

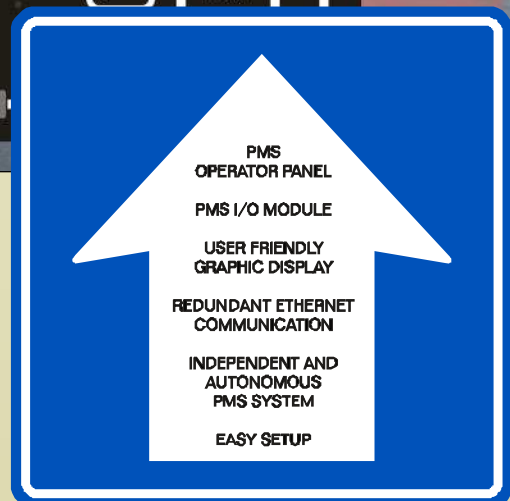


MEGA-GUARD *E series*

POWER MANAGEMENT SYSTEM

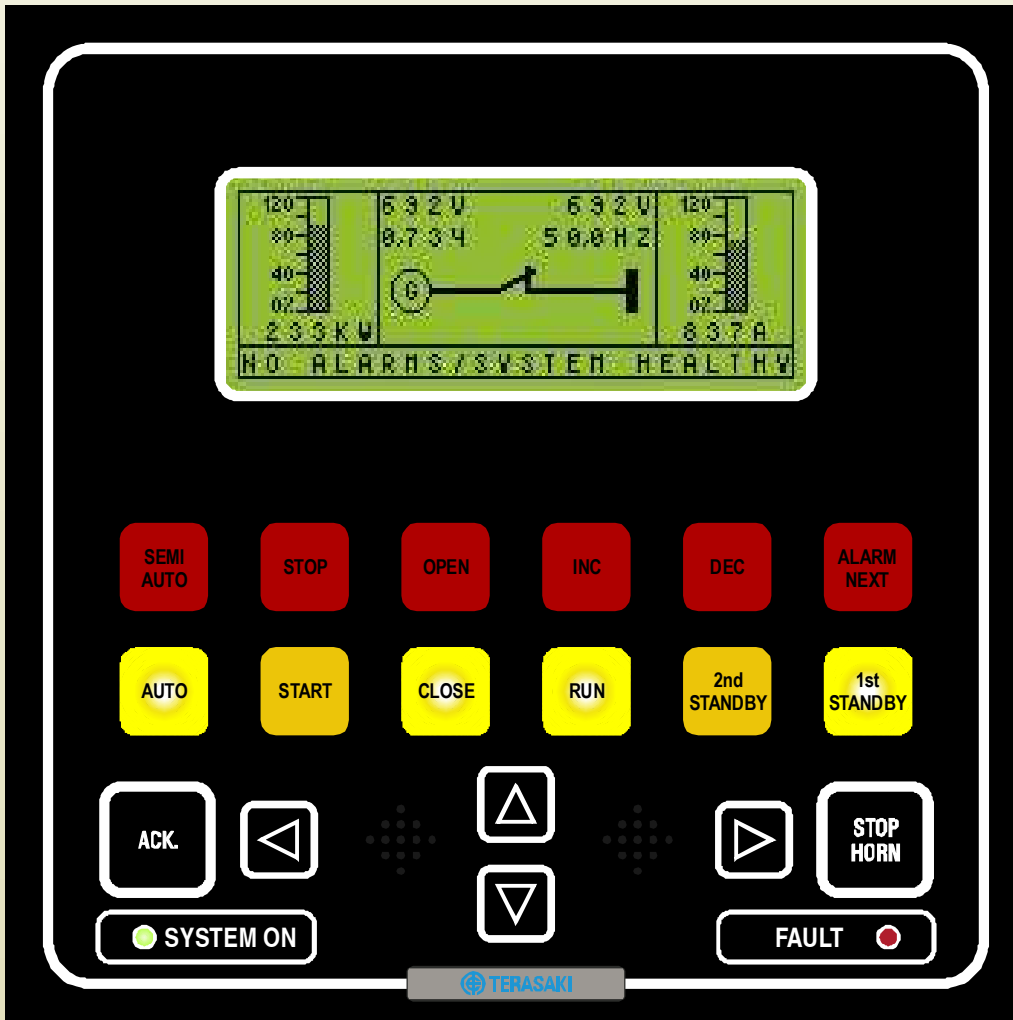


Mega-Guard PMS Operator Panel



THE BEST ROUTE TO SHIP AUTOMATION AND NAVIGATION!

PMS Operator Panel



PMS Operator Panel

Functions:

The PMS is an advanced system for full automation of power plant; including power management, diesel engine control, generator control, generator protection and optional diesel engine safety system.

Each generator set is equipped with its own independent and autonomous PMS system. This ensures the highest degree of reliability and availability. The PMS is supplied as a complete product and no additional components are needed for automation of a low voltage switchboard up to 690VAC.

System Lay-out:

The Mega-Guard PMS is built-up with three items for each generator set:

- PMS Operator Panel Size: 144x144x55mm (WxHxD) for flush panel mounting
- PMS I/O Module Size: 127x198x29mm (WxHxD) for Din rail mounting
- I/O Cable in between PMS Operator Panel and PMS I/O Module Length: 3 and 5 meter.

The PMS Operator Panel is flush mounted inside switchboard and contains a user-friendly graphic display for read-out of power plant parameters and 12 pushbuttons with lamp indicators for operation of the generator set.

The PMS I/O Module is DIN rail mounted inside switchboard and contains inputs and outputs to connect to diesel engine, generator, busbar and main circuit breaker. The I/O Cable inter-connects the PMS Operator Panel and the PMS I/O Module.

The PMS can be extended with a 24 channel Mixed I/O Module which support the following functions:

- Diesel Engine safety system with 4 monitored digital inputs and 1 shutdown relay output
- Analog Frequency/Voltage control: 4 analog outputs 4-20mA for Frequency and Voltage control

Functions

PMS Operator Panel:

The PMS Operator Panel is installed in switch board at each generator section. The Panel provides a user-friendly interface for operation and monitoring of the generator set. The PMS Operator Panel is equipped with built-in Control Processor function and executing Power Management functions. The PMS Operator Panel is delivered with a graphic display which provides the following information:

- Generator Power
- Generator Voltage
- Busbar Voltage
- Frequency
- Cos phi
- Breaker Status
- System status
- Alarm description

In addition the PMS Operator Panel is equipped with the following operator pushbuttons with lamps:

- Auto / Semi Auto
- Start / Stop
- Run
- Open / Close
- Increase / Decrease
- 1st / 2nd Standby
- Alarm Next

The rear side of the PMS Operator Panel is equipped with terminal strips and connectors as follows:

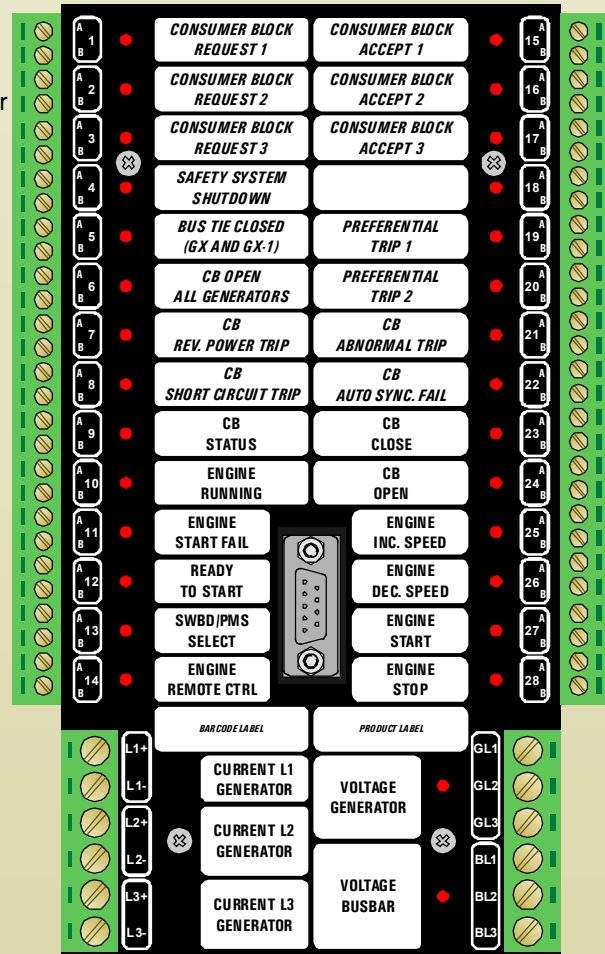
- redundant Ethernet link for communication to other PMS Operator Panels and (when installed) to Mega-Guard Operator Workstations
- 24VDC input
- System Fail output
- USB port for memory stick to up/download application program
- RS485 MODBUS slave communication port
- I/O Connector communication via I/O cable to PMS I/O Module

PMS I/O Module:

The PMS I/O Module is installed inside main switch board at each generator section. I/O signals from generator, busbar, circuit breaker and engine are directly connected to this I/O Module.

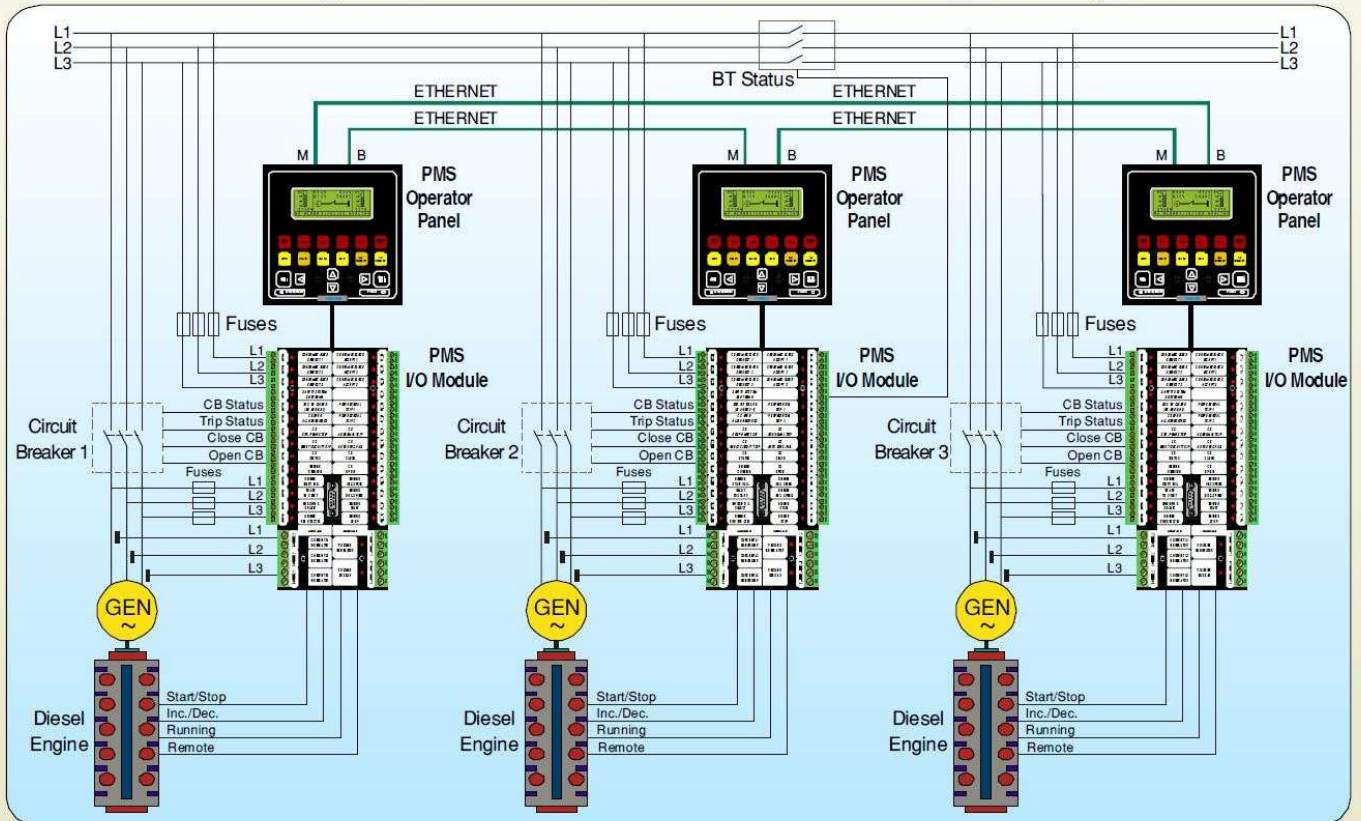
The PMS I/O Module is equipped with a controller which executes generator control functions and the I/O Module communicates with the PMS Operator Panel. The PMS I/O Module has the following inputs and outputs:

- 3 phase Busbar Voltage (0-690VAC)
- 3 phase Generator Voltage (0-690VAC)
- 3 phase Generator Current (0-5A)
- Relay outputs (6):
 - CB Close / Open
 - Engine Inc / Dec Speed
 - Engine Start / Stop
- Digital inputs (6):
 - CB Status
 - Engine Running
 - Engine Start Fail
 - Ready To Start
 - SWBD / PMS Select
 - Engine Remote Control
- Relay outputs (8) free configurable functions:
 - Consumer Block Accept (1-8)
 - Preferential trip (1-8)
 - Shutdown
 - CB Abnormal Trip
 - CB Auto sync fail
 - CB Manual Open Trip
 - AVR Inc Voltage
 - AVR Dec Voltage
 - High / Low Frequency Alarm
 - High / Low Voltage Alarm
 - Reverse power trip Alarm
- Digital inputs (8) free configurable functions:
 - Consumer Block Request (1-8)
 - CB Open Request
 - CB Manual Open Trip



PMS I/O Module

Block Diagram MEGA-GUARD E series Power Management System



Overview of the MEGA-GUARD E series Ship Automation and Navigation System



Integrated Navigation System



Propulsion Control System



Dynamic Positioning System



Generator Control and Power Management System



Machinery Control and Monitoring System



Cargo Control and Monitoring System

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