

CONTROL PANEL

Auto synchronizing one generating set with the mains (including AMF function). When the 6000 Series panel is configured as a 6400 Control System, the controller can auto-synchronize up to 8 generating sets with the mains (including Automatic Mains Failure function). Two types of operation are available:

• BASELOAD OPERATION

The operator manually starts the generating set. Each set will automatically synchronize to the mains supply. The amount of active (kW) and reactive (kVAr) power supplied by the generating set is increased at a predetermined rate until the preset quota is met. Power will be exported to the mains if the generating set output is greater than the local load.

• PEAK LOPPING

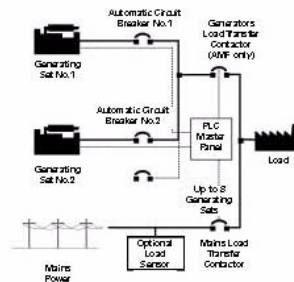
With the addition of an optional load sensor on the mains supply, the controller will ensure that only local load is supplied and no power is exported to the grid. This operating mode must be specified when ordering.

When operating independently from the mains, the generating sets will run to supply the required load demand automatically.

Note: The above modes also allows for AMF operation with soft load re-transfer.

The optional facility of the industry standard Modbus protocol communication interface ensures compatibility with most building management or SCADA / HMI systems.

Note: Consult your local utility to ensure that the control and protection equipment incorporated in the 6000 Series control panel meets their specific regulations. Consult the factory if the utility requires additional protection relays. Due to the specialized nature of generating set systems synchronizing with the mains, consult the factory before specifying a 6400 control system.



STANDARD FEATURES

• GENERATING SET PARAMETER DISPLAYS (2 x 4 line LCD DISPLAY)

AC voltage phase to phase and phase to neutral (on 3 phases)
AC current (on each of 3 phases)
Frequency
Cos ϕ (power factor) average
kW – total + per phase
kVAr – total + per phase
kWh – total
% Voltage difference between bus and generator

Phase shift
Frequency slip
Hours run
Coolant Temperature
Lube oil pressure
DC voltage

- **BUS PARAMETER DISPLAY**

AC voltage (on a single phase)
AC voltage/frequency within limits indicator

- **OPERATOR CONTROLS**

Off / auto / test / run control switch
Emergency stop pushbutton (lockdown)
Membrane keypad with tactile feedback
AC voltage adjust – manual and automatic
Engine speed adjust – manual and automatic

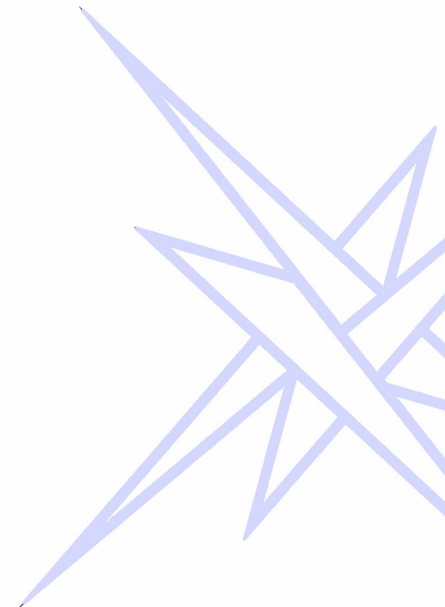
- **SYSTEM CONTROLS**

3 attempt start counter
Cool down delay
Pre-glow delay
Remote start capability
Check synch relay
Reverse power relay
Manual synchronizing
Automatic synchronizing
Automatic load sharing control
Automatic loading and unloading ramp controller
Automatic mains failure controller
Load sequencing control
Static battery charger (5amp) 220/240 Volt AC
Quadrature droop kit

- **SHUTDOWNS AND ALARMS**

High coolant temperature shutdown
Low oil pressure shutdown
Over-speed shutdown
Fail to start shutdown
Emergency stop operated
Reverse power shutdown
Over-voltage shutdown
Under-voltage shutdown or alarm
Over-frequency shutdown
Under-frequency shutdown
Alternator loss of excitation alarm
Fail to synchronize alarm
Battery over-voltage shutdown or alarm
Battery under-voltage alarm
Bus over-voltage alarm
Bus under-voltage alarm
Bus under-frequency alarm
Bus over-frequency alarm
Bus load surge
Spare fault channels, up to 3:

- Low coolant temperature alarm
- Low fuel level shutdown or alarm
- Low coolant level shutdown



- **STATUS INDICATORS**

Load switch status indicator
General switch status indicator
Fault log memory
Password security
Interface to remote monitoring package

OPTIONAL FEATURES

- **SYSTEM CONTROLS**

Volt free contacts for generating set running
R448 regulator (required)
Electronic governor (required)
Droop engine control module

- **SHUTDOWNS AND ALARMS**

Earth fault shutdown
High fuel level down

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