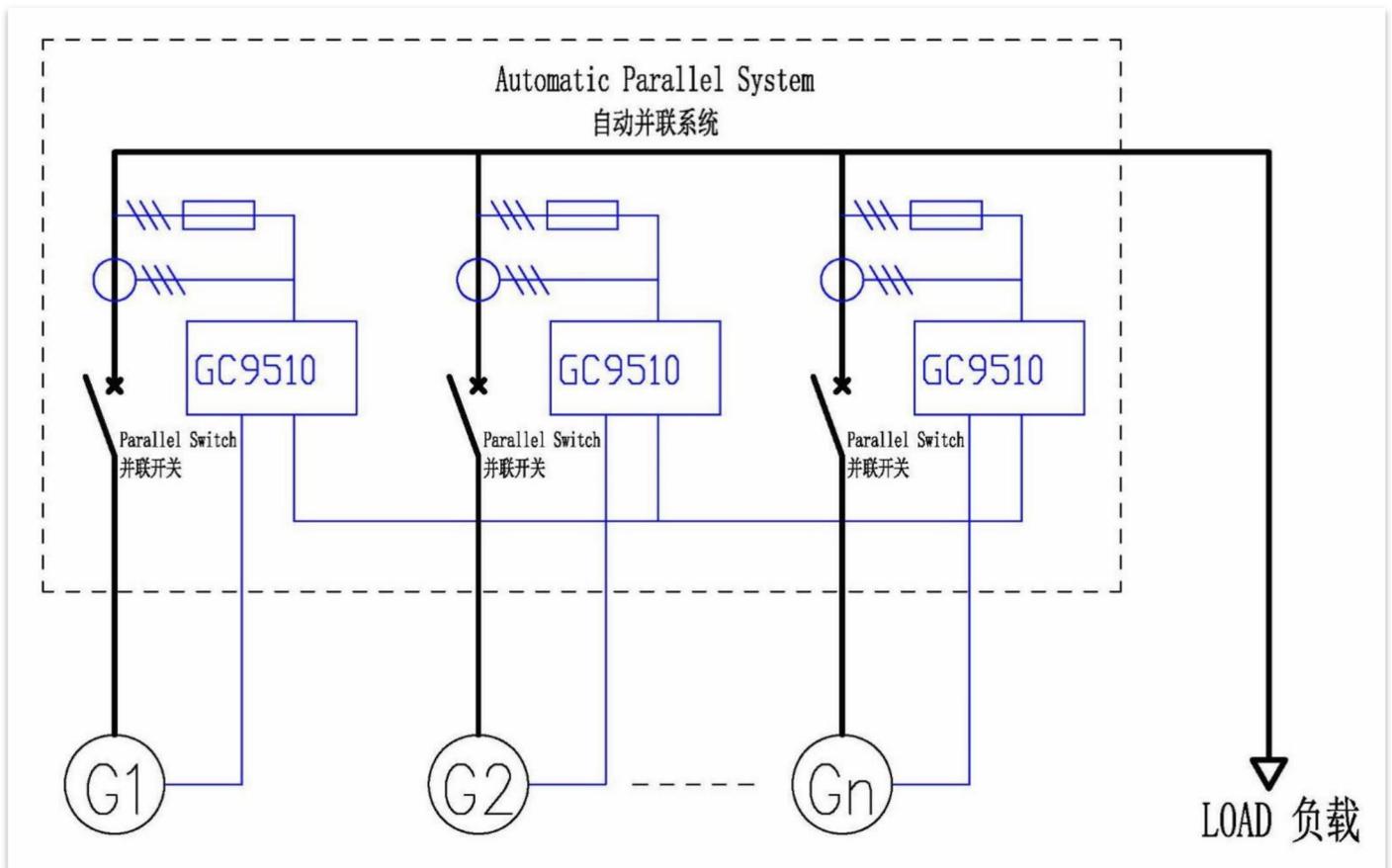


Typical Load Distribution

Advantage of Digital Control System Compare with Analogue

- LCD screen detects more parameters and easy to read.
- Modular system integrates various and comprehensive protection
- Directly controls GOV and AVR and precisely distributes active power and reactive power.
- Automatically works, dismiss trivial adjustments and buttons makes the operation more easy.
- Automatically parallel on/off according to the loading status.
- High integration reduces the failures and easily maintain.
- RS485/232C communication interface of MODBUS realizes the four-remote control.

Auto Parallel System--- Primary System Diagram



Factory

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