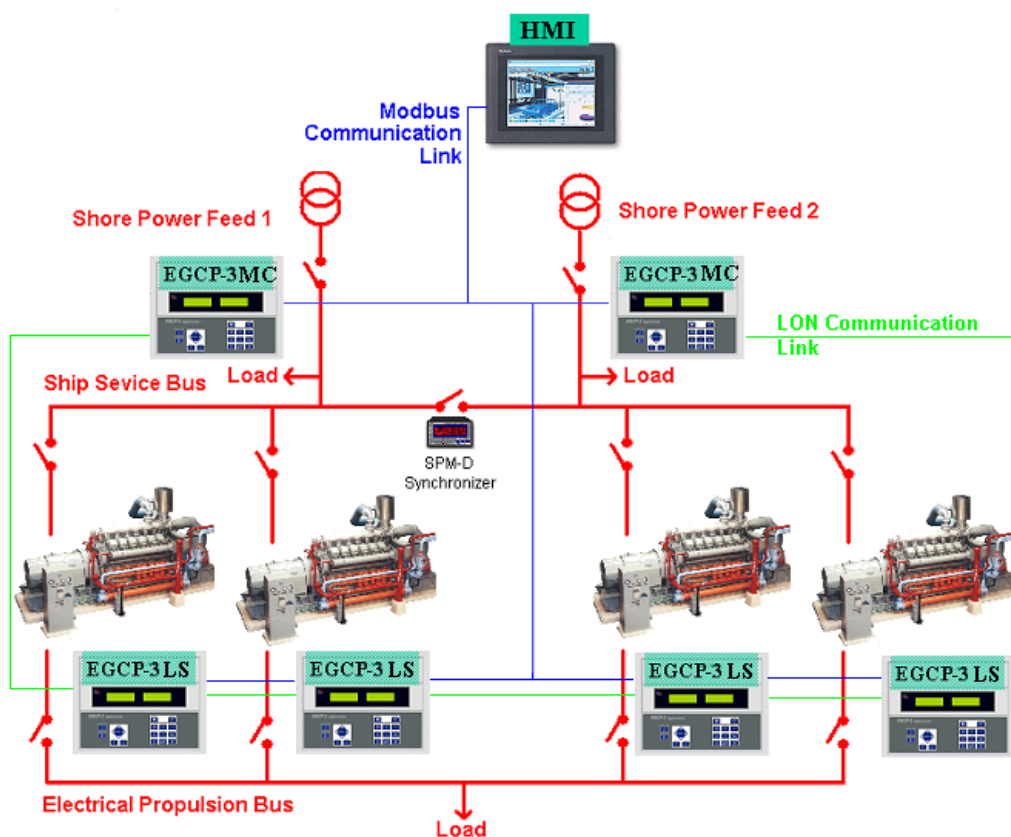


Complex Power Systems Solutions

APPLICATION: Multiple Generator Dual Bus Arrangement

Woodward EGCP-3 LS and EGCP-3 MC controls



More information on the EGCP-3 is available on the Woodward website:
www.woodward.com

SYSTEM OVERVIEW

The Woodward EGCP-3 LS and EGCP-3 MC controls work together to provide a total system solution for complex switchgear applications. In this example, each generator has two generator breakers and can be used for either the ship service or propulsion bus. In traditional control systems, the load sharing for a system like this was accomplished by using multiple sets of relays and two pairs of load sharing lines. The EGCP-3 simplifies this system by removing the need for relays. Each unit communicates over the LON communication link, and will load share on either bus, based on which generator circuit breaker is closed. It is possible to mix any combination of generator sets between the two busses and maintain real and reactive power load sharing.

- Woodward's "top of the line" Power System Control
- An "off-the-shelf" product for a custom market
- Protection, metering, and control all in one
- Echelon LonWorks® communications between units
- Modbus®* communications to tie into plant SCADA systems
- Eight lines of display to show hundreds of engine and generator data points
- Open Transition, Closed Transition, Soft Load Transfer, and Utility Parallel all possible
- Digital inputs for bus selection
- PC and front panel configurable
- UL/cUL Listed

*—Modbus is a trademark of Modicon, Inc.

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The EGCP-3 MC control provides the logic for handling failures of the utility source, transitions between utility and local power, and for constant parallel modes. In this application, the two EGCP-3 MCs can provide the following functions: switch from the primary shore source to the secondary if the primary fails, start the generator sets to provide emergency power if both shore power sources fail, start the generator sets and provide a soft load transfer for a bumpless break from the utility, and control a constant import level while the generator sets are paralleled with the utility.

An SPM-D synchronizer is shown on the system tie breaker. This unit is used simply to synchronize the two busses together automatically. Manual synchronization of the bus tie breaker is also possible.

FEATURE OVERVIEW

EGCP-3 LS Generator set control



- Provides Engine start/stop sequencing
- Engine monitoring and protection
- Generator monitoring and protection
- Generator breaker synchronizer and load control
- Communicates with other units over the LonWorks network
- Provides generator set management for starting units when load increases and stopping units when load decreases
- Includes LonWorks network monitoring to detect errors in the network
- Modbus ports to provide data or and for remote control

EGCP-3 MC System master control



- Plant management control
- Provides synchronization and protection for utility feeders
- Generator bus capacity feature that controls n+1 standby requirements
- Communicates with other units over the LonWorks network
- For multiple utility feeds, MC controls will totalize the load through all closed feeders
- Modbus ports to provide data or for remote control
- Can be applied in almost any switchgear arrangement

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For more information contact: