



Transfer Switch Standard Features

- UL 1008 listed at 208–480 VAC, file #E108981
- CSA certification available
- IBC and OSHPD seismic certification available
- Bypass/isolation switches for uninterrupted power to the load during switch maintenance and testing
- Available in 2, 3, or 4 pole configurations
- Electrically operated, mechanically held mechanism
- High withstand and close-on ratings
- Fully rated for use as a manual 3-position transfer switch
- Heavy duty mechanical interlocks
- Bypass switch and contactor position indicators
- Drawout contactor for ease of maintenance
- Design suitable for emergency and standby applications on all classes of load, 100% tungsten rated through 400 amps
- Reliable, field-proven solenoid mechanism
- Switching mechanisms lubricated for life
- Main shaft auxiliary contacts
- Front-connected style available for some amperages
- Standard one-year limited warranty. Extended limited warranties are available.

Standard Transition Models (KBS)

- Standard-transition transfer time less than 100 milliseconds (6 cycles @ 60 Hz)
- Double-throw, mechanically interlocked design (break before make)
- Solid, switched, or overlapping neutral

Programmed Transition Models (KBP)

- Programmed-transition operation provides a center OFF position that allows residual voltages in the load circuits to decay
- Programmable OFF time
- Double-throw, mechanically interlocked design (break both sides)
- Solid or switched neutral

Closed Transition Models (KBC)

- Closed-transition transfer switches operate with no power interruption during transfer and retransfer when both sources are within specified parameters (make before break)
- Quick-make, quick-break bypass switch operation for load transfer between live sources
- Source parallel times are less than 100 milliseconds (6 cycles @ 60 Hz)
- Adjustable extended transfer time relay (ensure that the setting complies with applicable codes)
- Solid or switched neutral

Controller

- Decision-Maker® MPAC 1500

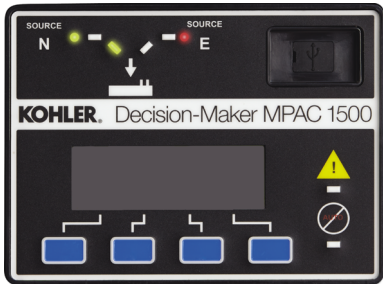
Ratings

Model	Current	Voltage, Frequency
KBS	150–4000 amps	208–600 VAC 50/60 Hz
KBP		
KBC		

Automatic Transfer Switch Controller

The Decision-Maker® MPAC 1500 Automatic Transfer Switch Controller is used on bypass/isolation transfer switch models.

Decision-Maker® MPAC 1500 Controller



- LCD display, 4 lines x 20 characters, backlit
- Complete programming and viewing capability at the door using the keypad and LCD display
- LED indicators: Source available, transfer switch position, service required (fault), and “not in auto”
- Programmable voltage and frequency pickup and dropout settings
- Programmable time delays
- Programmable generator exerciser
- Time-based load control
- Current-based load control (current sensing kit required)
- Two programmable inputs and two programmable outputs
- Up to four I/O extension modules available
- Modbus communication is standard
- RS-485 communication standard
- Ethernet communication standard
- Three-source system
- Prime power

For more information about Decision-Maker® MPAC 1500 features and functions, see specification sheet G11-128.

Codes and Standards

The ATS meets or exceeds the requirements of the following specifications:

- CSA C22.2 No. 178 certification at 600 VAC available, file #LR58301
- EN61000-4-4 Fast Transient Immunity Severity Level 4
- EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only)
- IEC Specifications for EMI/EMC Immunity:
 - CISPR 11, Radiated Emissions
 - IEC 1000-4-2, Electrostatic Discharge
 - IEC 1000-4-3, Radiated Electromagnetic Fields
 - IEC 1000-4-4, Electrical Fast Transients (Bursts)
 - IEC 1000-4-5, Surge Voltage
 - IEC 1000-4-6, Conducted RF Disturbances
 - IEC 1000-4-8, Magnetic Fields
 - IEC 1000-4-11, Voltage Dips and Interruptions
- IEC 60947-6-1, Low Voltage Switchgear and Control Gear; Multifunction Equipment; Automatic Transfer Switching Equipment
- IEEE Standard 446, IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
- IEEE 472 (ANSI C37.90A) Ring Wave Test
- NEMA Standard ICS 10-2005, Electromechanical AC Transfer Switch Equipment
- NFPA 70, National Electrical Code
- NFPA 99, Essential Electrical Systems for Health Care Facilities
- NFPA 110, Emergency and Standby Power Systems
- Seismic certification in accordance with the International Building Code is available. (Accessory kit is required for seismic certification.)
 - IBC 2000, referencing ASCE 7-98 and ICC AC-156
 - IBC 2003, referencing ASCE 7-02 and ICC AC-156
 - IBC 2006, referencing ASCE 7-05 and ICC AC-156
 - IBC 2009, referencing ASCE 7-05 and ICC AC-156
 - IBC 2012, referencing ASCE 7-10 and ICC AC-156
- California OSHPD approval is available. (Accessory kit required.)
- Underwriters Laboratories UL 508, Standard for Industrial Control Equipment
- Underwriters Laboratories UL 1008, Standard for Automatic Transfer Switches for Use in Emergency Standby Systems, file #E108981

Application Data

Environmental Specifications	
Operating Temperature	-20°C to 70°C (-4°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% noncondensing

Input and Output Connection Specifications	
Component	Wire Size Range
Main board I/O terminals	#12-24 AWG
I/O module terminals	#14-24 AWG

UL-Listed Solderless Screw-Type Terminals for External Power Connections	
Switch Rating, Amps	Normal, Emergency, and Load Terminals Per Phase and Neutral
	Range of Wire Sizes, Copper or Aluminum *
150-400	(1) #4 AWG to 600 KCMIL
	(2) 1/0 AWG to 250 KCMIL
600	(2) #2 AWG to 600 KCMIL
800 F	(3) #1 AWG to 600 KCMIL
800-1200 S	(4) 1/0 AWG to 750 KCMIL
1600-2000	(6) 1/0 AWG to 750 KCMIL
2600-3000	(10) 1/0 AWG to 750 KCMIL
4000	(12) 1/0 AWG to 750 KCMIL

F: Front-connected
S: Standard rear-connected
* Use 75°C minimum Cu/Al wire for power connections.

Extended Transfer Time Adjustable Relay (Model KBC) Specifications	
Power	12 or 24 VDC (customer-supplied)
Connections	12-20 AWG
Output type	Relay contacts, DPDT (2 form C)
Rating	10 amps max. resistive at 240 VAC

Note: Customer-supplied shunt trip on emergency source circuit breaker is required.

Source Synchronization Settings (Model KBC)		
Parameter	Default	Adjustment Range
Voltage differential	5%	0-5%
Frequency differential	0.1 Hz	0-0.3 Hz
Phase angle	10 deg.	0-10 deg.

Auxiliary Position Indicating Contacts (rated 10 amps @ 32 VDC/250 VAC)			
Switch Rating, Amps	Number of Contacts Indicating Normal, Emergency		
	KBS	KBP	KBC
150-600	8, 8	6, 6	5, 5
800-1200	8, 8	7, 7	7, 7
1600-4000	8, 8	7, 7	6, 6

Withstand and Close-On Ratings (WCR)

Standard, Programmed, and Closed-Transition Models

Maximum current in RMS symmetrical amperes when coordinated with customer-supplied fuses or circuit breakers. All values are available symmetrical RMS amperes and tested in accordance with the withstand and close-on requirements of UL 1008. Application requirements may permit higher withstand ratings for certain size switches. Contact the factory for assistance.

Note: For specific breaker ratings, refer to the next table.

Switch Rating, Amps	Withstand Current Ratings in RMS Symmetrical Amperes							Short Time Ratings (sec.) ‡							
	Current-Limiting Fuses				Time-Based Rating *			480 V Max.				600 V Max.			
	Amps @ 480 V	Amps @ 600 V	Amps, Max.	Fuse Class	Amps @ 240 V	Amps @ 480 V	Amps @ 600 V	.1	.13	.3	.5	.1	.13	.3	.5
150 225 § 260 400 600	200,000	200,000	600	J	65,000	42,000 †	35,000	—				—			
	200,000	200,000	800	L											
800-1200	200,000	200,000	1600	L	50,000	50,000	50,000	36,000		—		36,000		—	
1600-2000	200,000	200,000	3000	L	100,000	100,000	100,000	42,000		—		42,000		—	
2600 3000	200,000	200,000	4000	L	100,000	100,000	100,000	42,000		—		42,000		—	
4000	200,000	200,000	5000	L	100,000	100,000	100,000	85,000		65,000		65,000			

* Based on 0.050 seconds (approximately 3 cycles). Applicable to breakers with instantaneous trip elements.
† Applicable to 2-pole, 3-pole, and conventional 4-pole switches only. Overlapping neutral switches have "any" breaker ratings of 35,000 A, 0.050 seconds at 480 V.
‡ Short time ratings are provided for applications involving breakers that utilize trip delay settings for system selective coordination.
§ 225 amp not applicable to KBC closed-transition models.

Ratings with Specific Manufacturers' Circuit Breakers

The following charts list power switching device withstand and close-on ratings (WCR) in RMS symmetrical amperes for circuit breakers from specific manufacturers. Ratings apply to both open- and programmed-transition models. Circuit breakers are supplied by the customer.

Switch Rating, amps	Molded-Case Circuit Breakers				
	WCR, amps RMS	Voltage, Max.	Manufacturer	Type	Max. Size, amps
150	50,000	480	Eaton	HJD, JDC, JGH, JGC	250
				HKD, CHKD, KDC	400
				HLD, CHLD, LDC, CLDC	600
			GE	SFL, SFP	250
				SGL1, SGL4, SGP1, SGP4, TJL4V, TJL1S-6S, TBC6	600
			Siemens/ITE	HFD, HFXD	250
				HJD, HJXD, SHJD	400
	Square D	KC	250		
		CK400N, CK400NN	400		
	42,000	600	Eaton	JGC	250
				KDC	400
				LDC, CLDC	600
			GE	SGL1, SGL4, SGP1, SGP4	600

Switch Rating, amps	Molded-Case Circuit Breakers						
	WCR, amps RMS	Voltage, Max.	Manufacturer	Type	Max. Size, amps		
225 § 260	50,000	480	Eaton	HJD, JDC, JGH, JGC	250		
				HKD, CHKD, KDC	400		
				HLD, CHLD, LDC, CLDC	600		
				MDL, CMDL, HMDL, CHMDL, NGS, NGH, NGC	800		
			GE	SFL, SFP	250		
				TBC4	400		
				SGL1, SGL4, SGL6, SGP1, SGP4, SGP6, TBC6, TJL4V, TJL1S-6S	600		
				SKL8, SKP8, SKH8, TBC8, TKL4V, TKH8S-12S	800		
	Siemens/ITE	HFD, HFXD	250				
		HJD, HJXD, SHJD	400				
		HLD	600				
		HLMD, HLMXD, HMG, HMD, HMXD, LMD, LMXD, MXD, SMD, SHMD	800				
	Square D	KC	250				
		CK400N, CK400NN	400				
		LC	600				
		CK800N, CK800NN	800				
42,000	600	Eaton	JGC	250			
			KDC	400			
			LDC, CLDC	600			
		GE	TBC4	400			
			TBC6, SGL1, SGL4, SGL6, SGP1, SGP4, SGP6	600			
			TBC8, TKL4V, TKL8S-12S, SKL8, SKP8	800			
		Siemens/ITE	HLMD, HLMXD, HMXD, SHMD	800			
		400	50,000	480	Eaton	HKD, CHKD, KDC	400
HLD, CHLD, LDC, CLDC	600						
MDL, CMDL, HMDL, CHMDL, NGS, NGH, NGC	800						
GE	TBC4				400		
	SGL1, SGL4, SGL6, SGP1, SGP4, SGP6, TBC6, TJL4V, TJL1S-6S				600		
	SKH8, SKL8, SKP8, TBC8, TKL4V, TKH8S-12S				800		
Siemens/ITE	HJD, HJXD, SHJD				400		
	HLD				600		
	HLMD, HLMXD, HMG, HMD, HMXD, LMD, LMXD, MXD, SMD, SHMD		800				
Square D	CK400N, CK400NN		400				
	LC		600				
	CK800N, CK800NN		800				
42,000	600		Eaton	KDC	400		
				LDC, CLDC	600		
			GE	TBC4	400		
				TBC6, SGL1, SGL6, SGP1, SGP4, SGP6	600		
		TBC8, TKL4V, TKL8S-12S, SKL8, SKP8		800			
		Siemens/ITE	HLMD, HLMXD, HMXD, SHMD	800			
		600	50,000	480	Eaton	HLD, CHLD, LDC, CLDC	600
						MDL, CMDL, HMDL, CHMDL, NGS, NGH, NGC	800
GE	SGL1, SGL4, SGL6, SGP1, SGP4, SGP6, TBC6, TJL4V, TJL1S-6S				600		
	SKH8, SKL8, SKP8, TBC8, TKL4V, TKH8S-12S				800		
Siemens/ITE	HLD				600		
	HLMD, HLMXD, HMD, HMG, HMXD, LMD, LMXD, MXD, SMD, SHMD				800		
	HND, HNXD, HNG, SND, SHND				1200		
	CK400N, CK400NN				400		
Square D	LC		600				
	CK800N, CK800NN		800				
	MH, CK1200N, CK1200NN		1200				
42,000	600		Eaton	LDC, CLDC	600		
			GE	TBCY	400		
				SGL1, SGL6, SGP1, SGP4, SGP6, TBC6	600		
				TBC8, TKL4V, TKL8S-12S, SKL8, SKP8	800		
		Siemens/ITE	HLMD, HLMXD, HMXD, SHMD	800			
			SHND	1200			

§ 225 amps not applicable to KBC closed-transition models.

Switch Rating, amps	Molded-Case Circuit Breakers					
	WCR, amps RMS	Voltage, Max.	Manufacturer	Type	Max. Size, amps	
800 1000 1200	65,000	480	Eaton	HLD	600	
			GE	TB8	800	
				TKL	1200	
			Siemens/ITE	CLD6, HHL6, HHLXD6, HLD6, SCLD6, SHLD6		600
				CMD6, HMD6, SCMD6, SHMD6		800
				CND6, HND6, SCND6, SHND6		1200
			Square D	CPD6		1600
				MH Series 2		1000
				PJ, PL		1200
		RJ, RL		1600		
		SE (LS Trip), SEH (LS Trip)		2500		
		600	Eaton	Tri-Pac NB	800	
				Tri-Pac PB	1600	
RDC	2500					
1600 2000	125,000	480	Square D	Masterpact NW-L	3000	

Weights and Dimensions

Note: Weights and dimensions are provided for reference only. Always use the transfer switch dimension drawing for planning and installation. Weights and dimensions may vary for different configurations. See your local distributor for dimension drawings.

Weights and dimensions are shown for bypass/isolation transfer switches in NEMA type 1 enclosures.

Model	Amps	Dimensions mm (in.)			Weight kg (lb.) *			Dimension Drawing
		Height	Width	Depth	2-Pole	3-Pole	4-Pole	
KBS	150-260	2162 (85.1)	864 (34)	711 (28)**	431 (950)	431 (950)	431 (950)	ADV-8600
	150-600 w/pull box †	2162 (85.1)	1168 (46)	711 (28)**	431 (950)	431 (950)	431 (950)	
	800 F	2311 (91)	965 (38)	813 (32) ‡	—	635 (1400)	635 (1400)	ADV-8601
	800-1200 S	2311 (91)	965 (38)	1219 (48) §	—	708 (1560)	708 (1560)	ADV-8602
	1600-2000	2311 (91)	965 (38)	1524 (60) §	—	1070 (2360)	1152 (2540)	ADV-8603
	2600-3000	2311 (91)	965 (38)	1829 (72) §	—	1240 (2730)	1525 (3360)	ADV-8604
	4000	2311 (91)	1524 (60)	2438 (96)	—	2269 (5000)	2358 (5200)	ADV-8605
KBP KBC	150-260	2162 (85.1)	864 (34)	711 (28)	431 (950)	431 (950)	431 (950)	ADV-8600
	150-600 w/pull box †	2162 (85.1)	1168 (46)	711 (28)	431 (950)	431 (950)	431 (950)	
	800 F	2311 (91)	965 (38)	813 (32) ‡	—	635 (1400)	635 (1400)	ADV-8601
	800-1200 S	2311 (91)	965 (38)	1219 (48) §	—	708 (1560)	708 (1560)	ADV-8602
	1600-2000	2311 (91)	965 (38)	1524 (60) §	—	1070 (2360)	1152 (2540)	ADV-8603
	2600-3000	2311 (91)	965 (38)	1829 (72) §	—	1325 (2920)	1611 (3550)	ADV-8604
	4000	2311 (91)	1524 (60)	2438 (96)	—	2269 (5000)	2358 (5200)	ADV-8605

F: Front-connected

S: Standard rear-connected

* Approximate weights

† Pull box is required for bottom cable entry on 400-600 amp units; optional on 150-260 amp units.

‡ Handles extend 159 mm (6.25 in.). Standard enclosures for 800 amp models are suitable for top and upper left side cable entrance only.

§ Recommended clearance to enclosure: 0.9 m (3 ft.) from rear, 1.2 m (4 ft.) from front [0.64 m (25 in.) required for transfer switch drawout].

|| Recommended clearance to enclosure: 0.9 m (3 ft.) from rear, 1.5 m (5 ft.) from front [0.9 m (3 ft.) required for transfer switch drawout].

** Both bypass switch manual operation handle and transfer switch carriage manual crank handle can be removed. Also note that the transfer switch carriage manual crank handle can be left in place and folded down. Recommended front clearance is 32 in. minimum.

Transfer Switch Accessories

Accessories are available either factory-installed or as loose kits, unless otherwise noted.

CSA Certification

Digital Meter

- Measure and display voltage, current, frequency, and power for both sources
- Programmable visual alarms for high voltage, low voltage, and high current
- Three digital outputs
- Serial port for optional network connections
- Password-protected programming menus
- Joystick operation
- Factory-installed

Export Packaging

Extended Limited Warranties

- 2-year basic
- 5-year basic
- 5-year comprehensive
- 10-year major components

Heater, Anti-Condensation

- Hygrostat-controlled 120 VAC strip heater (customer-supplied voltage source required)
- 100 or 250 watts (sized for enclosure)
- Protective 15 Amp circuit breaker

Surge Protection Device (SPD)

- SPD available for the normal source supply
- Surge protection reduces transient voltages to harmless levels
- Protection modes: L-L / L-N / L-G / N-G
- Replaceable phase and neutral cartridges for service
- Frequency: 50–60 Hz
- Operating Temperature Range: –40 to 176°F (–40 to 80°C)
- Remote contacts for customer-supplied status indicators:
 - Contacts: 1 NO, 1 NC
 - Min Load: 12VDC / 10 mA
 - Max. Load: 250 VAC / 1 A
 - Wire Size (max.): 16AWG
- Fuse protection: 30 amps / 600 V
- UL 1449, 3rd Edition for Type 2 applications
- IEC 61-643-1, 2nd Edition T2/11
- See additional SPD specifications below

Literature Kits

- Production literature kit (one kit is included with each transfer switch)
- Overhaul literature kit

Neutral Assembly

- Available as loose kit for open units

Pull Box

- Required for bottom cable entry on 400–600 amp units
- Optional for 150–260 amp units

RSA III Remote Serial Annunciator

- Monitors the generator set
- Monitors Normal and Emergency source status and connection
- Monitors ATS common alarm
- Allows remote testing of the ATS
- For more information, see specification sheet G6–139.

Seismic Certification

IBC Seismic Certification

- Certification depends on application and geographic location. Contact your distributor for details.
- Available for KB model transfer switches with enclosures shown below:
 - 150–4000 amp models with NEMA 1 enclosures
 - 4000 amp models with NEMA 3R enclosures

California OSHPD Approval

- Available for KB model transfer switches with enclosures shown below:
 - 150–4000 amp models with NEMA 1 enclosures
 - 4000 amp models with NEMA 3R enclosures

Controller Accessories

See the controller specification sheet for more information.

Accessory Modules

- Alarm Module
- External Battery Supply Module
- Input/Output Module
- High-Power Input/Output Module

Controller Disconnect Switch

Current Sensing Kit

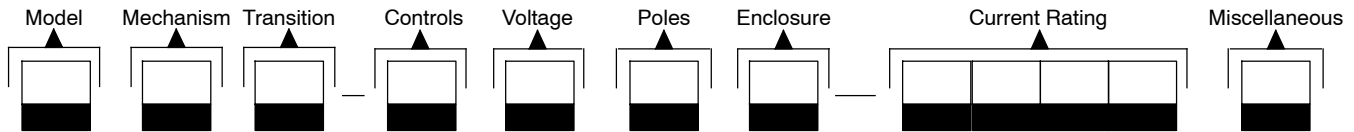
Line-to-Neutral Voltage Monitoring

Padlockable User Interface Cover

Supervised Transfer Control Switch

SPD Specifications								
Nominal Voltage (V ±15%)	Max. Discharge Current (kA)	Phase	Poles	UL VPR 3rd Ed (L-N/N-G/L-G) (kV)	Limiting Voltage, (L-N/N-G/L-G) (kV)		Short Circuit Withstand Current (kA)	Maximum Continuous Operating Voltage (VAC)
					at 3kAmps	at 10kAmp		
240/120	40	Split	3	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
208/120	40	Wye	4	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
480/277	40	Wye	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
240/120	40	HLD	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
600/347	40	Wye	4	1.3 / 1.2 / 1.4	1.3 / 0.4 / 1.3	1.5 / 0.7 / 1.5	200	440 / 880

Model Designation



Record the transfer switch model designation in the boxes. The transfer switch model designation defines characteristics and ratings as explained below.

Sample Model Designation: KBS-DMVA-1200S

Model

K: Kohler

Mechanism

B: Bypass/Isolation

Transition

S: Standard

P: Programmed

C: Closed

Controller

D: Decision-Maker® MPAC 1500, Automatic

Voltage/Frequency

C: 208 Volts/60 Hz K: 440 Volts/60 Hz

D: 220 Volts/50 Hz M: 480 Volts/60 Hz

F: 240 Volts/60 Hz N: 600 Volts/60 Hz

G: 380 Volts/50 Hz P: 380 Volts/60 Hz

H: 400 Volts/50 Hz R: 220 Volts/60 Hz

J: 416 Volts/50 Hz

Number of Poles/Wires

N: 2 Poles/3 Wires, Solid Neutral

T: 3 Poles/4 Wires, Solid Neutral

V: 4 Poles/4 Wires, Switched Neutral

W: 4 Poles/4 Wires, Overlapping Neutral

Enclosure

A: NEMA 1

Current, Amps *

0150 0800 2600

0225 1000 3000

0260 1200 4000

0400 1600

0600 2000

* Some selections are not available on all models.

Connections

S: Standard

F: Front (800 amp only)

Note: Some selections are not available on all models. Contact your Kohler distributor for availability.

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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® Power Systems distributor for availability.