



Image shown may not reflect actual configuration

CTG Series Automatic Transfer Switch (ATS)

The Cat[®] CTG Series ATS are pre-configured for applications requiring the dependability and ease of operation found in a full feature power contactor-type transfer switch.

CTG switches are equipped with the next generation MX150 microprocessor panel, which controls the operation and displays the status of the transfer switch's position, timers, and available sources. As an embedded digital controller, the MX150 offers high reliability and ease of unattended operation across a range of applications.

Features

- Ratings 40 to 3000 amps (2, 3, or 4 poles)
- UL 1008 listed at 480 VAC
- CSA certified at 600 VAC (200-260 amp at 480V)
- IEC listed at 480 V
- Double throw, mechanically interlocked contactor mechanism
- Electrically operated, mechanically held
- Designed for emergency and standby applications
- Available in standard open transition (CTG) or delayed transition (CTGD) models
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN 55022 Class B (CISPR 11) (exceeds EN 55011 and MILSTD 461 Class 3)
- Electrostatic Discharge (ESD) immunity test per EN 61000-4-2 (Level 4)
- Radiated Radio Frequency (RF), electromagnetic field immunity test per EN 61000-4-3 (ENV50140) 10v/m
- Electrical fast transient/burst immunity test per EN 61000-4-4
- Surge immunity test per EN 61000-4-5 IEEE C62.41 (1.2 X 50 ms, 5 and 8 kV)
- Conducted immunity test per EN 61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN 61000-4-11
- Seismic compliance to IEEE-693-2005, IBC-2003 and OSP-0035-10

Design and Construction Features

- Close differential 3-phase under-voltage sensing of the normal source – factory standard setting 90% pickup, 80% dropout (adjustable); underfrequency sensing of the normal source factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of the emergency source – factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate normal source failure – automatically bypassed should the emergency source fail
- Type 1 enclosure is standard – also available in open style or types 3R, 4, 4X, or 12.

Standard Features and Options

Standard Features

- Auxiliary contact: Closed when the switch is in the emergency position (additional contacts optional)
- Auxiliary contact: Closed when the switch is in the normal position (additional contacts optional)
- 7-, 14-, 28-day interval timed exerciser, pushbutton/timer operation
- Engine start contact
- Indicating LED pilot lights:
 - Switch in emergency position
 - Switch in normal position
 - Normal source available
 - Emergency source available
- Time delay to engine start: Standard setting 3 seconds, adjustable 0-10 seconds
- In-phase monitor, self-adjusting (not available on CTGD models)
- Time delay on retransfer to normal: To delay retransfer to normal source (immediate retransfer on generator set failure); standard setting 30 minutes, adjustable 0-60 minutes
- Pushbutton bypass of time delay and normal emergency
- Test switch – momentary
- 16 events log that tracks date, time, reason, and action taken
- Voltage and frequency indication for S1 and S2
- Peak shave/remote load test: Input for peak shave or remote load test; includes automatic return to normal if emergency source fails and normal is present; 120 VAC

When specified for use with a CTGD Series delayed transition switch, the control panel also includes the following:

- Time delay from neutral switch position to normal on retransfer: Standard setting 5 seconds, adjustable 0-10 minutes
- Time delay from neutral switch position to emergency: Standard setting 5 seconds, adjustable 0-10 minutes
- Center-off position/off delay timing indicators

MX150 Control Panel

- Time delay for engine cool-down: Allows engine to run unloaded after switch retransfer to normal; standard setting 5 minutes, adjustable 0-60 minutes

- Time delay on transfer to emergency: To delay transfer to emergency after verifying emergency source available; standard setting 1 second, adjustable 0-5 minutes
- Timer and voltage/frequency settings adjustable without disconnection from power sources
- Built-in diagnostics with LCD display for immediate troubleshooting
- LED/LCD indicators for ease of viewing and long life
- Nonvolatile memory (exerciser battery backup not required for standard operation)
- Processor and digital circuitry isolated from line voltage
- Inputs opto-isolated for high electrical immunity to transients and noise
- Communications header for network interface

Options

- Plant exerciser, clock type (load/no load): Allows the generator to start and run unloaded or to simulate a power failure, start generator and run under load (7-14-28-365 days, user selectable)
- Space heater and thermostat
- Network communications interface card (LonWorks/ModBus)
- Maintained test switch
- Maintained test switch w/keypad
- Service entrance configuration
- Auxiliary contact, operates on source 1 line failure
- Auxiliary contact, operates on source 2 availability
- Auxiliary contacts: Closed when the transfer switch is in source 2 position
- Auxiliary contacts: Closed when the transfer switch is in source 1 position
- Disconnect switch: Permits transfer in "AUTO" position and inhibits transfer in "INHIBIT" position. (standard 800A and above)
- Elevator pre-signal auxiliary contacts: Open 0-60 seconds prior to transfer to either direction, re-closes after transfer
- Universal motor load disconnect circuit: Auxiliary contact opens 0-60 seconds prior to transfer in either direction, re-closes after transfer. Can be configured by end user for pre-transfer, post-transfer, or both.
- Voltage imbalance monitor (three-phase)
- Lockable, see-through cover for ATS controller

Options (continued)

Power Measurement Meters

- M90 – EPM 2000 digital power meter with display: amps, volts, and frequency
- M91 – EPM 6000 digital meter with display of amps, watts, volts, frequency, plus THD capability with ethernet

Note: For applications requiring additional options or other configurations, see the CTS Series fully configurable transfer switch.

Testing Standards

UL, CSA, and IEC listed	UL 1008, CSA 22.2 No. 178, IEC 947-6-1
Ring wave immunity	IEEE 472 (ANSI C37.90A)
Conducted and radiated emissions	EN 55022 Class B (CISPR 11) (exceeds EN 55011 and MILSTD 461 Class 3)
ESD immunity test Class B	EN 61000-4-2 (Level 4)
Radiated RF, electromagnetic field immunity test	EN 61000-4-3 (ENV50140) 10v/m
Electrical fast, transient/burst immunity test	EN 61000-4-4
Surge immunity test	EN 61000-4-5 IEEE C62.41
Conducted immunity test	EN 61000-4-6 (ENV50141)
Voltage dips and interruption immunity	EN 61000-4-11

AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections

Switch Size (Amps)	Normal, Emergency and Load Terminals	
	Cables per Pole	Range of Wire Sizes
40, 80	1	#8 to 3/0 AWG
100, 150, 200 & 225	1	#6 AWG to 250 MCM*
260 & 400	1	#4 AWG to 600 MCM*
600	2	#2 AWG to 600 MCM
800, 1000, 1200	4	#2 AWG to 600 MCM
1600, 2000, 2600, 3000	8	#2 AWG to 600 MCM

*or 2 1/0 - 250 MCM may be used

MX150 Control Setting Ranges

Control Function		Range	Factory Setting
Normal Line Sensing – Undervoltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Emergency Line Sensing – Undervoltage	Dropout	75-98%	80%
	Pickup	85-100%	90%
Emergency Line Sensing – Underfrequency	Dropout	2 Hz below pickup	Set
	Pickup	90-100%	95%
Time Delay – Engine Start		0-10 seconds	3 seconds
Time Delay – Engine Cool-down		0-60 minutes	5 minutes
Time Delay – Transfer to Emergency		0-5 minutes	1 second
Time Delay – Retransfer to Normal		0-60 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Presignal (when applicable)		0-60 seconds	20 seconds
Delayed Transition Time Delays (when applicable)		0-10 minutes	5 seconds

Dimensional Specifications

CTG & CTGD Transfer Switches								
Model	Amp Rating	Poles	NEMA 1 Enclosed				Weight	Application Notes
			Height (A)	Width (B)	Depth (C)	Reference Figure		
CTG	40, 80, 100, 150 & 200	2, 3	24 (610)	18 (457)	11 (279)	A	69 (31)	1-6
		4	24 (610)	18 (457)	11 (279)	A	69 (31)	
	225	2, 3	46 (1168)	24 (610)	14 (356)	A	69 (31)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	75 (34)	
	260	2, 3	46 (1168)	24 (610)	14 (356)	A	114 (52)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	125 (57)	
	400	2, 3	46 (1168)	24 (610)	14 (356)	A	168 (76)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	180 (82)	
	600	2, 3	66 (1686)	24 (610)	19.5 (495)	B	214 (97)	1-5 & 7
		4	66 (1686)	24 (610)	19.5 (495)	B	224 (102)	
	800	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	460 (209)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	490 (222)	
	1000	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1200	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
	3000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
CTGD	40, 80, 100, 150 & 225	2, 3	46 (1168)	24 (610)	14 (356)	A	127 (58)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	133 (60)	
	260 & 400	2, 3	46 (1168)	24 (610)	14 (356)	A	176 (80)	1-5
		4	46 (1168)	24 (610)	14 (356)	A	188 (85)	
	600	2, 3	66 (1686)	24 (610)	19.5 (495)	B	221 (100)	1-5 & 7
		4	66 (1686)	24 (610)	19.5 (495)	B	230 (104)	
	800	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1000	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1200	2, 3	74 (1880)	40 (1016)	19.5 (495)	B	475 (215)	1-5 & 7
		4	74 (1880)	40 (1016)	19.5 (495)	B	560 (254)	
	1600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1030 (467)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1180 (535)	
	2600	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	
	3000	2, 3	90 (2286)	35.5 (902)	48 (1219)	C	1150 (522)	1-5 & 7-8
		4	90 (2286)	35.5 (902)	48 (1219)	C	1400 (635)	

Dimensional Specifications (continued)

Application Notes:

1. Dimensions are listed in inches (mm) and weights in pounds (kg).
2. Includes 1.25" door projection beyond base depth. Allow a minimum of 3" additional depth for projection of handle, light, switches, pushbuttons, etc.
3. All dimensions and weights are approximate and subject to change without notice and are not for construction use.
4. Packing materials must be added to weights shown. Allow 15% additional weight for cartons, skids, crates, etc.
5. Special enclosures (NEMA 3R, 4, 4X, 12, etc.) dimensions may differ. Consult Caterpillar for details.
6. CTG 40-200 require larger 36" H X 24" W X 14" D enclosure depending on options specified. Consult Caterpillar for details.
7. Add 3" in height for lifting eyes.
8. Ventilation louvers on side/rear of 2600 and 3000A units require one side or rear of enclosure to be clear in order to afford proper airflow.

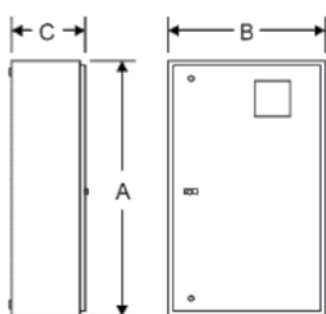


Figure A
CTG Series Transfer Switch
(40-400 amp)

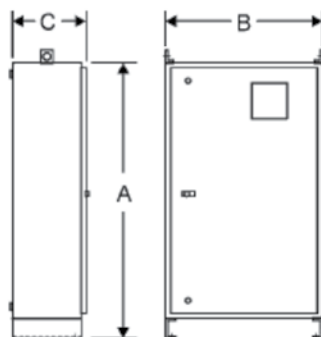


Figure B
CTG Series Transfer Switch
(600-1200 amp)

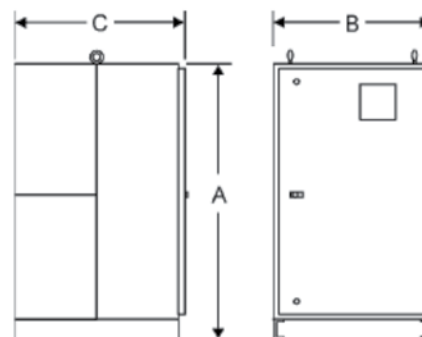


Figure C
CTG Series Transfer Switch
(1600-3000 amp)

www.Cat-ElectricPower.com

©2017 Caterpillar

All rights reserved.

Materials and specifications are subject to change without notice. CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow", the "Power Edge" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.