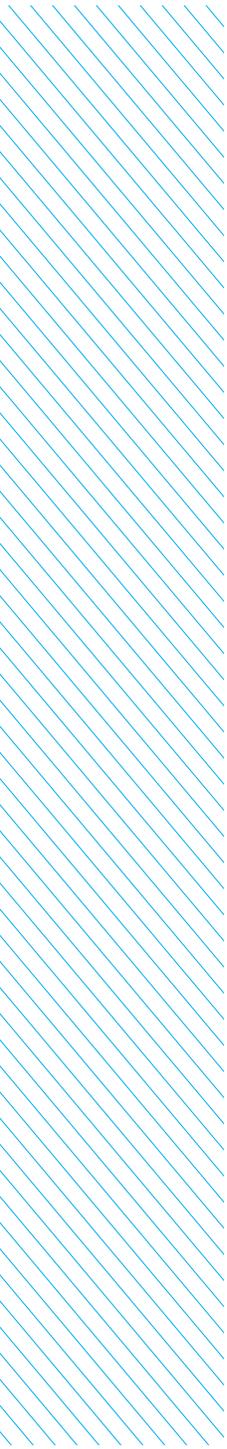


AUTOMATIC TRANSFER SWITCHES

for Industrial Power Systems



KOHLER[®]
IN POWER. SINCE 1920.

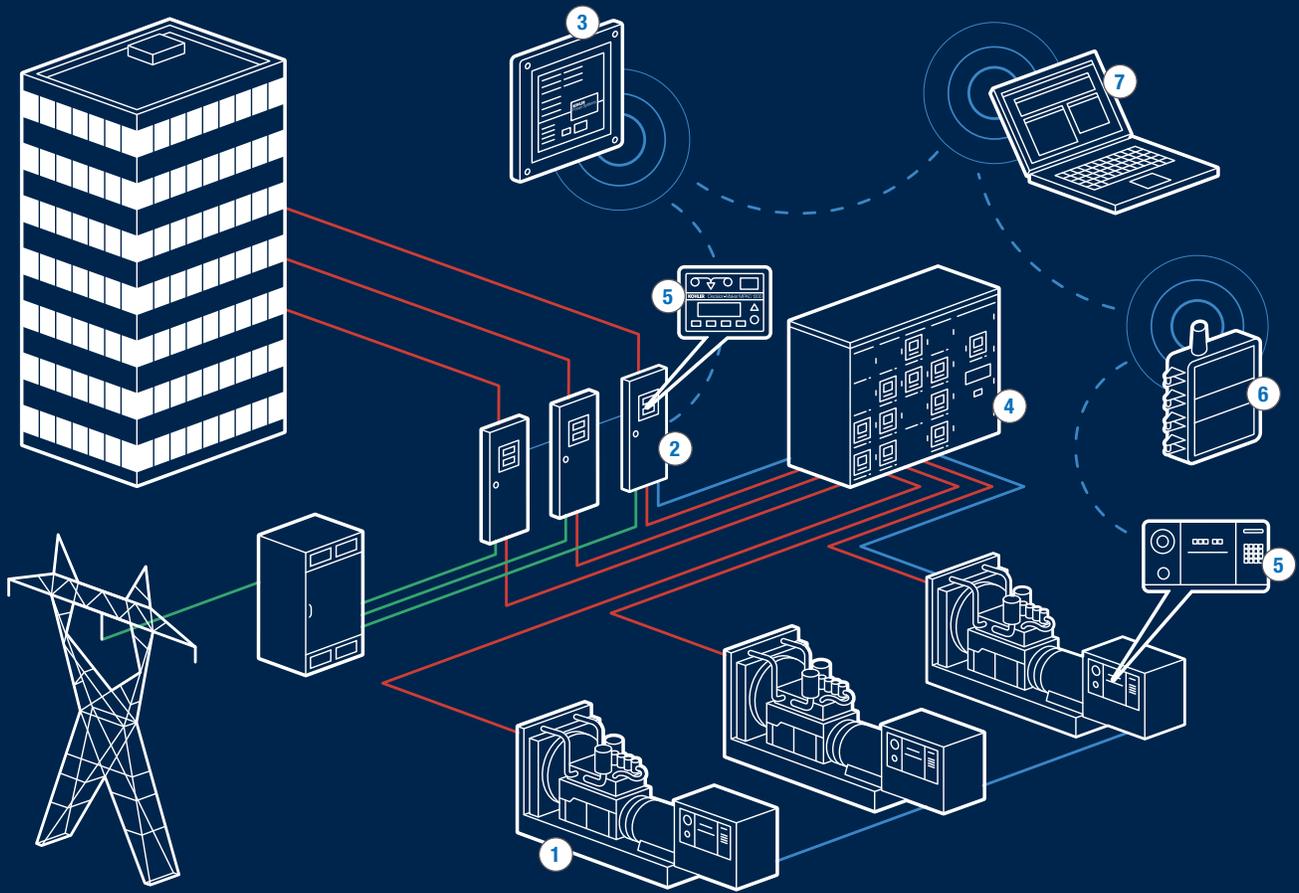


YOUR JOB IS COMPLEX. WE MAKE IT EASY.

This isn't your typical power system, and it isn't your typical ATS. Because at the heart of your integrated power system is a quality KOHLER® automatic transfer switch. A transfer switch that's designed by Kohler, built by Kohler and chosen specifically for your power requirements.

Good news: There's more. Behind that power system is a team of dedicated Kohler engineers that focuses on every element—generator, transfer switch, switchgear and controller—to be sure the system you get is the system you need. You'll know that your project is supported by an expert team, customized to your exact needs, brought in on budget and on time.

From spec to start-up to service, we do it all.



TOTAL SYSTEM INTEGRATION

- 1 KOHLER® GENERATOR**
 Gas generators 40–1300 kW
 Diesel generators 10–4000 kW
- 3 KOHLER REMOTE ANNUNCIATOR**
 Remote monitoring and testing of transfer switches
- 6 KOHLER WIRELESS MONITOR**
 Performance monitoring around the clock
- 2 KOHLER AUTOMATIC TRANSFER SWITCH**
 Open, closed and programmed transition operating modes; standard, bypass-isolation and service-entrance switch configurations
- 4 KOHLER PARALLELING SWITCHGEAR**
 Low and medium voltage
- 7 KOHLER MONITORING SOFTWARE**
 Monitors generators and transfer switches from a PC
- 5 KOHLER DECISION-MAKER® CONTROLLER**
 Controls, monitors and aids system diagnostics

THE ATS LINEUP

Peace of mind starts here.

Bridging the gap between loss of utility and standby power is no small task. KOHLER® automatic transfer switches (ATS) are designed to meet that challenge, distributing power to feed the critical loads of your facility.

Every transfer switch needs a controller to ensure transfer of power from utility to generator and back again. KOHLER Decision-Maker® MPAC® controllers offer clear choices in matching function to application.

STANDARD FEATURES

Multiple Applications

Find the perfect option. KOHLER automatic transfer switches are available in standard, bypass-isolation and service-entrance configurations with open, closed and programmed transition operating modes, from 30 to 4000 amps.

Seamless System Integration

Everything works together. KOHLER transfer switches are designed to interface perfectly with KOHLER generators and paralleling switchgear.

Advanced Communications

Every transfer switch comes fully loaded with the technology to do the job. Ethernet and Modbus communications capabilities are available.

Certified Packages

Transfer switches are UL-listed and have CSA and IBC certifications available.



AUTOMATIC TRANSFER SWITCHES

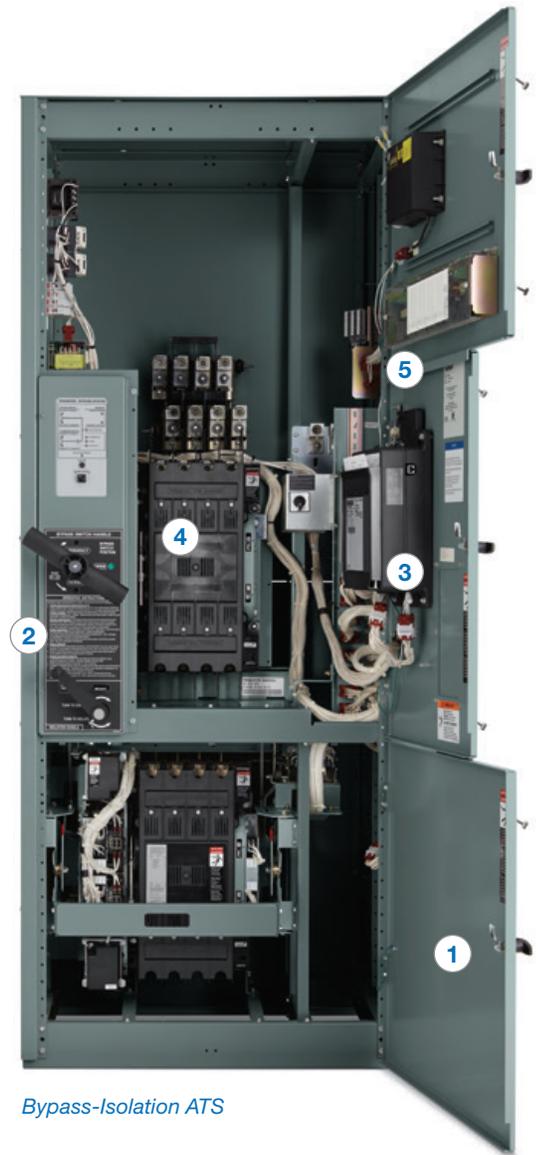
They protect your power.
And your business.



Standard ATS



Service-Entrance ATS



Bypass-Isolation ATS

1 Certified Enclosures

Meet NEMA Type 1, 3R, 12, 4 and 4X enclosure standards

2 Bypass Operation

Eliminates interruption to the loads during maintenance

3 Decision-Maker® Controller

Provides a full array of features including communications, I/O, load management and other advanced functionality

4 Heavy-Duty Contactor

Choose from any breaker, specific breaker or current-limiting fuse-rated mechanisms

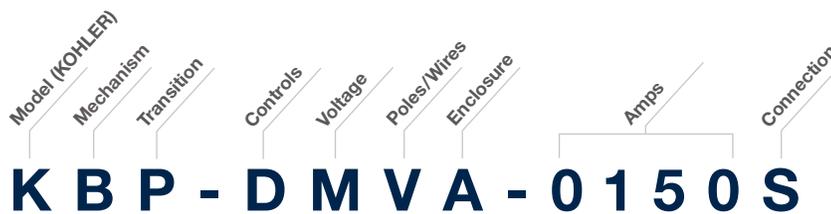
5 Available Accessories

Anticondensation heater, voltage-surge suppressor, line-to-neutral voltage monitoring, seismic certification and more

CUSTOM CONFIGURATION

The chart tells the story.

You can custom configure switches by choosing the exact components needed. This standard process allows Kohler to provide the correct switch for your application with delivery in the shortest amount of time. Each letter and numeral corresponds to a specific element of the ATS. Here's an example.



KBP-DMVA-0150B

KOHLER® AUTOMATIC TRANSFER SWITCH (K)

- Bypass-isolation mechanism (B)
- Programmed transition (P)
- Decision-Maker® MPAC® 1500 controller (D)
- 480 V, 60 Hz (M)
- 4-pole, 4-wire with switched neutral (V)
- NEMA 1 enclosure (A)
- Rated at 150 amps (0150)
- Standard connection (S)

MECHANISM	Transition	Controls	Voltage	Poles/Wires
S – Standard (Specific Breaker)	S – Standard	J – MPAC 750	C – 208 V / 60 Hz	T – 3-Pole / 4-Wire, Solid Neutral
C – Standard (Any Breaker)	P – Programmed	A – MPAC 1200	D – 220 V / 50 Hz	N – 2-Pole / 3-Wire, Solid Neutral
B – Bypass-Isolation (Type B)	C – Closed	D – MPAC 1500	F – 240 V / 60 Hz	V – 4-Pole / 4-Wire, Switched Neutral
G – Bypass-Isolation (Type G)		B – MPAC 1200 nonautomatic	G – 380 V / 50 Hz	W – 4-Pole / 4-Wire, Overlapping Neutral
E – Service Entrance		F – MPAC 1500 nonautomatic	H – 400 V / 50 Hz	
			J – 416 V / 50 Hz	
			K – 440 V / 60 Hz	
			M – 480 V / 60 Hz	
			N – 600 V / 60 Hz	
			P – 380 V / 60 Hz	
			R – 220 V / 60 Hz	
ENCLOSURE	Amps	Connection	Utility (KEP)	Generator (KEP)
A – NEMA 1	30–4000	S – Standard	M – MCCB TM 100–200 A	K – MCSW 100–1200 A
B – NEMA 12		F – Front	N – MCCB ET 250–800 A	M – MCCB TM 100–200 A
C – NEMA 3R			P – MCCB ET GF 1000–1200 A	N – MCCB ET 250–1200 A
D – NEMA 4			R – ICCB ET 800 A	Q – ICSW 800–4000 A
F – NEMA 4X			T – ICCB ET GF 1000–4000 A	R – ICCB ET 800–4000 A
G – OPEN				

MCCB = Molded-Case Circuit Breaker
ICCB = Insulated-Case Circuit Breaker

MCSW = Molded-Case Switch
ICSW = Insulated-Case Switch

TM = Thermal-Magnetic Trip Unit
ET = Electronic Trip Unit

MECHANISM TYPES

Options for every application.



Standard Transfer Switch

A standard transfer switch has a single mechanism that transfers the load from one power source to another power source. It's the most common type of application.

- Available in standard/open, delayed/programmed and closed transition



Bypass-Isolation Transfer Switch

A bypass-isolation transfer switch bundles an automatic and a manual transfer switch into a single unit.

Bypass isolation is used to transfer power to the manual switch to allow servicing of the ATS while maintaining power to the facility. When the primary automatic transfer switch is in test or isolate position, the manual transfer switch is powering the loads.

Bypass isolation is commonly used in hospitals, data centers and other critical applications where interruption of power for service or maintenance can't be tolerated.

- One contactor serves as the day-to-day automatic transfer switch
- One contactor serves as a manual transfer switch that bypasses and isolates the automatic switch
- Available in standard/open, delayed/programmed and closed transition



Service Entrance Transfer Switch

A service entrance transfer switch serves as both the automatic transfer switch and the utility disconnect, with circuit breakers and motor operators utilized as the transfer switch mechanisms.

- The breaker on the normal/utility source serves as the main entrance point for the utility
- The emergency/generator source disconnect can be configured as either a breaker or a switch
- Available in delayed/programmed transition

ENCLOSURE RATINGS

Protect your property.



NEMA ratings were developed by the National Electrical Manufacturers Association to rate enclosures for industrial environments. Also known as UL enclosure TYPE ratings, they specify standards of protecting equipment against weather, water, dust and light. Choose a NEMA-rated enclosure based on where you'll install the transfer switch.

NEMA 1—General purpose

- For indoor use under normal conditions
- Protects against dust, light and indirect splashing of water
- Prevents contact with live electrical parts

NEMA 3R—Weather-resistant

- For indoor or outdoor use
- Provides protection against falling rain and ice formation
- Meets design tests for inadvertent access, external icing and rust resistance

NEMA 4 and 4X – Watertight and weatherproof

- For indoor or outdoor use
- Provides protection against splashing and hose-directed water
- Constructed of corrosion-resistant material
- 4 = steel
- 4x = stainless steel

NEMA 12—General purpose

- For indoor use
- Protects against circulating particles and dripping of noncorrosive liquids
- Meets drip-, dust- and rust-resistant tests

TRANSITION TYPES

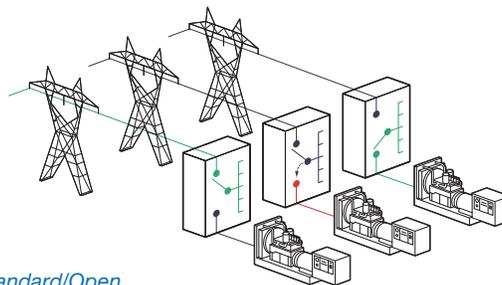
Factory-configured for mode of operation.

The transfer switch controller manages the power sensing, timing functions and fault monitoring needed for automatic operation. Depending on your application, the switch can be configured to operate in one of three modes: standard/open transition, delayed/programmed transition or closed transition.

STANDARD/OPEN: BREAK BEFORE MAKE

In open transition, the load is disconnected from one source before being connected to the alternate source. This is the most common type of application, used for loads that are not highly inductive or mission-critical.

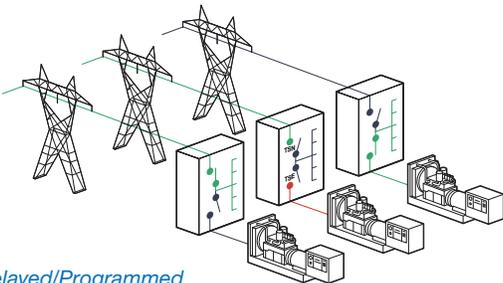
- One set of contacts opens before the other set closes
- Load is disconnected from power during transfer



DELAYED/PROGRAMMED: BREAK BOTH SIDES

Delayed/programmed mode is used with highly inductive loads such as motor loads and transformers. The load disconnects from one source, then pauses in an “off” position before connecting to the alternate source to protect from power surges. The delay allows the magnetic field to decay to a safe level before transferring. Delayed transition can also be used with the load shed option for lower-priority loads.

- One set of contacts opens before the other set closes
- The other set of contacts delays in closing
- Load is disconnected from power during all transfers
- Delay time is user-programmable

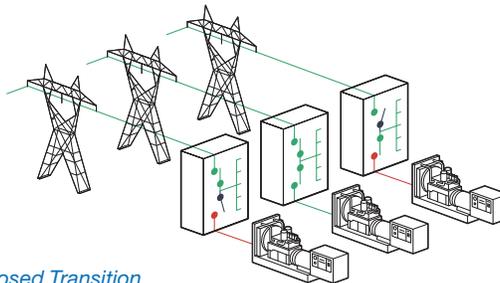


Delayed/Programmed

CLOSED TRANSITION: MAKE BEFORE BREAK

Closed transition is used in mission-critical applications, such as data centers and hospitals, where the system can't withstand a momentary load interruption. The source from which the load is being transferred remains closed until the source to which the load will be transferred is also closed. After both sources are closed, the source from which power is being transferred is opened.

- Contacts overlap, with both sources providing power
- Both sources synchronize before transfer occurs
- Load is never disconnected from power during transfers when both services are available
- Transfers via open transition if one source fails or fails to sync
- External fail-safe timer provided



Closed Transition

CONTROLLERS

Three options. Endless solutions.

DECISION-MAKER[®] AUTOMATIC TRANSFER SWITCH CONTROLLERS

The controller is the brain behind your automatic transfer switch. It tells the switch what to do and when, dictating the logic that determines the reaction.



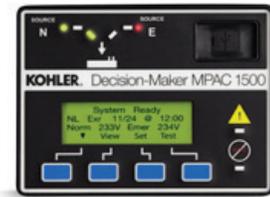
MPAC750

Control critical system settings with a no-frills controller that gets the job done. Set time delays, create a system exercise and transfer loads as required.



MPAC1200

A customizable solution for your specific application. The ATS1200 gives you full control of system behavior including extended I/O to customize your needs.



MPAC1500

When you need to manage your loads, use your system as a prime power application or have a backup for your backup (i.e., a three-source system); this controller gets the job done.

DECISION-MAKER	MPAC750	MPAC1200	MPAC1500
Amperage	Up to 1000 A	Up to 4000 A	Up to 4000 A
Phases	Single/Three	Single/Three	Single/Three
Poles	2, 3, 4	2, 3, 4	2, 3, 4
Voltage range	115–480 V	115–600 V	115–600 V
Product Type			
Standard open transition	Yes	Yes	Yes
Standard delayed transition		Yes	Yes
Standard closed transition		Yes	Yes
Bypass-isolation open transition			Yes
Bypass-isolation delayed transition			Yes
Bypass-isolation closed transition			Yes
Service entrance			Yes
Withstand and Close-On Ratings (WCR)			
WCR—Specific breaker	30–65 kA	30–65 kA	22–100 kA
WCR—Any breaker		10–100 kA	10–100 kA
WCR—Current-limiting fuses		100–200 kA	100–200 kA
Short-time withstand rating		36–65 kA	36–65 kA

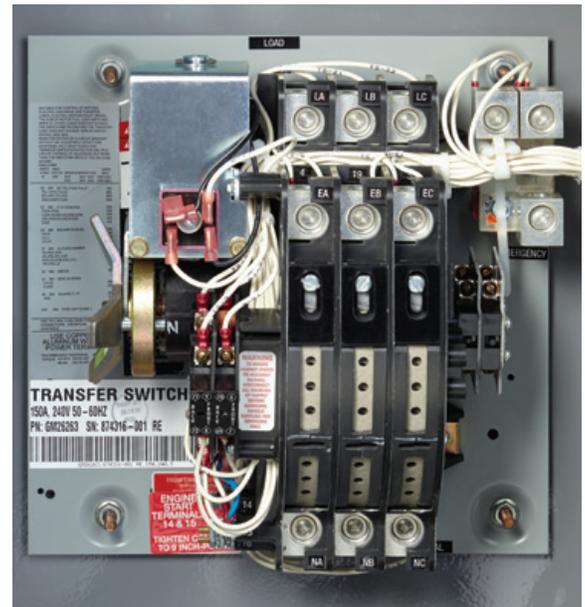
DECISION-MAKER	MPAC750	MPAC1200	MPAC1500
User Interface			
LED–Contactor position / source available	Standard	Standard	Standard
LED–Service required (fault indication)	Standard	Standard	Standard
LED–Not in automatic mode	Standard	Standard	Standard
Display		LCD	LCD
Programming	USB	USB, Display	USB, Display
Voltage and Frequency Settings			
Pickup / Dropout normal source voltage	Programmable	Programmable	Programmable
Pickup / Dropout emergency source voltage		Programmable	Programmable
Frequency selection	50/60 Hz	50/60 Hz	50/60 Hz
Pickup / Dropout normal source frequency			Programmable
Pickup / Dropout emergency source frequency		Programmable	Programmable
Overvoltage trip		Programmable	Programmable
Overfrequency trip		Programmable	Programmable
Normal and emergency voltage unbalance		Standard	Standard
Inphase monitor	Standard	Standard	Standard
Transfer commit		Standard	Standard
Phase rotation sensing		Standard	Standard
Time Delays and Configuration Settings			
Transfer to emergency / Transfer to normal	Programmable	Programmable	Programmable
Engine cooldown	Fixed	Programmable	Programmable
Generator exerciser	7-Day	21 exercise events	21 exercise events
Remote peak shave		Standard	Standard
Start-time delay	Programmable (emergency only)	Programmable (emergency only)	Programmable
Fail to acquire	Programmable (emergency only)	Programmable (emergency only)	Programmable
Communications			
RS-485	Standard	Standard	Standard
Ethernet	Optional	Optional	Standard
Accessories			
Programmable engine exerciser	Optional external device	Standard	Standard
Extended I/O		Optional (Up to 4 modules)	Optional (Up to 4 modules)
Digital meter		Optional	Optional
Source priority selector		Optional	Optional
Extended engine start-time delay		Optional	Optional
Controller disconnect switch	Optional	Optional	Optional
Load shed		Optional	Optional
Load control		Time-based	Time- or current-based
Three-source system			Standard
Prime power			Standard

POLES AND NEUTRAL SWITCHING

Ground-fault protection without compromise.

A solid neutral or a switched neutral must be chosen when specifying an automatic transfer switch. A 2-pole/3-pole ATS has a solid, unswitched neutral; a 4-pole ATS has a fully rated switched neutral that follows the contactor position. The neutral switching can be open or overlapping (closed).

The emergency system grounding and ground-fault protection method determine the use of a 2-pole/3-pole or 4-pole transfer switch.



Solid

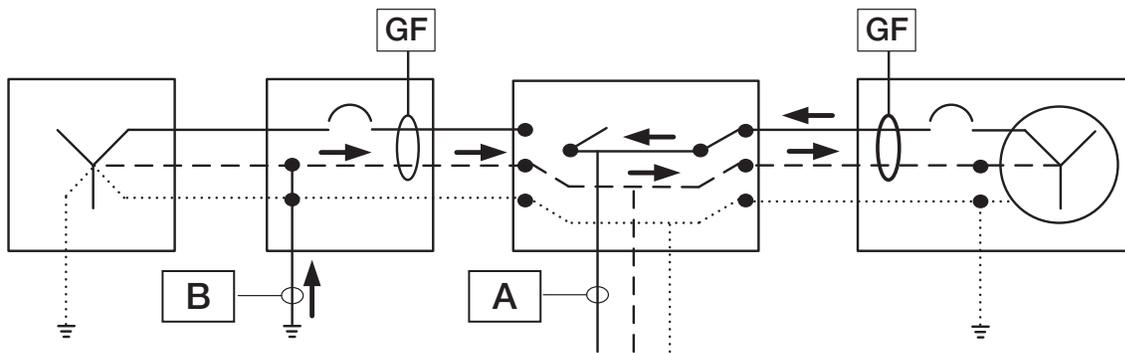
- 2-pole or 3-pole
- Constant contact
- Generator is not a separately derived source

Switched

- 4-pole
- Break-before-make on neutral
- Switching neutral with phase contacts
- Generator is a separately derived source

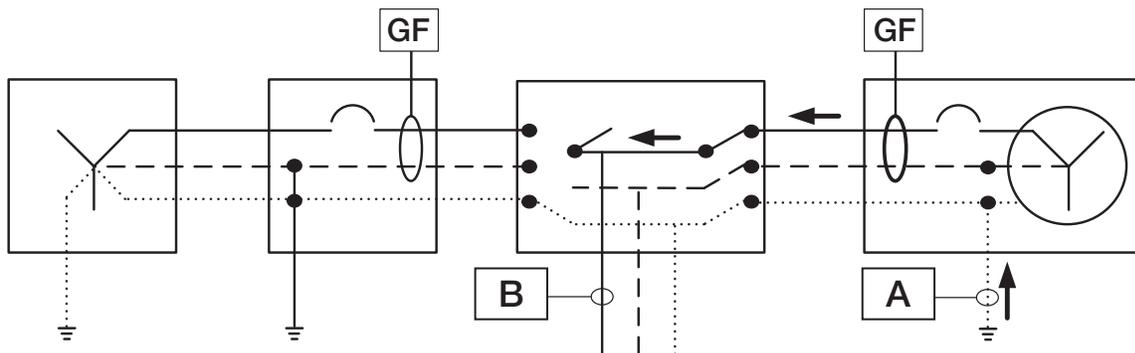
Overlapping

- 4-pole
- Make-before-break on neutral
- Neutral contact momentarily tied between two sources while switching sources
- Generator is a separately derived source



Two-Pole/Three-Pole Transfer Switches

A 2-pole/3-pole transfer switch has a solid neutral; the neutral connection is not dependent upon the position of the switch. In this system, the generator is not a separately derived source, and there is no neutral-to-ground link at the generator. Should a ground fault occur, it cannot be sensed by the generator breaker. In this example, it is sensed at the switchgear. If there is a ground fault at point A, the current will leave at point A and must find a way back to the generator (along the neutral). Its only option is to flow along the ground and return into the system at the neutral-to-ground bond at the switchgear (shown at point B).



Four-Pole Transfer Switches

In order for the generator's current-based ground fault sensor to detect the ground fault and trip the generator unit-mounted circuit breaker, a 4-pole transfer switch is needed. Because the neutral is switched and not continuous, the generator is a separately derived source that needs a neutral-to-ground link at the generator. In this example, if there is a ground fault at point B, the current will leave at point B, and it needs to find a way back to the generator (along the neutral). Its only option is to flow along the ground and return into the system at the neutral-to-ground bond at the generator (shown at point A). Because the sum of the current flow through the GF sensor is above its trip point, the breaker will trip.

National Electrical Code (NEC) and National Fire Protection Association (NFPA) regulations specify how ground-fault protection (GFP) must be handled for a generator system, which in turn determines the number of poles and neutral switching type required of the transfer switch. These regulations also determine whether or not a system needs the generator as a separately derived source.

WITHSTAND AND CLOSE-ON RATING

Ensure the reliability of your ATS.

Withstand and close-on rating (WCR) is comprised of two measurements: the ability of the transfer switch to withstand fault (short circuit) current for a specific period of time while maintaining functionality and the ability of the transfer switch to close into a fault and continue to operate. The time period is determined by the time it takes for an upstream protective device to interrupt the current.

The required WCR level for a given application is driven by the electrical system's short circuit study. Based on calculated available fault current at the transfer switch installation point and selective breaker trip times required to isolate and clear a fault at the point closest to the fault event, a realistic understanding of the transfer switch's withstand capability can be seen. Choosing the correct WCR is important for two reasons: Selecting a transfer switch with an unnecessarily high withstand rating results in overspecification and added expense. On the other hand, a transfer switch with an insufficient withstand rating can incur significant damage to itself or other installed electrical equipment.

Specific Breaker

A specific-breaker-rated transfer switch (also referred to as series-rated) is tested in coordination with specific upstream circuit breakers. Based on actual fault-current test curves, breakers that trip within the time/current range of the tested breaker are identified. Only those breakers listed on the transfer switch rating decal may be used (refer to image, left). WCR ratings for specific-breaker-rated transfer switches are typically higher than "any breaker" ratings.

Any Breaker (Umbrella Rating)

An ATS that passes the "any breaker" test (in accordance with UL 1008) can withstand a fault of a given magnitude for 3 cycles (or 1.5 cycles for transfer switches with a rating smaller than 230 A). This allows an ATS to be used with any UL489 circuit breaker.

Current-Limiting Fuse

A current-limiting fuse limits the amount of current that passes through during a fault and protects downstream power system components from catastrophic failure.

BREAKER-RATING LABEL (EXAMPLE)

30,40,70,80,100,104,150,200,225 AMPS
TRANSFER SWITCH EQUIPMENT TYPE A(PC)
FOR USE ON EMERGENCY OR STAND-BY SYSTEMS RATED FOR TOTAL SYSTEM OR MOTOR LOADS

Suitable for control of motors, electric discharge lamps, tungsten filament lamps and electric heating equipment where the sum of motor full-load ampere ratings and the ampere rating of other loads do not exceed the ampere rating of the switch and the tungsten load does not exceed 30 percent of switch rating.
 Rated Frequency - 50/60 Hz
 IEC Utilization Category - 32A, 32B

SHORT-CIRCUIT RATING

When protected by a circuit breaker, this Transfer Switch is suitable for use in a circuit capable of delivering the Short-Circuit current for the maximum time duration and voltage marked below. The circuit breaker must include an instantaneous trip response and shall not include a short-time response.
 The maximum clearing time of the instantaneous trip response must be equal to or less than the time duration shown for the marked short-circuit current.

Switch Amperes	Short-Circuit Current (RMS Symmetrical Amperes x 1000)	Voltage (VOLTS AC, Maximum)	Time Duration (Sec. Maximum)	Agency
30-225A	10	480	0.025	UL / IEC / CSA
30-150A	10	600	0.025	UL / CSA

SHORT-TIME CURRENT RATING

This Transfer Switch does not include Short-Time Current Ratings

SHORT-CIRCUIT RATINGS WHEN USING SPECIFIC CIRCUIT BREAKERS

When protected by a circuit breaker of specific manufacturer, type, and ampere rating as marked below, this Transfer Switch is suitable for use in a circuit capable of delivering the Short-Circuit current at the maximum voltage marked below.

	UL/IEC/CSA 30-225 amp 480V, max.	UL/CSA 30-150 amp 600V, max.	CSA 200-225 amp 600V, max.
	Short-Circuit Current (RMS SYMM AMPS X 1000)	Short-Circuit Current (RMS SYMM AMPS X 1000)	Short-Circuit Current (RMS SYMM AMPS X 1000)
With Specific manufacturing molded case circuit breakers (MCCB) per table A below	30		
With Specific manufacturing molded case circuit breakers (MCCB) per table B below		22	25

TABLE A

Manufacturer	Amp	Type
Eaton	100A, 125A, 225A, 250A, 400A.	FCL, FB Tri-Pac, EGS, EGH, EGC, FD, FDC, HFD, JGS, JGH, JGC, JGU, JGK, JDB, JD, HJD, JDC, LCL, LCLA, KDB, KD, CKD, HKD, CHKD, KDC, LCL, LCLA, LA Tri-Pac, NB Tri-Pac, LDC, CLDC, CHLD
	150A, 250A, 400A.	HG, HJ, HL, HR, JG, JJ, JL, JR, LJ, LL, LR
	125A, 250A, 400A.	CED6, HED4, HED6, HHED6, CFD6, FD6, FXD6, HFD6, HFXD6, HHFD6, HHFXD6, CJD6, HHJD6, HHJXD6, HJD6, HJXD6, JD6, JXD6, SCJD6, SHJD6, SJD6
	100A, 150A, 225A, 250A, 400A.	FBH, FBL, FBN, FBV, FCH, FCL, FCN, FCV, TB1, SEL, SEP, THLC1, THK2, THLC2, FEH, FEL, FEN, SFH, SFL, SFP, FGH4, FGL4, FGN4, FGP4, SGH4, SGL4, SGP4, TB4, THJK4, TJJ, TJK4, TLB4

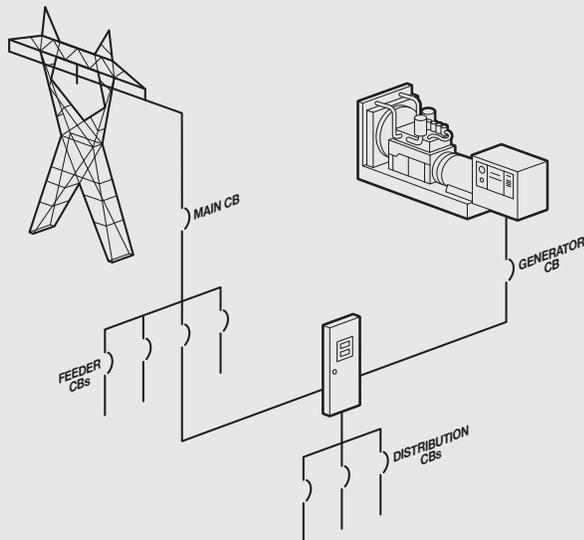
TABLE B

Manufacturer	Amp	Type
Eaton	100A, 225A, 250A, 400A.	FB Tri-Pac, FDC, HFD, HJD, JDC, JGC, JGH, JGU, JGK, CHKD, CHLD, CKD, CLDC, HKD, KD, KDB, KDC, LA Tri-Pac, LDC, NB Tri-Pac
	150A, 250A, 400A.	HJ, HL, HR, JJ, JL, JR, LJ, LL, LR
ITE/Siemens	125A, 250A, 400A.	CED6, HHED6, CFD6, FD6, FXD6, HFD6, HFXD6, HHFD6, HHFXD6, CJD6, HHJD6, HHJXD6, HJD6, HJXD6, JD6, JXD6, SCJD6, SHJD6, SJD6
	100A, 150A, 225A, 250A, 400A.	FBH, FBL, FBN, FBV, FCH, FCL, FCN, FCV, TB1, SEL, SEP, THLC1, THLC2, THK2, FEH, FEL, FEN, SFH, SFL, SFP, FGH4, FGL4, FGN4, FGP4, SGH4, SGL4, SGP4, TB4, THJK4, TJJ, TJK4, TLB4

USE COPPER WIRE ONLY

V-2331-B

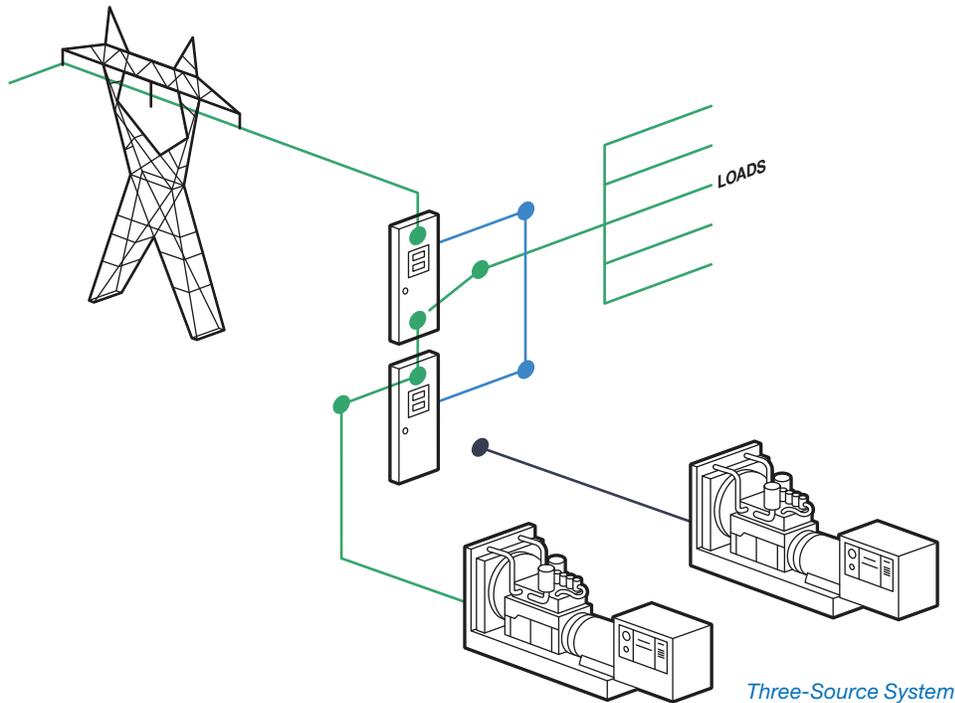
Sample breaker-rating label that appears inside every automatic transfer switch enclosure. The information will vary depending on rating.



The WCR required for a specific application may dictate the choice of breaker. Current-limiting fuses offer the highest rating, but fuses need to be replaced after a fault event. A "specific breaker" provides a higher rating but it limits your choice of circuit breaker. An "any breaker" provides a lower rating and offers the most flexibility when choosing a breaker or working with existing electrical equipment.

THE KOHLER DIFFERENCE

Simple solutions to complex problems.



THREE-SOURCE SYSTEM: BACKUP TO YOUR BACKUP

A three-source system offers redundancy without the complexity or cost of a paralleling system. Available with the MPAC® 1500 controller, the system is based on two generators and two automatic transfer switches.

- The first ATS determines if the load is powered by utility or generator
- The second ATS determines which generator is powering the load

THE BENEFITS ARE MANY

- One generator is available when the other is being serviced
- You have automatic backup power from the second generator; many critical power applications require this
- By alternating generator runtime and extending the time it takes to accumulate engine hours, you extend time between maintenance and overhauls
- You lengthen the time between refueling, because you have two fuel sources—one for each generator
- You have peace of mind knowing that if one generator fails, the other is automatic—it's backup to your backup

MANAGING LOADS

Power critical loads at all times.

A generator is only as good as its power output. If the loads exceed the output capacity, the system's voltage and frequency can destabilize and stress the generator. To prevent damage to the system, the generator will shut down.

One way to maintain a stable system is to remove or add certain loads as needed. This keeps the generator powering the more critical loads at all times. Kohler offers several ways to accomplish this.

LOAD SHED

Load shed allows a programmed transition switch to transfer to the off position, removing all loads of the ATS from the generator. This should only be used for an ATS that powers lower-priority loads. Once shed, the switch remains in the off position until power is returned to the utility; the switch then transfers to utility. To use this feature, a load-shed module must be installed.

CURRENT-BASE LOAD CONTROL

Current-based load control adds and removes load based on the current measurement of the system. To utilize this feature, a current-sensing kit and I/O modules must be installed. Removing or adding loads based on current can be done at any time during the operation of the ATS.

For example, when output capacity cannot meet the load demands, the system removes low-priority loads when the current is not within a tolerable limit. By removing the low-priority loads, the output of the generator can meet the demand and allow for a stable system. As the system remains stable, the load control determines if and when additional loads can be added back to the system.

LOAD CONTROL

Load control allows up to nine individual loads to be added or removed.

TIME-BASED LOAD CONTROL

Time-based load control adds and removes loads based on pretransfer and posttransfer of the switch. To use this feature, I/O modules must be installed. The removal and addition of the loads is done only at the time of transfer.

For example, in some applications, several motors might be powered by one generator. Due to the motors' current draw at initial start, the generator can't start all of them at once. Time-based load control allows one or several motors to be placed on a time delay at start-up, allowing the generator set to start some motors at initial start-up and then add other motors when the time delay expires. Without the time delay, a larger generator or multiple generators may be required.

TRANSFER SWITCH ACCESSORIES

Add function and flexibility.

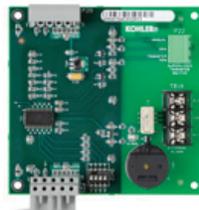
While every ATS comes to you fully featured, KOHLER® transfer switch accessories allow further customization to suit your facility's unique needs.



Standard I/O Module



High-Voltage/Current I/O Module



Alarm Module



Extended Battery Supply Module

INPUT-OUTPUT (I/O) MODULES

Programmable Standard I/O Module

This is a separate I/O module with two programmable inputs and six programmable outputs (0.5 A @ 30 VDC/120 VAC).

Programmable High-Voltage/Current I/O Module

This is a separate I/O module with two programmable inputs and three programmable outputs (2 A @ 480 VAC or 10 A @ 240 VAC).

Programmable Alarm Module

This module offers a 90-dB alarm horn and programmable values for alarm annunciation. The module allows preferred source, supervised transfer control switch and Chicago alarm functions. Preferred-source selection lets the operator designate “normal” or “emergency” source. User interface with system-alert LED indicator shows when the alarm is silenced.

External Battery Supply Module

The external battery supply module (EBSM) provides power to the controller while waiting for the generator to start. It allows for an extended generator start-time delay and is required to power the controller on the second ATS in a three-source system. It produces 12 VDC output with 9–36 VDC input and is reverse-polarity protected.

ANTI-CONDENSATION HEATER

The strip heater is provided in 125- or 250-W models. A hygostat, which is user-selectable for proper humidity, is also included.

CONTROLLER DISCONNECT SWITCH

This switch removes power from the controller to allow servicing or maintenance.

CURRENT-SENSING KIT

The current-sensing kit is sized when the transfer switch is configured. It's installed on the load side of the contactor. A shorting-type terminal block is used to allow safe disconnection to the controller. The current in each line is displayed on the LCD user interface screen, within 2% accuracy.

DIGITAL METER KIT

The digital meter kit provides an LED display for voltage (phase to phase), amperage (each phase), frequency, power (kilowatts), volt-amperes (VA), reactive volt-amperes (VAR), power factor and watt demand.



Generator Connection Box

GENERATOR CONNECTION BOX

The generator connection box enables a quick, safe connection of a generator set to the source terminals of a transfer switch. It's designed to function as a permanently installed, inlet-style assembly rated at 600 VAC or less. It has a NEMA 3R enclosure for outdoor or indoor installation with a hinged, lockable door for controlled access.

LINE-TO-NEUTRAL VOLTAGE MONITOR

This module enables the user to view line-to-neutral voltage on 2- and 3-pole transfer switches. Four-pole switches and 30–230 A KCS switches include line-to-neutral voltage monitoring capability as standard.

LOAD-SHED MODULE

The load-shed module allows the programmed transition transfer switch to transfer the load from the emergency position to the off position using an external contact closure input.

MONITOR III COMMUNICATIONS PROGRAM

The program allows the status and control of transfer switches in local and remote-area networks to be displayed on a PC.

REMOTE ANNUNCIATOR

The remote annunciator allows remote monitoring and testing of up to four transfer switches connected in an RS-485 or Ethernet network.

SUPERVISED TRANSFER SWITCH

The three-position selector switch (auto-manual-transfer) is key-operated to place the ATS in one of three modes:

- Automatic position allows complete automatic function of the controller
- Manual position requires supervised control of the transfer when two sources are available
- Transfer position enables the controller to perform a transfer function

The supervised transfer switch has fail-safe operation; the transfer occurs automatically if the source to which that transfer switch is positioned fails and the alternate source is available.

SURGE PROTECTIVE DEVICES (SPD)

The surge suppressor is a 10-mode, 100–kA device with LED indication of condition, an auxiliary contact with terminal block and a 30–A circuit breaker disconnect.

USER INTERFACE COVER

The cover is hinged and lockable with a padlock and protects the door-mounted user interface.

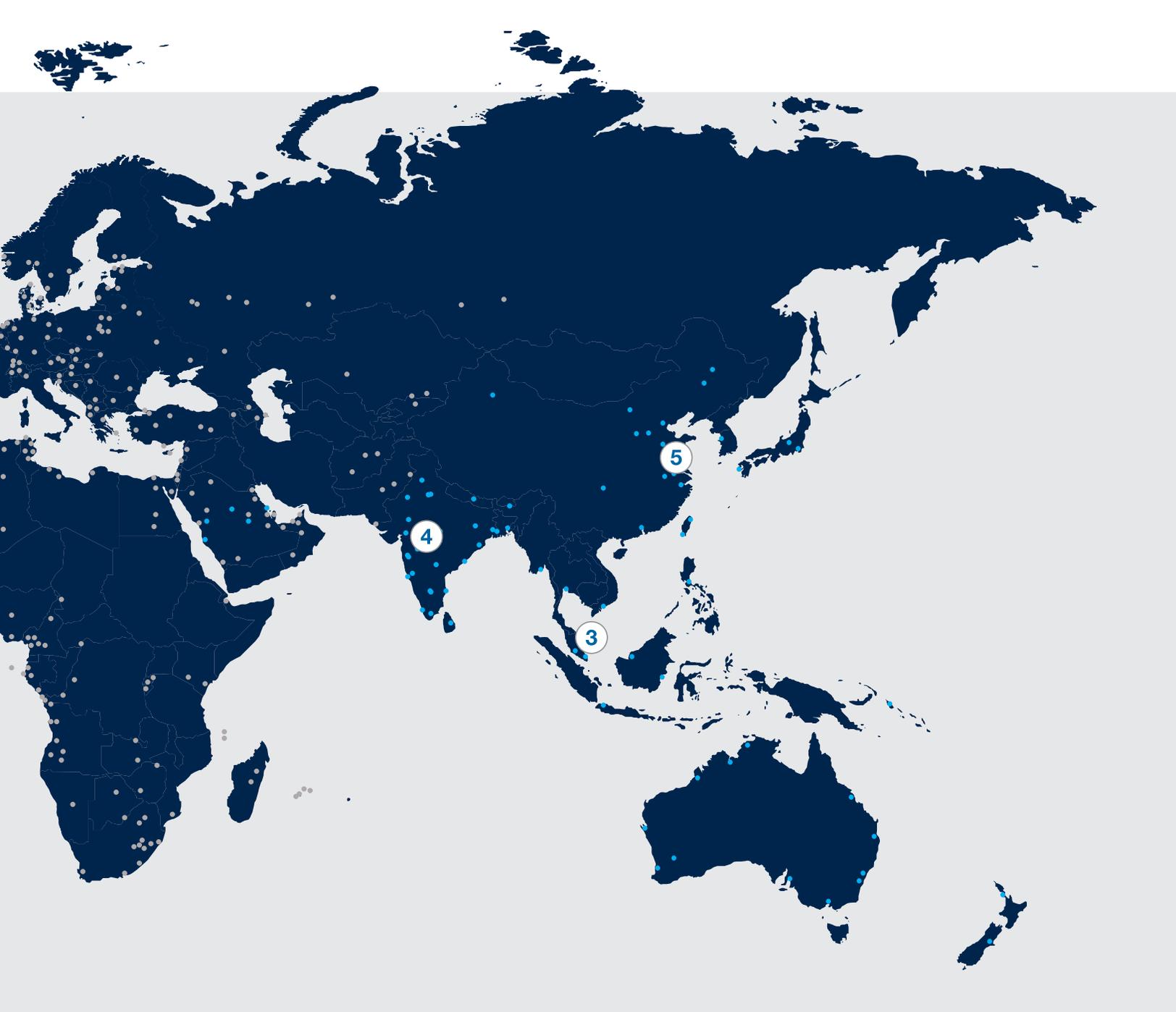


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