

# Ideal for critical applications requiring selective coordination and redundancy



Bypass isolation ATS with optional through-the-door configuration (deadfront panels removed)

Eaton's power frame bypass isolation automatic transfer switch (ATS) features the UL® 1066 Listed Magnum® DS power switch/circuit breaker for use in electrical distribution systems rated up to 5000 A. Supervisory intelligence is provided by an ATC-900 controller delivering operational simplicity and field adaptability coupled with enhanced diagnostics and troubleshooting capabilities. The bypass isolation ATS design is ideal for those applications where the ability to perform concurrent maintenance is either desirable or required without interrupting power to critical loads.

## Product configuration

- Automatic operation
- Open and closed transition
- Ratings 200–5000 A
- Two-, three- and four-pole
- Up to 600 Vac, three- or four-wire, 60 Hz or 50/60 Hz
- NEMA® 1, 3R, 3R (stainless steel)
- Drawout ATS and drawout bypass switch facilitating concurrent maintenance
- Service entrance rated
- Behind-the-door or through-the-door access to power switches/circuit breakers
- Cam-Lok™ receptacles for quick connection to a temporary engine-generator for emergency power

## Design highlights

- Arcflash Reduction Maintenance System™ to meet NEC® 240.87
- High withstand closing current ratings
  - 200 kA short-circuit (fuse)
  - 100 kA short-circuit
  - 85 kA short-time
- Integral overcurrent protection with electronic trip (LSI, LSIG, LSIA)
- Manual transfer under load
- UL 1008 and CSA® 22.2, No. 178 Listed
- Spring stored energy and charging mechanism
- Quick make/quick break main contacts
- Multi-tap control power transformers
- 100% rated 4th pole (switched neutral)
- Mechanical and electrical interlocks
- Deadfront construction
- Top/bottom cable entry
- Seismic/OSHPD certified
- Symmetrical component calculation detects abnormal conditions
- Load sensing of regenerative voltage decay
- Dual automatic programmable plant exercisers with load/no load engine test
- Programmable time delays
- Programmable relay outputs
- Programmable control inputs
- Source available contacts (Form C)
- Engine-generator 1 and 2 start contacts (Form C)
- Auxiliary position contacts
- Serial (Modbus®) communication
- USB port for data extraction and setpoint configuration
- Password protection

## Standard features

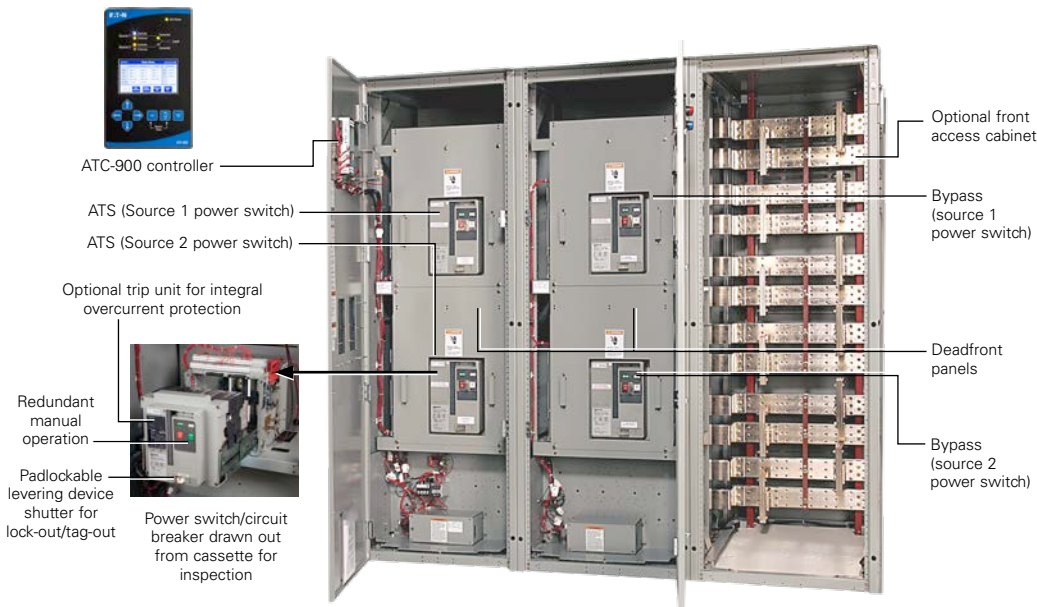
- ATC-900 controller
- Drawout cassette for easy maintenance, testing and lock-out/tag-out of power switch/circuit breaker
- Color LCD and keypad
- Mimic bus with LED indication of source available, source connected, and preferred source
- Source sensing of undervoltage/overvoltage, underfrequency/overfrequency, phase sequence, voltage unbalance/phase loss

## Optional features

- UL 1449 surge protection device (SPD)
- Door-mounted operator controls
- Space heater with thermostat
- Integral or discrete power quality metering
- External 24 Vdc supply power for ATC-900
- HMI remote annunciator controller
- Expandable programmable inputs/outputs (up to 20 of each)
- Ethernet communication module
- Tin-plated bus for corrosive environments

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**Bypass isolation ATS (deadfront panels shown) with behind-the-door construction and front access cabinet**

### Dual drawout (ATS and bypass)

Dual drawout configuration includes a cassette housing with movable extension rails allowing each power switch/circuit breaker to be easily withdrawn and isolated from the main bus. This feature facilitates maintenance and repair without incurring downtime of critical loads.

### Selective coordination

For emergency, legally required or critical operations systems requiring selective coordination, the 85 kA (0.5 second/30 cycle) short-time withstand closing current rating can be applied in circuits operating up to 600 Vac.

### Multi-tap voltage selector

System voltage can be field configured via a multi-tap control power transformer (CPT) with keyed quick-disconnect plugs. ❶



❶ When voltage specific device(s) not configured.

### Integrated service entrance rating

A power frame transfer switch can be equipped with integral overcurrent protection (inclusion of electronic trip unit), allowing it to be installed directly at the point of service entrance. This eliminates the need for a separate upstream overcurrent protective device including additional power connections. As required by NEC 230.95, ground fault protection can also be provided.



### Contact wear indication

Power frame transfer switches include a main contact wear indicator. The wear indicator can be easily inspected by removing the arc chute from the arc chamber at each power pole position.

### Fast transfer time

A robust two-step stored energy mechanism provides high-speed operation of the main contacts and allows for an open in-phase load transfer between power sources. When an in-phase transfer is not possible, the controller can be programmed to fall back to an open time delay or open load voltage delay transition.

### ATC-900 controller

Eaton's ATC-900 controller brings intelligence, adaptability, and enhanced supervisory and programming capabilities to mission-critical applications. The color display and mimic bus with LED indication provide enhanced operator visibility of status and metering data. Front arrow keys allow for quick screen navigation, removal of codes and abbreviations avoid potential confusion, and refined data screens provide for ease of viewing and programming.



### Arcflash Reduction Maintenance System

Where required by NEC 240.87, overcurrent protection can be configured with Eaton's Arcflash Reduction Maintenance System as a method to reduce clearing time. The result is lower incident energy at all downstream work locations.

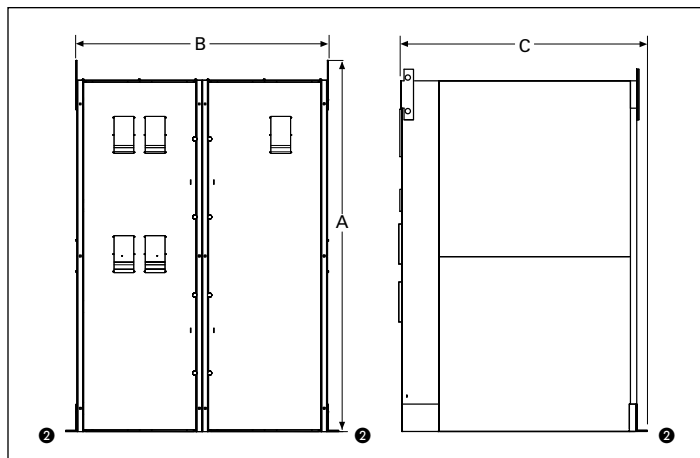


### Incident energy level decreases dramatically when the Arcflash Reduction Maintenance System maintenance mode is enabled

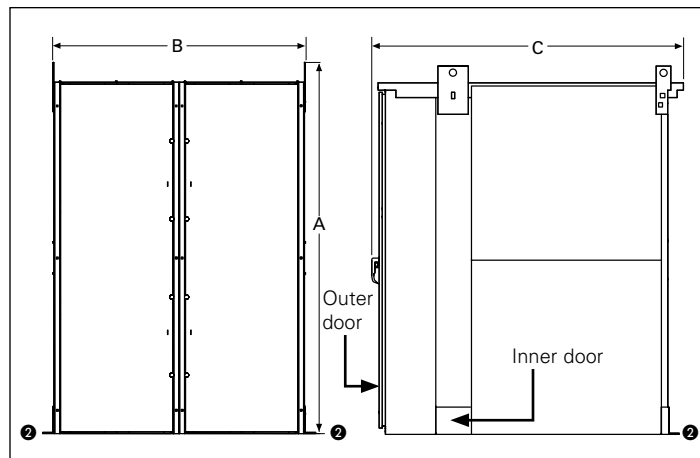
Service entrance transfer switch rating (A)	Available fault current (kA)	Arcing fault current (kA)	Without Arcflash Reduction Maintenance System		With Arcflash Reduction Maintenance System	
			Max. clearing time (sec)	Incident energy (cal/cm <sup>2</sup> )	Max. clearing time (sec)	Incident energy (cal/cm <sup>2</sup> )
4000	64	32	0.5	58.4	0.4	4.7
3000	51	26.4	0.5	47.3	0.4	3.8
2000	39	21	0.5	37	0.4	3.0
1600	28	15.8	0.5	27.2	0.4	2.2
1200	19	11.3	0.5	19	0.4	1.5

**Notes:** Overcurrent protection device modeled is Eaton Magnum DS circuit breaker (520C or 1150+ trip). Arcing fault current and incident energy values derived using SKM System Analysis software. Incident energy is calculated immediately downstream of transfer switch load.

Standard enclosure dimensions and weights ①

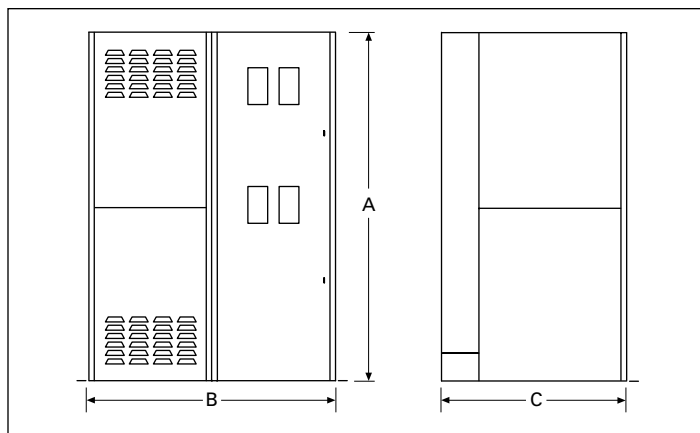


NEMA 1 (up to 3200 A)

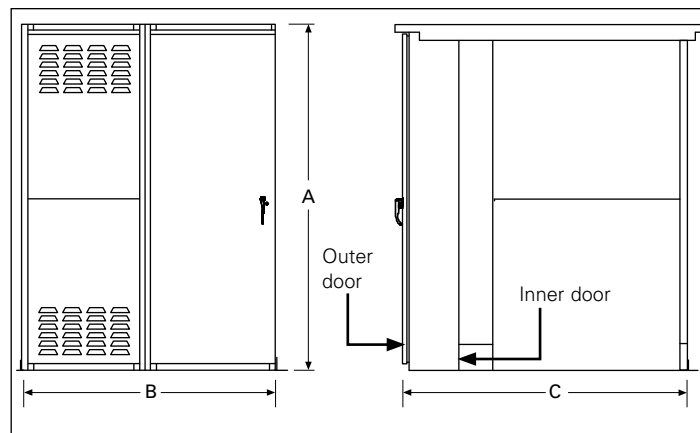


NEMA 3R (up to 3200 A) (controller and device panels mounted on inner door)

Ampere rating	Number of poles	A Height inches (mm)	B Width ② inches (mm)	NEMA 1 enclosure		NEMA 3R enclosure		Standard terminals	
				C Depth ③ inches (mm)	Shipping weight Lb (kg)	C Depth ③ inches (mm)	Shipping weight Lb (kg)	Normal emergency and load	Neutral
200–2000	2	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	4500 (2041)	75.00 (1905.0)	4600 (2086)	(6) 1/0–750 kcmil	(24) 4/0–500 kcmil
200–2000	3	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	4500 (2041)	75.00 (1905.0)	4600 (2086)	(6) 1/0–750 kcmil	(24) 4/0–500 kcmil
200–2000	4	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	5200 (2358)	75.00 (1905.0)	5800 (2630)	(6) 1/0–750 kcmil	(24) 4/0–500 kcmil
2500–3200	2	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	4500 (2041)	75.00 (1905.0)	4600 (2086)	(9) 1/0–750 kcmil	(36) 4/0–500 kcmil
2500–3200	3	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	4500 (2041)	75.00 (1905.0)	4600 (2086)	(9) 1/0–750 kcmil	(36) 4/0–500 kcmil
2500–3200	4	90.00 (2286.0)	64.00 (1625.6)	60.00 (1524.0)	5200 (2358)	75.00 (1905.0)	5800 (2630)	(9) 1/0–750 kcmil	(36) 4/0–500 kcmil



NEMA 1 (4000–5000 A)



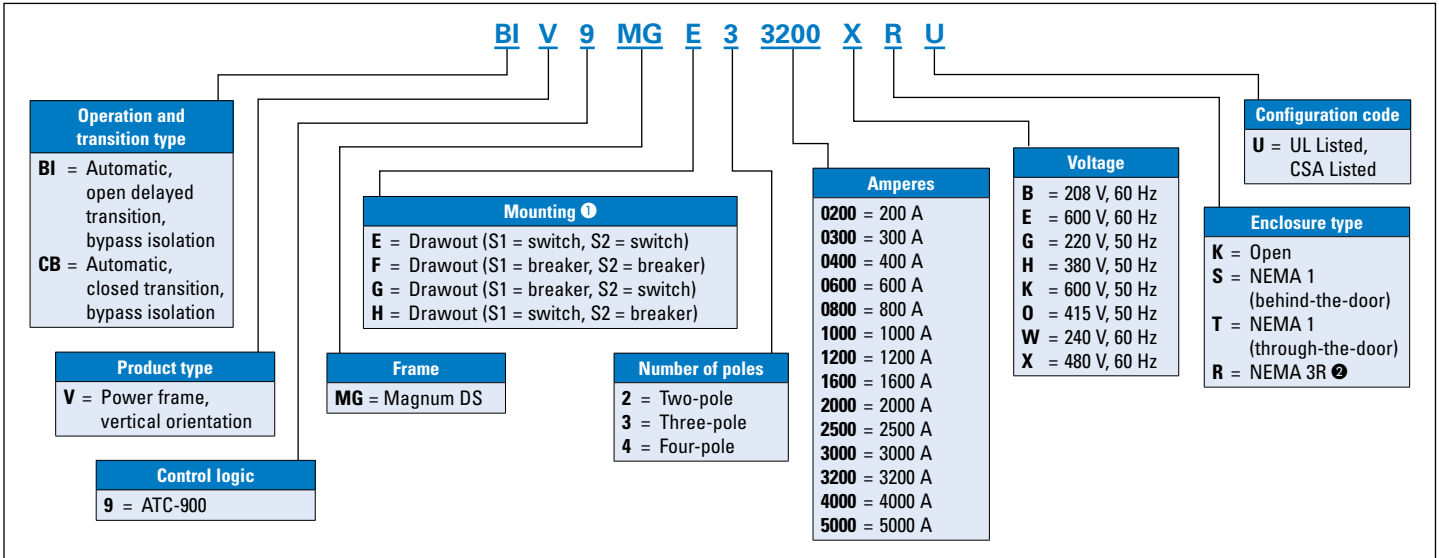
NEMA 3R (4000–5000 A)

Ampere rating	Number of poles	A Height inches (mm)	B Width ② inches (mm)	C Depth ③ inches (mm)	Shipping weight Lb (kg)
<b>NEMA 1 enclosure</b>					
4000	2 or 3	90.00 (2286.0)	140.00 (3556.0)	68.00 (1727.2)	11,680 (5297)
4000	4	90.00 (2286.0)	140.00 (3556.0)	68.00 (1727.2)	12,200 (5533)
5000	2 or 3	90.00 (2286.0)	140.00 (3556.0)	68.00 (1727.2)	11,500 (5215)
5000	4	90.00 (2286.0)	140.00 (3556.0)	68.00 (1727.2)	12,000 (5442)
<b>NEMA 3R enclosure</b>					
4000	2 or 3	90.00 (2286.0)	140.00 (3556.0)	87.00 (2209.8)	12,400 (5624)
4000	4	90.00 (2286.0)	140.00 (3556.0)	87.00 (2209.8)	12,700 (5760)
5000	2 or 3	90.00 (2286.0)	140.00 (3556.0)	87.00 (2209.8)	11,800 (5351)
5000	4	90.00 (2286.0)	140.00 (3556.0)	87.00 (2209.8)	12,350 (5601)

Terminals

Ampere rating	Normal, emergency and load	Neutral
4000	(10) 1/0–750 kcmil	(48) 4/0–500 kcmil
5000	(12) 1/0–750 kcmil	(48) 4/0–500 kcmil

- ① Dimensions and weights shown are approximate and subject to change. Reference product outline drawings for the latest information.
- ② Installation of seismic floor-mount brackets requires 3 inches of depth at enclosure rear and 3 inches of width at each side of enclosure (left and right).
- ③ A 3-inch clearance distance is recommended at enclosure rear for maintaining air flow through vented panels.



- ① S1 designates Source 1 and S2 designates Source 2.
- ② Stainless steel optional.

**System coordination information—  
withstand closing current ratings**

Transfer switch ampere rating	Short-circuit (kA) up to 600 V 0.05 seconds	Short-time (kA) up to 600 V 0.5 seconds	Short-circuit (kA) up to 600 V when protected by fuse
<b>UL 1008</b>			
200–3200	100	85	200
4000	100	—	—
<b>UL 891</b>			
4000	—	85 ①	—
5000	100 ①	85 ①	—

① UL 1066 Listed withstand current ratings.

**Standard terminal connections**

Power frame type transfer switches are designed to accommodate cable entry at the top and/or bottom of the enclosure.

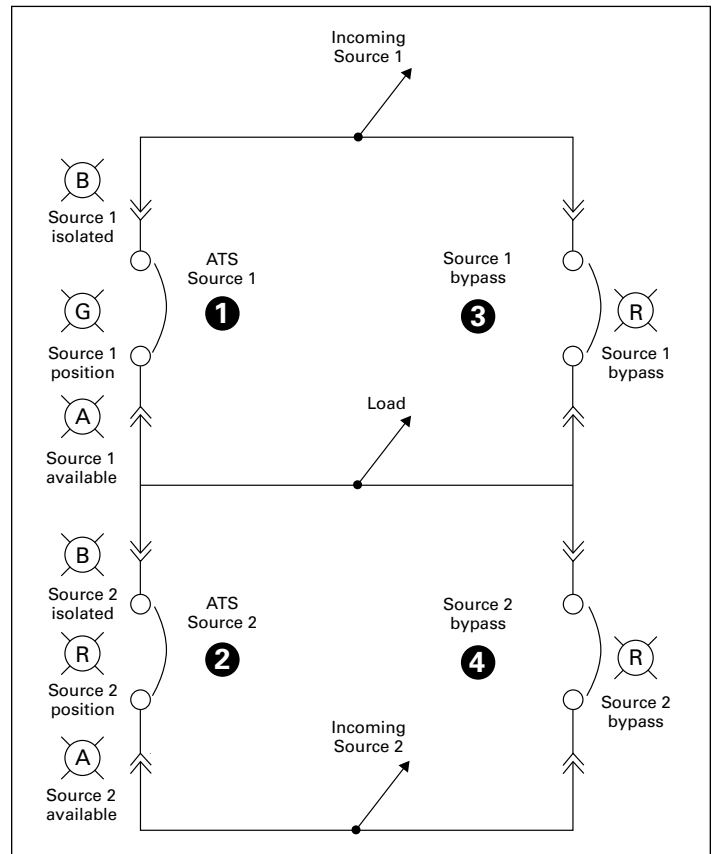
Internally, the normal power terminations are located closer to the top of the enclosure and emergency power terminations are closer to the bottom. Load power connections are located in the center. For installation flexibility, a “source swap” option is available, which reverses the location of the normal and emergency terminations.

NEMA 1 and 3R enclosure types have removable bolted panels located at the rear, providing easy access for cable termination.

For applications requiring front access, an optional side cabinet can be added to the left or right side of the transfer switch.

Higher amperage assemblies (4000 A and 5000 A) typically include an additional wireway or side cabinet to accommodate an increased number of cables. In this configuration, both rear and front access is often required. A mix of cable and direct bus connect is possible. The wireway can be located to the left or right of the transfer switch.

**Schematic diagram**



**Typical bypass isolation ATS**

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