

Overview

概要

Black-start is force start genset that the controller do not judge if genset start successful or not based on the condition of start successful. The system has the ability to start a generator set start driving without self-starting capability of generating units, and gradually expand the scope of system recovery, and ultimately recover from the whole system.

黑启动是指整个系统因故障停运后，系统全部停电（不排除孤立小电网仍维持运行），处于全“黑”状态，不依赖别的网络帮助，通过系统中具有自启动能力的发电机组启动，带动无自启动能力的发电机组，逐渐扩大系统恢复范围，最终实现整个系统的恢复。

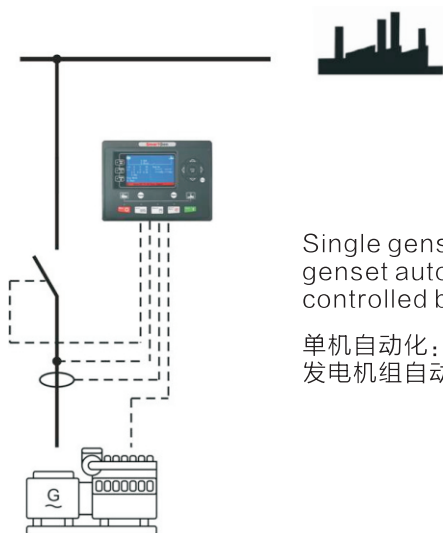
SmartGen black-start system widely used in emergency power supply system, pump unit controlling system and fire pump controlling system.

SmartGen黑启动控制系统，广泛应用在应急电源系统，水泵机组控制系统和消防水泵控制系统中。

Application---Single Genset Automation

应用方案---单机自动化

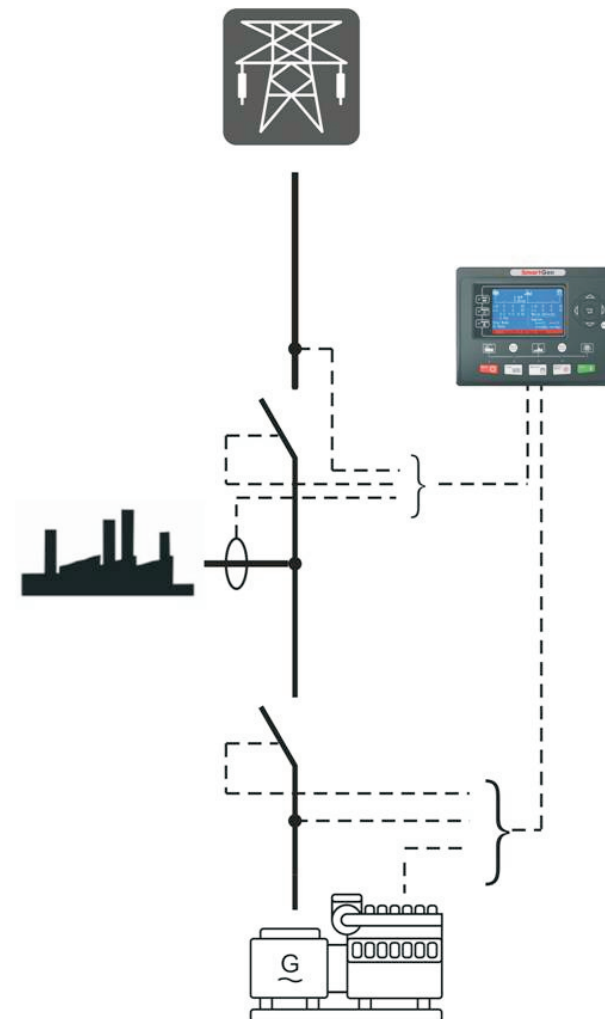
Self-starting/自启动方案（HGM8110B、HGM9310MPU、HGM9310CAN、HGM9610）



Single genset automation:
genset automatic start/stop can be
controlled by remote start signal.

单机自动化：可通过远端开机信号控制
发电机组自动开机与停机

AMF Solution/AMF解决方案（HGM8120B、
HGM9320MPU、HGM9320CAN、HGM9620）



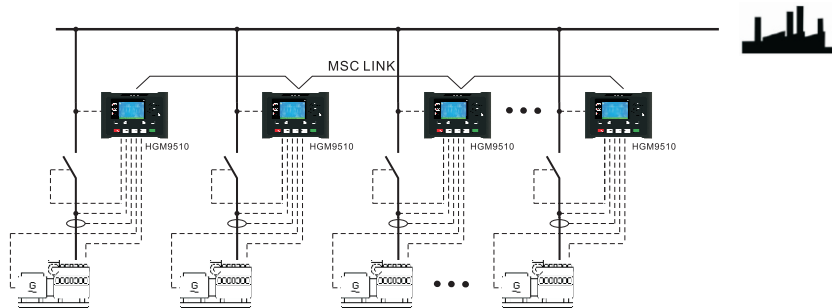
AMF function: apply to single genset automation system(one mains
and one genset)

AMF功能：适用于一市一机构成的单机自动化系统

Application---Parallel

应用方案---并联

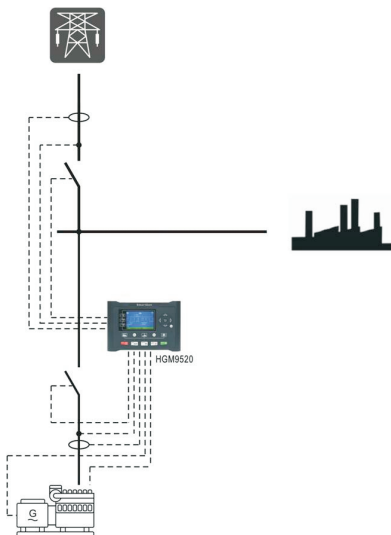
Genset in Parallel (HGM9510) 机组并联 (HGM9510)



Multi-parallel: Help 32 gensets with same capacity/different capacity to realize automatic synchronization and load share.

机组并联：可满足多达32台同容量或不同容量的机组自动同步和负载均分

Single Genset Parallel in Grid (HGM9520) 单机并网 (HGM9520)



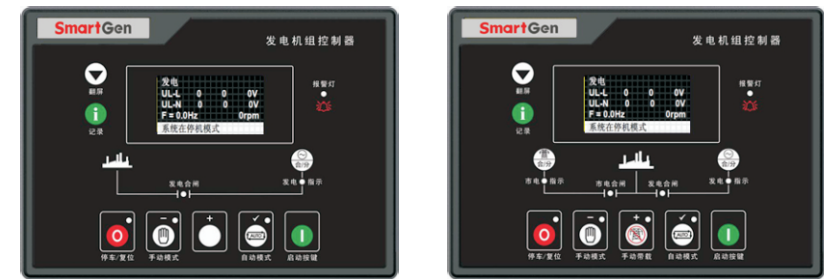
Single genset parallel in grid:
single genset parallel with mains
automatically/manually, and with
various parallel mode selection.

单机并网：单台发电机组与市电的手
动/自动并网且有多种与市电并行运
行的模式选择

Characteristic---Singel Genset Automation

产品特点---单机自动化

HGM8100B Series HGM8100B系列



Characteristics:

- 1.Engine and generator protection
- 2.Automatic start or mains fail self-starting function(AMF function)
- 3.VFD display---minus 40℃ low temperature display
- 4.Remote monitoring via Modbus RS485
- 5.RS232 programming interface
- 6.6 digital inputs/8 relay outputs/5 analog inputs
- 7.Scheduled start/stop function
- 8.Real-time clock
- 9.Event log

特点:

- 1.发动机和发电机保护
- 2.自动启动或市电异常自启动功能（AMF功能）
- 3.VFD显示---零下40℃低温显示
- 4.通过Modbus RS485实现远程监控
- 5.RS232编程接口
- 6.6个开关量输入/8个继电器输出/5个模拟量输入
- 7.调度功能---定时开关机
- 8.实时时钟
- 9.历史记录

HGM9300 Series HGM9300系列



HGM9310MPU / 9310CAN

HGM9320MPU / 9320CAN

Characteristics:

- 1.Engine and generator protection
- 2Automatic start or mains fail self-starting function(AMF function)
- 3.Apply to EFI(J1939) or non-EFI engine
- 4.Remote monitoring via Modbus RS485
- 5.8 digital inputs/8 relay outputs/5 analog inputs
- 6.Scheduled start/stop function
- 7.SMS control
- 8.Real-time clock & event log
- 9.Neutral line current detection
- 10.PLC (programmable logic control) function
- 11.With total run A/B and total energy A/B

特点:

- 1.发动机和发电机保护
- 2.自动启动或市电异常自启动功能（AMF功能）
- 3.适用于电喷（J1939）或非电喷发动机
- 4.通过Modbus RS485实现远程监控
- 5.8个开关量输入/8个继电器输出/5个模拟量输入
- 6.调度功能---定时开关机
- 7.短信控制
- 8.实时时钟 & 历史记录
- 9.零线电流检测
- 10.具有PLC(可编程逻辑控制)功能
- 11.具有累计运行A、B与累计电能A、B

HGM9600 Series HGM9600系列



Characteristics:

- 1.Automatic start or mains fail self-starting function(AMF function)
- 2.Apply to EFI(J1939) or non-EFI engine
- 3.Engine and generator protection
- 4.USB programming interface
- 5.Remote monitoring via Modbus RS485
- 6.8 digital inputs/8 relay outputs/5 analog inputs
- 7.Scheduled start/stop function
- 8.SMS control
- 9.Real-time clock & event log
- 10.Neutral line current detection
- 11.With total run A/B and total energy A/B
- 12.Network port communication (Ethernet)
- 13.Micro SD card---record permanent preservation

特点:

- 1.自动启动或市电异常自启动功能（AMF功能）
- 2.适用于电喷（J1939）或非电喷发动机
- 3.发动机和发电机保护
- 4.USB编程接口
- 5.通过Modbus RS485实现远程监控
- 6.8个开关量输入/8个继电器输出/5个模拟量输入
- 7.调度功能---定时开关机
- 8.短信控制
- 9.实时时钟 & 历史记录
- 10.零线电流检测
- 11.具有累计运行A、B与累计电能A、B
- 12.网口端口通信（ETHERNET）
- 13.Micro SD卡---历史记录永久保存

Characteristic---Parallel 产品特点---并联

HGM9510



Characteristics:

1. Genset parallel with genset
2. Automatic synchronization and load power share
3. Power management mode
4. Controlling and protection for genset and bus
5. GOV and AVR automatic adjustment
6. J1939 engine communication
7. USB programming interface
8. Remote monitoring via Modbus RS485
9. PLC(programmable logic control)
10. Uninterrupted power and cyclic starting up, it is fit to use in the field
11. Start/stop reserve set based on the data of automatic load detection
12. Controlling 32 gensets in parallel automatically in 1 minute
13. Single genset parallel in grid---genset is constant power output

特点:

1. 机组与机组并联
2. 自动同步与负载功率均分
3. 可设置功率管理模式
4. 发电机组和母排控制保护
5. GOV和AVR自动调节
6. J1939发动机通讯
7. USB编程接口
8. 通过Modbus RS485实现远程监控
9. 可逻辑编程 (PLC)
10. 不断电循环开机, 适合野外作业
11. 自动检测负载大小来开启和关闭备用机组
12. 可控制32台机组1分钟全部自动并联
13. 单机并网模式---发电机组恒功率输出

Characteristic---Parallel 产品特点---并联

HGM9520



Characteristics:

1. Single genset parallel with mains
2. Automatic synchronization and load power share
3. Control and protection for genset and mains
4. GOV and AVR automatic adjustment
5. J1939 engine communication
6. USB programming interface
7. Remote monitoring via Modbus RS485
8. PLC(programmable logic control)
9. Genset constant power output
10. Mains controlling mode
11. Load takeover mode
12. AMF controlling mode AMF
13. Islanding Mode

特点:

1. 单台机组与市电并联
2. 自动同步与负载功率分配
3. 发电机组与市电控制保护
4. GOV和AVR自动调节
5. J1939发动机通讯
6. USB编程接口
7. 通过Modbus RS485实现远程监控
8. 可逻辑编程 (PLC)
9. 发电机组恒功率输出
10. 市电控制模式选择
11. 负载接收模式选择
12. AMF控制模式选择
13. 孤岛模式选择