Useful Formula

TO OBTAIN	SINGLE PHASE*	THREE PHASE*
kW	$\frac{\text{Volts X amps X P.F.}}{1000}$	$\frac{\text{1.732 X volts X amps X P.F.}}{1000}$
KVA	$\frac{\text{volts X amps}}{1000}$	$\frac{\text{1.732 X volts X amps}}{1000}$
Horsepower required when generator kW known**	$\frac{\text{kW}}{\text{0.746 X efficiency (generator)}}$	$\frac{\text{kW}}{\text{0.746 X efficiency (generator)}}$
kW input when motor hp known***	$\frac{\text{hp X 0.746}}{\text{efficiency (motor)}}$	$\frac{\text{hp X 0.746}}{\text{efficiency (motor)}}$
Amperes when motor hp known	$\frac{\text{hp X 0.746}}{\text{volts X P.F. X efficiency}}$	$\frac{\text{hp X 0.746}}{\text{10732 volts X P.F. X efficiency}}$
Amperes when kW known	$\frac{\text{kW X 1000}}{\text{volts X P.F.}}$	$\frac{\text{kW X 1000}}{\text{1.732 X volts X P.F.}}$
Amperes when kV-A known	$\frac{\text{kV-A X 1000}}{\text{volts}}$	$\frac{\text{kV-A X 1000}}{\text{1.732 X volts}}$

* Alternating Current
** If generator efficiency is unknown, use 0.93
*** If motor efficiency is unknown, use 0.85 X hp

KILOPAK®

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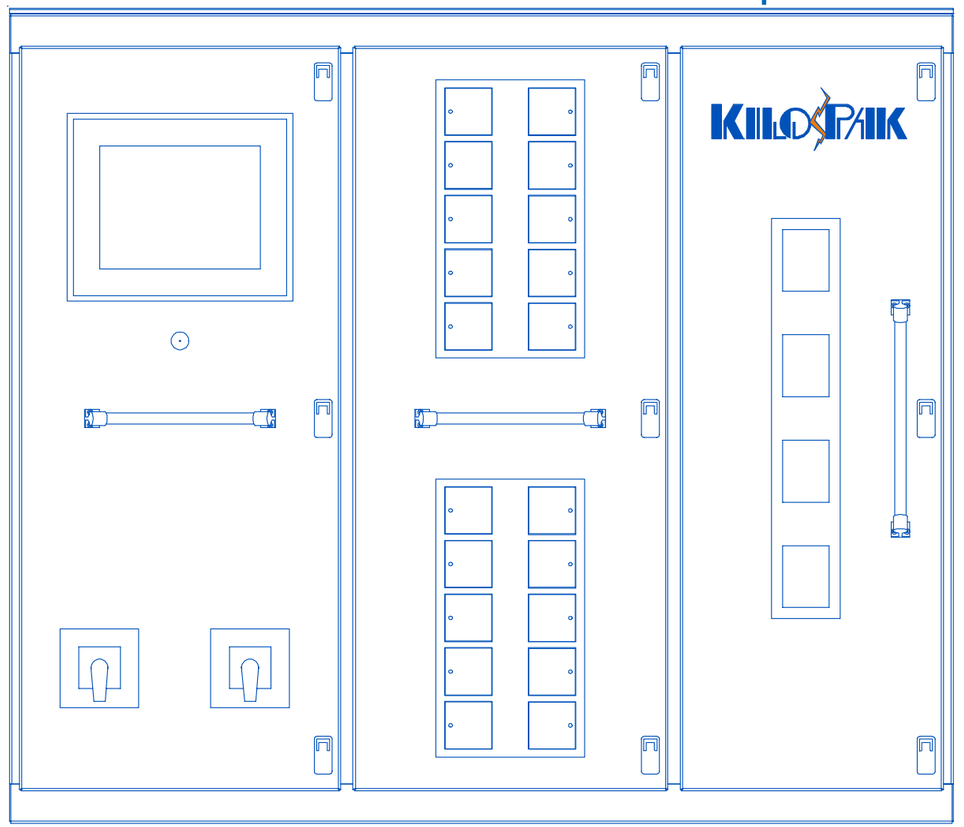
Kilo-Pak Wizard



KILOPAK

The Kilo-Pak Wizard Digital Energy Management System facilitates user interface to a simple, reliable and operator friendly based touch screen; which changes its display automatically to suit current operating mode and/or machine status. The system uses ultra fast digital CAN bus based synchronizing and load sharing systems. These same load sharing systems provide all instrumentation and protection functions into the industrial PC where simplicity of set up and high accuracy makes this total system solution a robust world-class leader. The Kilo-Pak objective has been to minimize component count with the obvious benefit of reliability and ease of use that can be tuned to the customer's specific requirements prior to and even after installation.

SPECIFICATIONS

STANDARD FEATURES

- Auto paralleling of generator sets for seamless transition from primary generator set to secondary generator set and vice-versa at user definable run periods.
- Auto paralleling of generator sets for seamless addition of standby/secondary generator set to meet additional power demands.
- Auto-paralleling of generator sets for seamless transition from primary generator set to secondary generator set in case of pre-alarm (see below) on primary generator set.
- Seamless transition between shore power and generator sets when docking or preparing to get underway.
- Seamless transfer from shore power to generators to avoid overload of shore power capacity. Set points are adjustable.
- Isochronous load sharing and digital high speed synchronizing.
- Auto start/stop.
- Shutdowns for low oil pressure, high water temperature, high exhaust temperature, over crank, over speed, over/under voltage, over/under frequency, reverse power, loss of excitation and phase imbalance.
- First-out alarm annunciation to indicate which alarm occurred first.
- Pop-up type alarm annunciation on touchscreen.
- User adjustable auto cool down run periods.
- Pre-crank warning signal.
- Plug-in type main and distribution breakers.
- Circuit breakers in lieu of fuses.
- Integrated shore power controls and monitoring.
- EEPROM chip in PLC for backup.
- Hard-wired fail-safe emergency (E) stop.
- Large 18” touch screen driven by Industrial Pentium III PC with full windows graphics capability.
- Analog and digital meters with threshold indication on touch screen for each generator set phase volts, phase amps, frequency, power factor, kW, KVA, DC volts, oil pressure, water temp and hour meter.
- Touch screen based digital metering for shore power input and output phase volts, current per phase, kW, KVA and power factor.
- Load percentage values on load management screens.
- Data logging for troubleshooting and maintenance with “Maintenance Required” indication.
- Event driven 1-hour data logging. System will save a record of events for 99 operational parameters (at up to ¼ cycle intervals) that occur prior to a pre-alarm or shut-down or other user-defined condition.
- Alarm history for 9,999 events.
- Simple to operate intuitive interface with detailed operating instructions on touch screen and protection against inadvertent operation.
- This system utilizes a new ergonomic layout. All hardwired buttons and switches with the exception of the emergency (E) stop button has been moved to the touch screen for maximum ergonomic layout of soft buttons, switches and lights.
- Ability for user to add the secondary generator with push of one button synchronization monitoring screen, which pops up during sync and closes out following sync.
- Mimic one line diagram on touch screen.
- Special password-protected technician displays for additional serviceability/troubleshooting.
- Minimized interconnection requirement between shore power converter and switchboard (only connections required are power and voltage sensing).
- Manual back-up if switchboard fails.
- Door stays for holding doors open.
- 316L stainless steel or Awlgrip-painted Marine grade 5052 aluminum cabinetry.
- All high voltage distribution components covered when doors are opened.
- Drip shield, automatic interior lighting, and non-conductive safety handrails.
- Top or bottom deck mounting.
- Lifting eyes for easy installation.
- Louvers for proper heat dissipation.
- Space saving compact enclosure designs.

OPTIONAL FEATURES

- Standard DeviceNet communications are provided for transmitting all control, engine and electrical data displayed on the touch screen. Ethernet communications connection available to transmit failures/faults recorded on event driven data logging to Kilo-Pak’s engineering department server for analysis and troubleshooting.
- Two-piece enclosure – one for control and one for distribution
- Custom enclosure layout and design.
- Load shedding.
- ABS, DNV or Lloyds certification.
- Split-bus.
- Feedback mode operation.
- Power cable insulation shutdown.
- Multi-shore power cord selector switch.
- Contactors for main power inputs in lieu of circuit breakers.
- Factory integrated testing of generators, shore power converter and switchboard.
- Remote additional touch screen.
- Main distribution breaker’s open/closed status on mimic one line on touch screen.