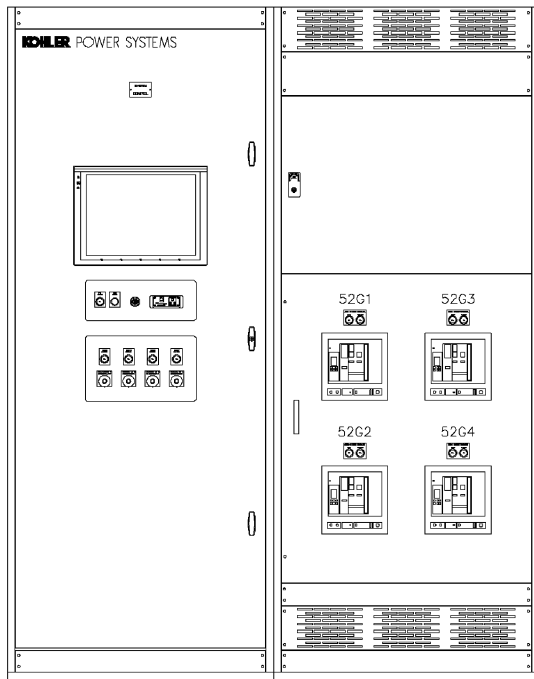




Kohler PD series digital paralleling switchgear provides a platform for control of multiple generator sources. Integrating Kohler generator sets, transfer switches, and paralleling controls, the PD series combines the industry's best features with Kohler's reputation for quality and reliability. Utilizing our third generation interface software with active screen technology, Kohler provides an intuitive touch screen to view system operation, make changes quickly, and provide the customer with instant feedback and choices during manual operation.

The PD-2150 builds on Kohler switchgear expertise to provide a standardized and cost-effective product. Designed for quick delivery, problem-free startup, and low initial cost, the PD-2150 includes a fully featured digital control system that makes Kohler an industry leader.



PD-2150

Standard Features

- UL 891 listed
- System control and monitoring via touch screen interface
- 15-inch touch screen with 1024 x 768 color resolution
- Web server with graphical web pages
- Modbus® communications via serial and Ethernet networks
- UL489 fixed mount circuit breakers

System Configurations

The PD-2150 includes options for design flexibility of low voltage applications to meet standards for safety and performance typically available on more expensive product offerings:

- 208–600 volts
- Bus available through 5000 amps/65 kA withstand rating
- NEMA 1 or NEMA 3R enclosures
- Front and rear access
- Integrated digital control of system equipment
- Compatible with diesel or natural gas generators
- Transfer switch application for start and power transfer
- Generator management
- Load add/shed controls



Touch Screen Display

Windows® is a registered trademark of Microsoft®.

Human-Machine Interface (HMI)

The PD series switchgear incorporates human-machine interface (HMI) software with active screen technology to provide industry leading system operation. Graphical color screens represent both system and equipment operation displayed on a touch screen. Kohler switchgear also includes a web server to access screens via the Internet.

The HMI software provides control and monitoring of all system equipment using password access, which adds value with animated graphics to represent meters, indicators, and switch applications. The software provides user-friendly access for easy monitoring and adjustment of critical equipment.

Active screen technology has the additional benefit of providing users with immediate feedback on the result of their selection and alerts the user to conditions that require attention. A stepped process allows users to view relevant system status and eliminates data not required for current operation.

Overall, active screen technology allows users to make system adjustments without the use of an owner's manual and confirm that the choice results in optimal system operation.

Touch Screen Interface

The PD series of digital switchgear incorporates a high resolution graphical interface (HMI) to provide control and monitoring of all system parameters in one strategic location.

The operator interface software is configured in a user-friendly format with direct access to multiple levels of control and monitoring. Screen programs are simple to upgrade as future customer requirements develop.

User programming is performed through a password-protected pop-up keypad available on all screens. Each system includes:

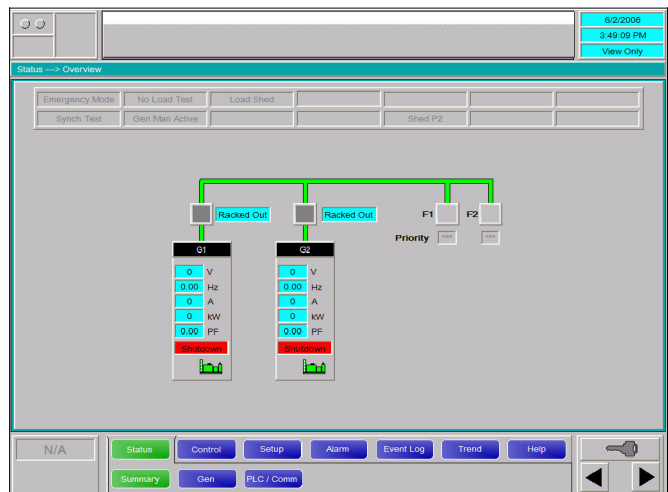
- System one line overview
- Generator control
- Generator monitoring
- Generator management
- Load management

System One Line Overview

The one line overview screen displays system status through animation, color indications, system feedback, and operating parameters. The screen is customized to show all equipment and components installed at the site, including breaker status. The screen includes:

Breaker Status: System breakers including generator paralleling and distribution. Color indications include open and automatic/manual control.

Generator Sets: Generator running or offline, individual generator voltage, frequency, current, kilowatts, power factor, total generator bus kilowatts, and master control annunciator windows (indications/alerts).



Generator Control

The generator set control screens provide a graphical interface to specific generator operation. Simple and complete, the generator control screens include:

- Generator and bus monitoring of voltage and frequency for manual paralleling
- Generator output monitoring
- Digital sync-scope and phase/voltage differential indications
- Generator control switches
- Synchronizer control switch with three positions: automatic, manual, and off

- Speed and voltage controls: adjustments with digital indication of setting for manual paralleling
- Generator set alarms:
 - Displays pre and shutdown alarms for the generator set being monitored
 - Displays recorded alarm events for that generator
 - Includes reset switch for alarms, as well as interface monitoring for the Decision-Maker 550 engine-mounted controller

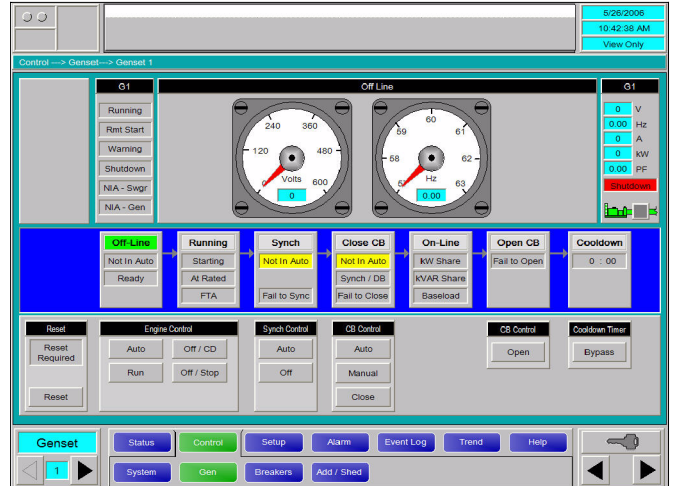
The user can select between multiple generators using a single button.

Generator Monitoring Screen

Detailed electrical and mechanical data for each generator is gathered on this screen. Used with a Decision-Maker 550 controller, over 400 points are available for each generator. Standard information is represented in bar graph and digital readouts and includes:

- Voltage (3-phase), frequency, kilowatts, current (3-phase), power factor
- Water temperature, oil pressure, engine speed, battery voltage
- Number of starts, running time, percentage loaded, sync-scope, sync-lights and voltage/phase indications, sync-active indication, generator pre and shutdown alarms

The bar graph displays are color coded to indicate normal operation and alarm conditions for customer monitoring. Analog-style meter data is also available at the press of a button.



Generator Management

A standard feature of the PD series, generator management allows the system to decide the appropriate number of generators required to feed the load. With user-definable parameters, this management system can be configured to:

- Run generators in *available* mode for a preset time period
- Optimize the number of running generators, shutting down those that are not required

- Bring additional capacity online based on load requirements

The system will automatically bring generators online and offline as needed.

Load Management

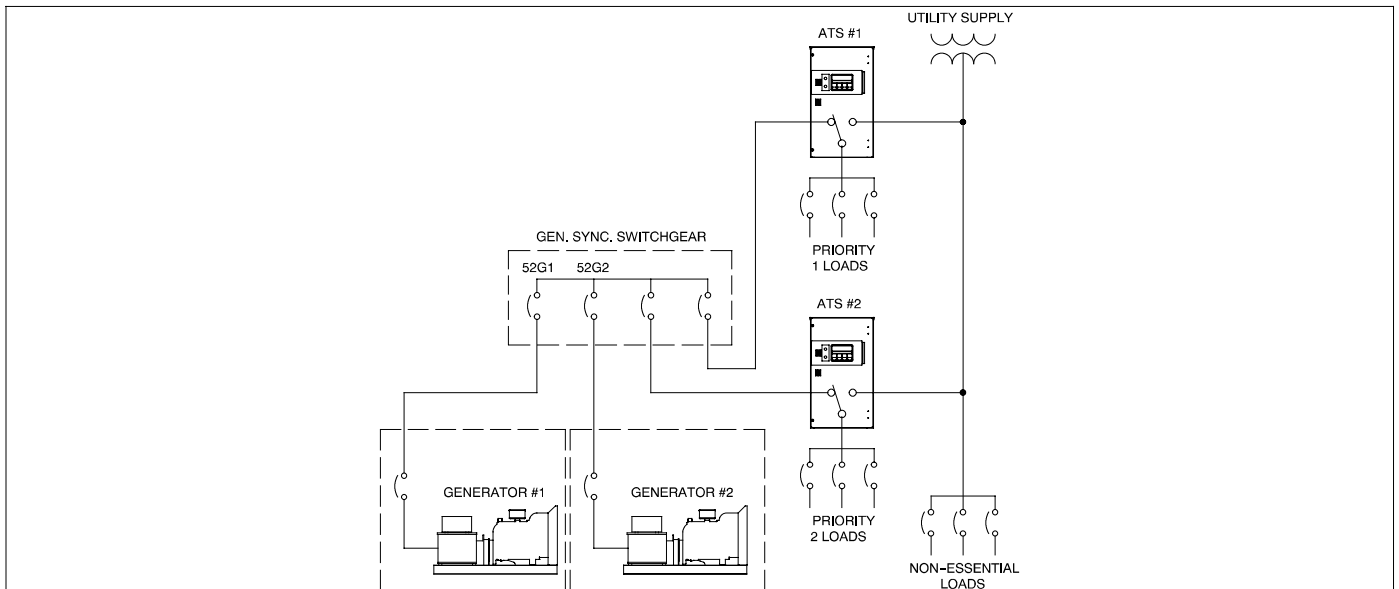
Another standard feature of the PD series, and one that is often overlooked in specifications, is load management/load shedding. A multiple generator system must have the ability to add and remove loads depending on available generators

and system requirements. The HMI interface allows the user to prioritize and group loads and decide when to bring them online after system start, when to remove those loads, and how to choose these actions.

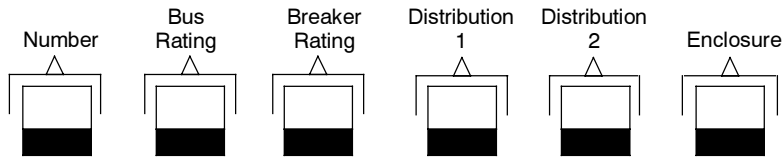
Available Applications

ATS Start and Power Transfer: A start signal from an automatic transfer switch or other control device starts all generator sets. The generators synchronize and connect to the paralleling bus. Automatic transfer switches then connect power to emergency.

When Utility Power Is Restored: Standard, delayed transition, or closed transition switches can reconnect the load to the utility source.

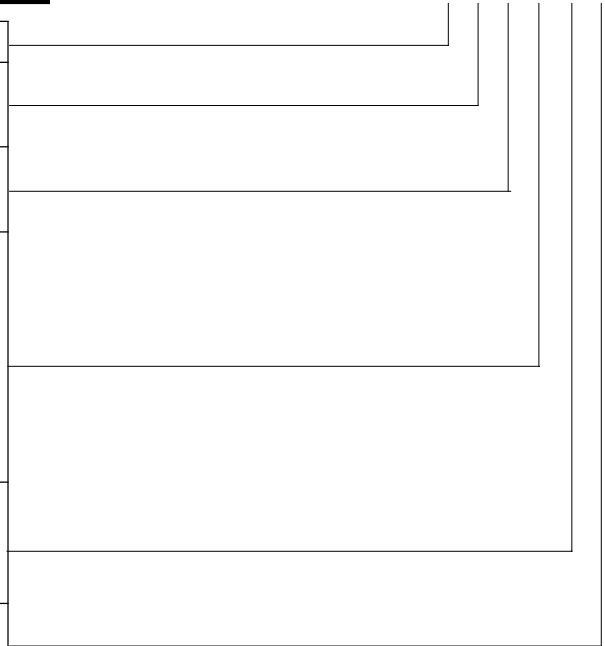


Use this chart and the part number on the system nameplate to record and verify the PD switchgear system configuration.



SAMPLE MODEL DESIGNATION
PD2150-2ACXZ3

Number of Generators
Bus Rating, Amps A = 1600 B = 2000 C = 3000 D = 4000 E = 5000
Generator Breaker Rating, Amps A = 800 B = 1200 C = 1600
Distribution Breaker 1, Amps X = Bus rated lugs only (no breaker) A = 100 F = 600 K = 2000 B = 150 G = 800 L = 2500 C = 200 H = 1000 M = 3000 D = 250 I = 1200 N = 4000 E = 400 J = 1600 O = 5000
Distribution Breaker 2, Amps Z = None B = 150 D = 250 F = 600 H = 1000 J = 1600 A = 100 C = 200 E = 400 G = 800 I = 1200 K = 2000
Enclosure 1 = NEMA Type-1 3 = NEMA Type-3R Non-Walk-in



PD Series Features

All Kohler PD series paralleling switchgear is designed specifically for your project, adding components and features as required. A sampling of options includes:

Controls:

- Report generation
- Power quality metering
- Transfer switch control screens
- SCADA systems
- Trending

Low Voltage:

- Integrated breaker metering networks
- Insulated bus, isolated bus

Medium Voltage:

- Distribution or station class lightning arrestors
- Station battery systems

Structure:

- Special environmental requirements for location, temperature, and humidity
- Complete walk-in switchgear housing with HVAC
- IBC Seismic Certification available

Kohler will team with their distributor to design a complete, integrated system for your installation. The project team will work with the project engineer, contractor, and owner from concept to acceptance to ensure a smooth installation and help you plan for future service on the complete system.

Modbus® is a registered trademark of Schneider Electric.

SCADA is a supervisory control and data acquisition software.

DISTRIBUTED BY:

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® product distributor for availability.