KOHLER®

Industrial Power Systems

Paralleling Switchgear

Your Job is Complex. *We Make It Easy.*

At Kohler, we know that the best system is the one that's built to your project's specific requirements.

Your KOHLER® power system is customized and built by a dedicated team of Kohler engineers. Total system integration means that no matter how large or complex, everything works together seamlessly—from generators and transfer switches to paralleling switchgear and controllers.

BENEFITS

- CUSTOMIZED to fit your exact needs. No compromising required.
- GENERATOR ONBOARD PARALLELING CONTROLS allow for a simple design at a nominal price and a shorter lead time.
- FAULT-TOLERANT PROGRAMMING ensures that your system is always working, even if a part of the system experiences a fault.
- NO GUESSWORK operation means you know exactly what the system is doing at all times.
- WITNESS TESTING ensures that customers can see that the paralleling switchgear they're getting matches up to their exact specification and works properly before it is shipped to them.
- SYSTEM SIMULATION means sequences run "off-line" for system training, testing, and upgrade/changes verification.
- SEAMLESS SYSTEM INTEGRATION means every component—from generator and transfer switch to paralleling switchgear and controller—is designed, built, and trusted to work together seamlessly.
- KOHLER'S EXCEPTIONAL SERVICE NETWORK provides assurance of 24/7 emergency service and responsive aftermarket support.

Kohler has been a single-source supplier of complex power systems for decades. You know our generators. You know our transfer switches. Now get to know our paralleling switchgear.

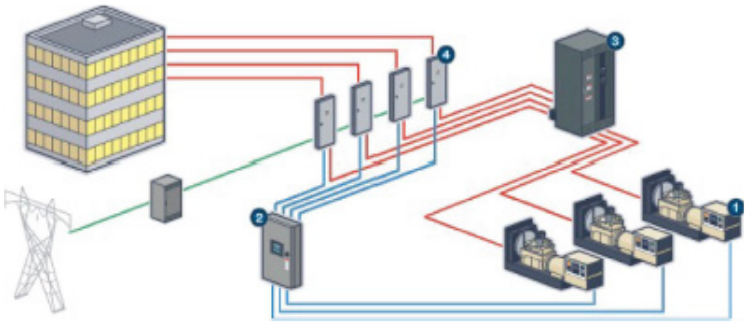
Our Proven *Process*

CUSTOMIZATION

Kohler carefully considers your requirements and develops a solution that meets your needs. Every design starts with our proven, time-tested process that builds your systems to your exact requirements. Our experienced engineering team helps you every step of the way, determining and specifying your requirements, designing the system, and providing easy-to-read drawings and documentation.

ONBOARD PARALLELING

For simple paralleling needs, Kohler's onboard paralleling with the generator controller can be leveraged. This allows you to have a smaller footprint at a lower and a shorter lead time due to the reduction in system components. A master control panel can be added for flexibility to monitor and operate the system from a central location.



FAULT-TOLERANT PROGRAMMING

If the system is unable to operate as expected, such as when a breaker fails to close, the system will respond to the fault and seek a source to power the load. This programming also allows for transition from manual mode to automatic mode regardless of the state the system is in.

NO GUESSWORK

Kohler's chart-based sequence of operation allows for a higher performance level of equipment and increased reliability on-site. The documentation allows for eased worries during system failures because the response is already known, eliminating guesswork.

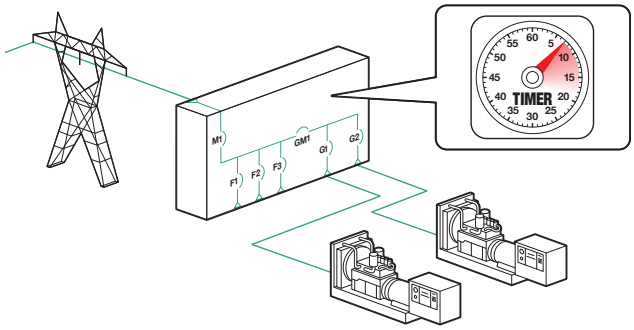
WITNESS TESTING

Want to see it all for yourself? Come visit our factory and see how your power system performs. Or watch it all from the comfort of your office with our virtual/hybrid witness testing option.

Rest assured, our testing simulations are as custom as your power system. We'll simulate the conditions to put your power system through the proper paces before it ships out to you. That's the Kohler difference.

SIMULATION AND INTUITIVE USER INTERFACE

Kohler's paralleling switchgear interface is designed to provide the operator the most pertinent information on each screen. This ensures that the operator always knows the reaction to an action.



SEQUENCE CHART (EXAMPLE)

	UA	BUS A	GMA	GEN BUS	GMB	BUS B	UB
1 INITIAL STATE	X	E	O	D	O	E	X

4 STEP	EVENT 5	RESPONSE 6	IF FAIL 7
1	Utility A and utility B out of tolerance	Utility A failure timer starts	A
		Utility B failure timer starts	B
2	Both utility failure timers expire or one timer expires while the other is still timing	Utility breaker UA opens	C
		Utility breaker UB opens	D
		All available generators start	
		Required GOL bypass timer starts	
3	Utility breaker UA is open	Bus A open transfer timer starts	
		Startup shed options: Based on the load-management settings, loads on bus A are shed	
4	Utility breaker UB is open	Bus B open-transfer timer starts	
		Startup shed options: Based on the load-management settings, loads on bus B are shed	
5	The first generator reaches rated voltage and frequency	The first generator breaker closes	
6	The remaining generators independently reach rated voltage and frequency	The remaining generators independently synchronize to the bus and close their respective circuit breakers	E, F
7	Required generators are online and the bus A open-transfer timer expires	Generator main breaker GMA closes	G
8	Generator main breaker GMA is closed	Bus A is on generator power	
		Required GOL bypass timer stops	
		Generator stabilization timer starts	
9	Generator stabilization timer expires and bus B open transfer timer expired	Generator main breaker GMB closes	H
10	Generator main breaker GMB is closed	Bus B is on generator power	
11	Bus A and B on generator power	Startup shed options: Based on the load-management settings, loads are added to the bus A and B	I
		Generator arrangement option: Become active in auto and all the loads have been added	

	UA	BUS A	GMA	GEN BUS	GMB	BUS B	UB
8 FINAL STATE	O	E	X	E	X	E	O

1 The initial state shows current status of utility, generator main, and tie breakers as well as availability of utility and generator power.

2 Breaker name and power source name.

3 Breaker open/close status and power source energized/de-energized status.

X=Closed E=Energized

O=Open D=De-energized

4 Step index.

5 System event is the input to system that will cause system to react, such as timer expiring or breaker opening or closing.

6 System response to event describes how the paralleling switchgear will automatically respond to event. If there are multiple responses to an event, each response is shown on a separate line.

7 If fail is a cross-reference to response to normal conditions chart and describes how the system will react if the system's response to an event is not as listed in the sequence chart (such as a breaker failing to close or failing to open).

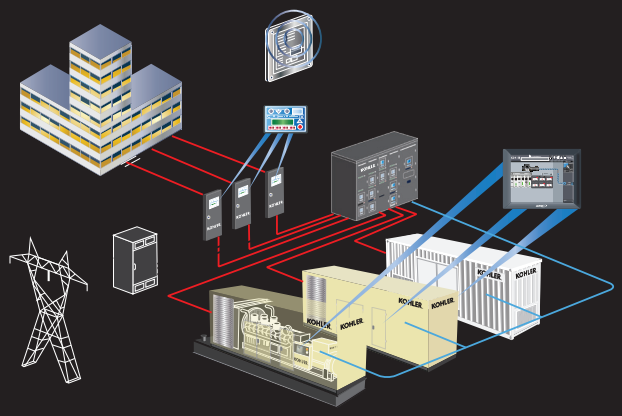
8 Final state shows desired status of utility, generator, and tie breakers as well as the availability of utility and generator power after sequence has completed.

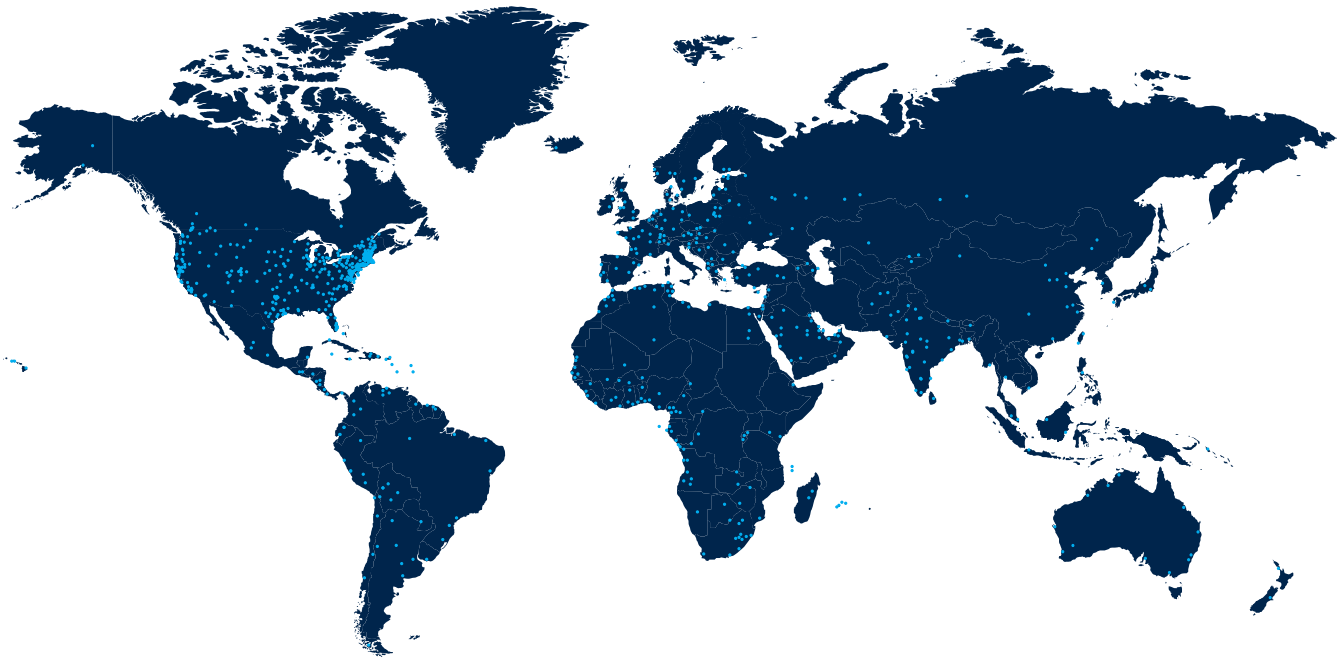
9 Breaker name and power source name.

10 Breaker open/close status and power source energized/de-energized status.

SEAMLESS SYSTEM INTEGRATION

With Kohler's total system integration, every component from generator and transfer switch to paralleling switchgear and controller is designed, built, and tested to work together seamlessly—no matter how large or complex. All KOHLER® power systems are specifically designed and built to meet your project's unique requirements in a once-and-done process. Everything you need for your backup power system is supplied as a whole package.





EXCEPTIONAL SERVICE NETWORK

With numerous direct-service locations and 800+ distributors worldwide, Kohler customers have the assurance of 24/7 emergency service and responsive aftermarket support. Certified and regularly trained, our factory-based technicians are always ready to offer post-installation troubleshooting, advice, service, and support.

EXPERTS IN SWITCHGEAR

For the last 35 years, Kohler has designed and manufactured the industry's top switchgear, completing more than 1,500 projects of various size in nearly every market around the world.

CASE STUDIES

AURORA SHEBOYGAN MEMORIAL MEDICAL CENTER

- Two generators (600 kW)
- Automatic transfer switches
- Meets seismic requirements

DATA CENTER APPLICATION

- Three generators (2000 kW)
- Automatic transfer switches
- UL 2200 listing

For more information, contact your Kohler source of supply,
or call 800-544-2444 in the U.S. and Canada.

KohlerEnergy.com

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