

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 autosynchronize 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 allow 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:**

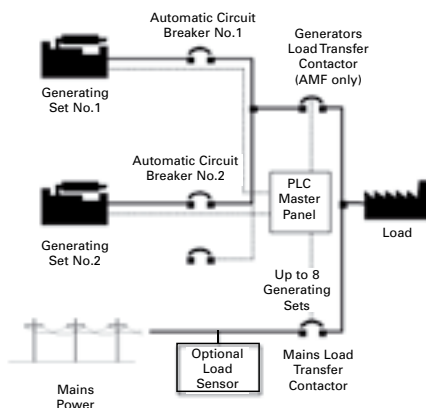
Consult your local utility to ensure that the control and protection equipment incorporated in the 6000 Series control panel meets their specific regulations. Consult the factory if the utility requires additional protection relays. Due to the specialized nature of generating set systems synchronizing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



# 6400 Series



[www.3Tech.net](http://www.3Tech.net)



# Control panel



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ISO 9001:2008  
 Certificate No.194845



## 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  
CosΦ (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 displays

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  
Overspeed shutdown  
Fail to start shutdown  
Emergency stop operated  
Reverse power shutdown  
Overvoltage shutdown  
Undervoltage shutdown or alarm  
Overfrequency shutdown  
Underfrequency shutdown or alarm  
Alternator loss of excitation alarm  
Fail to synchronize alarm  
Battery overvoltage shutdown or alarm  
Battery undervoltage alarm  
Bus overvoltage alarm  
Bus undervoltage alarm  
Bus underfrequency alarm  
Bus overfrequency 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 alarm



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