

The Eaton logo, featuring the word "EATON" in a bold, white, sans-serif font with a vertical line to its right.The Cutler-Hammer logo, featuring the words "Cutler-Hammer" in a bold, white, sans-serif font.

## Magnum Transfer Switches

Product Focus

Automatic  
Transfer Switches



# Magnum Transfer Switch Family



## 1. Magnum Transfer Switch



### Introduction

Eaton's Magnum™ Transfer Switches are designed for a variety of standby power applications for critical and non-critical loads. They monitor both Source 1 (Normal) and Source 2 (Emergency) power sources. In the event of a Source 1 power interruption, these switches will automatically transfer the load circuits to the Source 2 power source. Once the Source 1 power source has been restored, the process is automatically reversed.

The Magnum family of transfer switches covers applications ranging from 200 to 5000 amperes through 600 Vac. Some of the applications are: automatic or non-automatic configurations and open or closed transition. They are designed for applications where total system coordination must be accomplished while achieving the industry's highest level of Withstand, Interrupting and Closing performance.

Drawout construction is available for applications, such as critical life support systems, where preventive maintenance, inspection and testing must be accomplished while maintaining continuity of power to the load.

Eaton Magnum Transfer Switches meet or exceed all industry standards for endurance, reliability and performance. They are listed under Underwriters Laboratories UL® 1008<sup>1</sup> and CSA C22.2-178<sup>2</sup> Standard for Transfer Switch Equipment. With certain options, they also comply with Source 2 and standby system requirements as defined in NFPA 99 for health care facilities.

### Magnum Transfer Switch Family

- Fixed mount 200 – 5000 A.
- Drawout 200 – 5000 A.
- Bypass isolation 200 – 5000 A.

### Magnum Transfer Switch Standards

UL 1008	Standard for Safety for Automatic Transfer Switches up to 3,200 A
UL 891	Standard for Switch boards carrying up to 100,000 kA at 5000 A <sup>1</sup> 4000 and 5000 Ampere available as UL 891 only.
UL 489	Standard for Circuit Breakers and Moulded Case Switches
CSA 22.2-178	Canadian Transfer Switch Standard <sup>2</sup> 4000 and 5000 Ampere available as CSA C22.2-31 only.
NEC® Articles 517, 700, 701, 702	Code Sections Applicable Switch Equipment
NFPA 110	Source 2 and Standby Power Systems
NFPA 99	Health Care Facilities
EGSA 100S	Standard for Transfer Switches
NEMA® ICS10	Standard for Transfer Switch Equipment
UBC®	Uniform Building Code for Seismic Zone 4
ISO® 9000	International Organization for Standardization
CBC	California Building Code
IBC	International Building Code
BOCA®	Building Officials Code Administrators

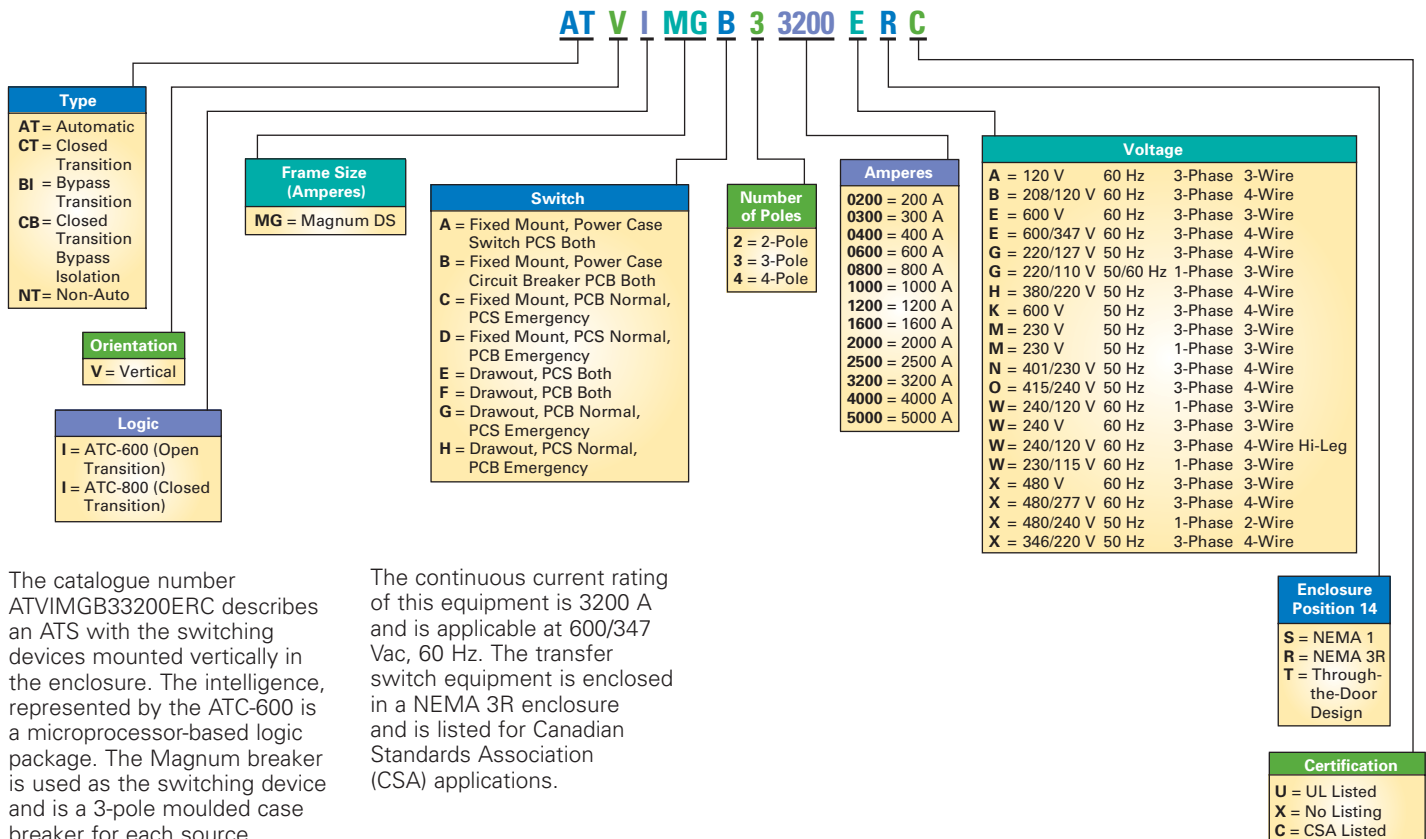
### Design Highlights

- Freestanding.
- Magnum power switches.
- Fastest switching times available (<3 cycles).
- High withstand ratings.
- Full 30-cycle short time withstand capability.
- Safe manual transfer under load.
- Multi-tap voltage selection plug.
- Integral overcurrent protection capability.
- Drawout capability.
- Programmable microprocessor controller with keypad entry and display.
- Communications capable.
- Durable powder-coated steel enclosures.
- Available in front access only design.
- American Bureau of Shipping qualified.
- ISO 9000.
- ISO 14000 Environmental.
- Ambient temperature range: -40°C to 40°C (-40°F to 104°F).
- Operating temperature range: -20°C to 70°C (-4°F to 158°F).
- Operating humidity: up to 90%.
- Relative humidity (non-condensing).
- Switch contact wear indication.



2. Front Access Option 54A is Available on Magnum Designs

**MAGNUM BYPASS, AUTOMATIC AND NON-AUTOMATIC TRANSFER SWITCHES 200 – 5000 AMPERES**



The catalogue number ATVIMGB33200ERC describes an ATS with the switching devices mounted vertically in the enclosure. The intelligence, represented by the ATC-600 is a microprocessor-based logic package. The Magnum breaker is used as the switching device and is a 3-pole moulded case breaker for each source.

The continuous current rating of this equipment is 3200 A and is applicable at 600/347 Vac, 60 Hz. The transfer switch equipment is enclosed in a NEMA 3R enclosure and is listed for Canadian Standards Association (CSA) applications.

**Transfer Switch Withstand, Interrupting and Closing Ratings**

**SYSTEMS COORDINATION INFORMATION**

Transfer Switch Ampere Rating	Rating When Used with Upstream Circuit Breaker	Rating When Used with Upstream Fuse
	3-Cycle 600 V (kA)	30-Cycle 600 V (kA)
800	100	85
1000	100	85
1200	100	85
1600	100	85
2000	100	85
2500	100	85
3200	100	85

**Note:** Tested in accordance with UL 1008 and CSA C22.2-178. The Eaton Drawout Magnum Transfer Switch will coordinate with a power switching device short time rating. Contact factory for details.

2



# Magnum Transfer Switch Family



1. Magnum Fixed Mounted Design
2. Basic Switch Components of Magnum Automatic Transfer Switches
3. Use of Contact Wear Indicator with Circuit Breaker Closed

## Magnum Fixed Mount and Magnum Drawout Transfer Switches

### Product Description

Eaton Magnum Transfer Switches feature the Eaton Magnum power switch and power breaker covering application ranges from 200 amperes up to 5000 amperes. The Magnum design can be used for automatic, non-automatic and closed transition applications. The Magnum design is available in both fixed mounted and drawout type construction.

### Application Description

The Eaton Drawout Magnum Switch should be considered for any systems requiring either greater redundancy, easier maintainability, or where true selective coordination is desired.

The Eaton Drawout Magnum Switch provides the capability to isolate either of the two power sources (Source 1 or Source 2) and its associated logic, while maintaining power to the load.

### Automatic, Non-Automatic and Manual Transfer Switches

Enclosures meet all current applicable NEMA, CSA and UL standards for conduit entry, cable bending, gutter space, and shielding of live components.

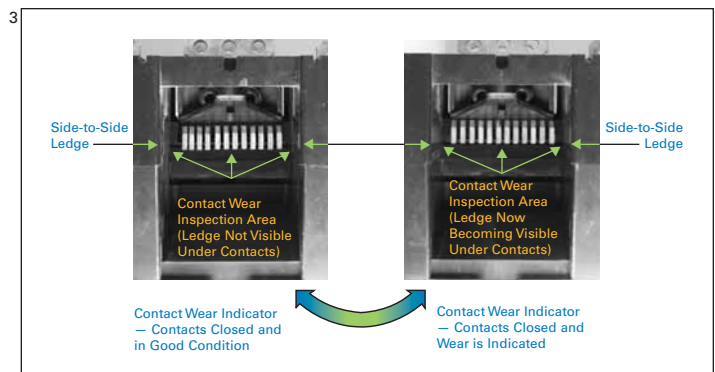
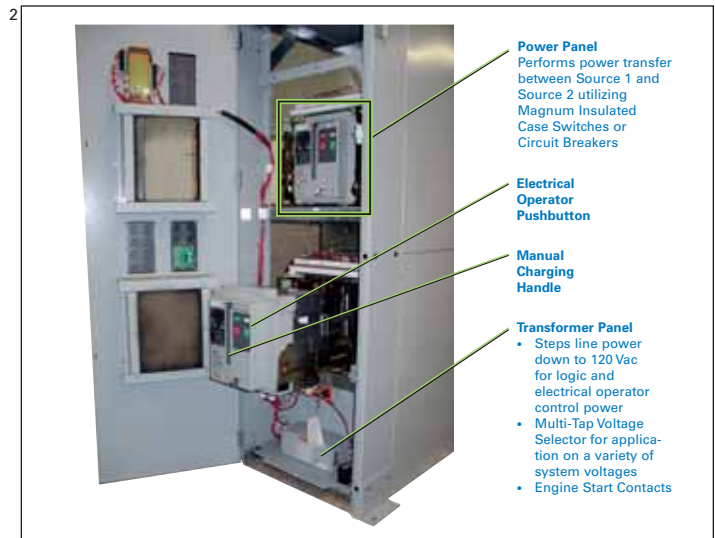
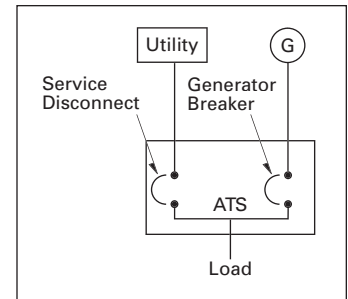
### NEMA 1 and 3R Enclosures

Magnum Transfer Switches are supplied with a front door only. They can be mounted in a corner or against a wall. Access to cable space can be via either side, bottom, top or the rear.

Add 3 inches (76 mm) to the height, 6 inches (152 mm) to the width, and 3 inches (76 mm) to the depth to all enclosure dimensions to account for the seismic Zone 4 mounting brackets.

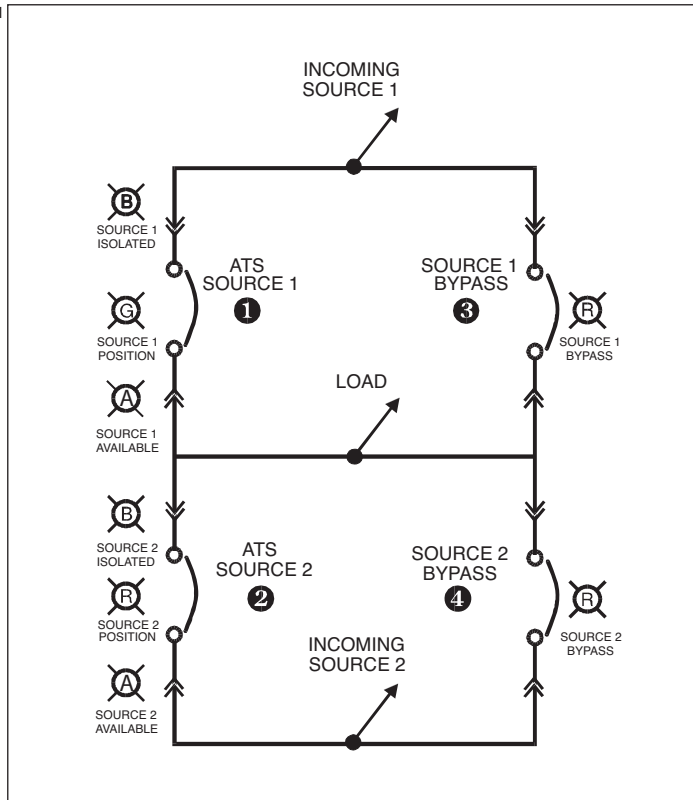
### Features

- Highest withstand capability.
- Stored energy switching device.
- Ability to test power switching devices in test position.
- Interchangeable power switching devices.
- Safe to transfer manually under full load.
- Contact wear indication.



1. Typical Bypass Isolation Switch Schematic

2. Magnum Bypass Isolation Front View



**Bypass Isolation Transfer Switch**

**Product Description**

A Bypass Isolation Transfer Switch may be used to provide emergency power to life safety and other critical loads where maintenance of the main transfer switch, without interruption of power to the load, is either desirable or required. The Magnum Transfer Switch design may be applied to such applications ranging from 200 amperes up to 5000 amperes.

It is possible to use the Magnum design bypass section for a full load transfer to the alternate source without being hindered by interlocking used on some contactor-type designs. The Magnum bypass section is properly interlocked to prevent simultaneous connection to both sources, but does not prevent using the bypass section as a manual transfer switch in an emergency.

**Application Description**

The Bypass Isolation Switch is designed for applications where maintenance, inspection and testing must be performed while maintaining continuous power to the load. This is typically required in critical life support systems and standby power situations calling for safe system maintenance with no power disruptions. Such a design allows for the quick removal of the different switching devices for inspection, maintenance or replacement.

**Features, Functions and Benefits**

The Eaton Transfer Switch is a rugged, compact design utilizing Magnum power switches or Magnum power circuit breakers to transfer essential loads from one power source to another. Open transition switching

devices are interlocked to prevent both switching devices from being closed at the same time. The versatile design, in addition to standard transfer functions, offers an optional integral thermal and short circuit protection in either or both switching devices.

The switching devices are in a compact vertical arrangement. The logic can be easily disconnected from the switching device without disturbing critical connections. The enclosure is freestanding and, by using the specially supplied cleats, the switch is seismic approved (Option 42). The terminals are mounted in the rear of the switch, permitting rear, top, bottom or side cable or bus bar entrance.

The switching devices have a high withstand rating. The high-speed, stored-energy switching mechanism guarantees a transfer time of less than 3 cycles.

**Features**



- Reliable microprocessor logic.
- Designed to safely withstand fault currents.
- Eliminates need for complex interlocks.
- Most versatile bypass isolation transfer switch available.
- Cutler-Hammer drawout cassette design.
- Overcurrent protection available.
- No service interruption when bypassing to the same source.
- Drawout capabilities on both ATR and bypass portions.
- Compact design.
- Ability to test power switching elements during drawout process.
- Power switching devices completely interchangeable between ATR and bypass portions.



# Magnum Transfer Switch Family



## TRANSFER SWITCH CONTROLLERS

Description	ATC-600 Open Transition	ATC-800 Closed Transition
		
<b>System Application Voltage</b>	Up to 600 Vac	Up to 600 Vac
<b>Voltage Specifications</b>		
Voltage Measurements of:	Source 1, 2 and Load — VAB, VBC and VCA	Source 1, 2 and Load — VAB, VBC and VCA
Voltage Measurement Range	0 – 790 Vac rms	0 – 790 Vac rms
<b>Operating Power</b>	65 Vac – 145 Vac	65 Vac – 145 Vac
<b>Frequency Specifications</b>		
Frequency Measurements of:	Source 1 and 2	Source 1 and 2
Frequency Measurement Range	40 – 70 Hz	40 – 70 Hz
<b>Environmental Specifications</b>		
Operating Temperature Range	-20°C to +70°C	-20°C to +70°C
Storage Temperature Range	-30°C to +85°C	-30°C to +85°C
<b>Operating Humidity</b>	0 to 95% Relative Humidity (Non-condensing)	0 to 95% Relative Humidity (Non-condensing)
<b>Operating Environment</b>	Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons	Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons
<b>Front Panel Indication</b>		
Mimic Diagram with LED Indication	Automatic, Test and Program Mode. Source 1 and 2 — Available, Connected and Preferred. Load Energized (10 Total)	Automatic, Test and Program Mode. Source 1 and 2 — Available, Connected and Preferred. Load Energized (10 Total)
Main Display	LED Display	LED Display
Display Language	English	English
<b>Communications Capable</b>	Multi-Network Protocols — Consult Factory	Multi-Network Protocols — Consult Factory
<b>Enclosure Compatibility</b>	NEMA 1, 12, 3R and 4X UV-Resistant Faceplate	NEMA 1, 12, 3R and 4X UV-Resistant Faceplate
<b>Operating Environmental Range</b>	Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Non-condensing)	Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Non-condensing)
<b>Programming Selections</b>		
Time Delay Normal to Emergency	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Emergency to Normal	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Engine Cooldown	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Engine Start	0 – 120 Seconds	0 – 120 Seconds
Time Delay Neutral	0 – 120 Seconds or Based on Load Voltage Decay of 2% – 30% of Nominal	0 – 120 Seconds or Based on Load Voltage Decay of 2% – 30% of Nominal
Time Delay Source 2 Fail	0 – 6 Seconds	0 – 6 Seconds
In-Phase	Enabled or Disabled	Enabled or Disabled
Load Sequencing	Up to 10 Devices (via Sub-network)	Up to 10 Devices (via Sub-network)
Pre-Transfer Signal	0 – 20 Seconds (Up to 10 Devices via Sub-network)	0 – 20 Seconds (Up to 10 Devices via Sub-network)
Plant Exerciser	Selectable — Disabled or 7 Day Interval, 0 – 600 Minutes, Load or No Load	Selectable — Disabled or 7 Day Interval, 0 – 600 Minutes, Load or No Load
Preferred Source Selection	Source 1 or 2 or None	Source 1 or 2 or None
Commitment to Transfer in TDNE	Enabled or Disabled	Enabled or Disabled
Re-Transfer Mode	Automatic or Manual	Automatic or Manual
System Selection	Utility/Generator or Dual Utility or Dual Generator	Utility/Generator or Dual Utility or Dual Generator

**Note:** Features are order specific. Not all features are supplied as standard.



## Dimensions and Weights — Magnum Fixed Mount, Drawout and Bypass Isolation Transfer Switches

### MAGNUM FIXED MOUNT TRANSFER SWITCHES DIMENSIONS IN INCHES (MM)

Ampere Rating	Number of Poles	Height	Width	Depth	Shipping Weight Lbs. (kg)
<b>NEMA 1 Enclosed Fixed Mount Transfer Switch</b>					
200 – 2000	2	90 (2286)	32 (813)	48 (1219)	1050 (477)
200 – 2000	3	90 (2286)	32 (813)	48 (1219)	1050 (477)
200 – 2000	4	90 (2286)	32 (813)	48 (1219)	1250 (568)
2500 – 3200	2	90 (2286)	44 (1118)	48 (1219)	1900 (863)
2500 – 3200	3	90 (2286)	44 (1118)	48 (1219)	1900 (863)
2500 – 3200	4	90 (2286)	44 (1118)	48 (1219)	2000 (908)
4000	2 or 3	90 (2286)	48 (1219)	60 (1524)	2300 (1044)
4000	4	90 (2286)	54 (1372)	60 (1524)	2600 (1180)
5000	2 or 3	90 (2286)	48 (1219)	60 (1524)	2600 (1180)
5000	4	90 (2286)	54 (1372)	60 (1524)	2900 (1317)
<b>NEMA 3R Enclosed Fixed Mount Transfer Switch</b>					
200 – 2000	2	90 (2286)	32 (813)	63 (1600)	1600 (726)
200 – 2000	3	90 (2286)	32 (813)	63 (1600)	1600 (726)
200 – 2000	4	90 (2286)	32 (813)	63 (1600)	1800 (817)
2500 – 3200	2	90 (2286)	44 (1118)	63 (1600)	2400 (1090)
2500 – 3200	3	90 (2286)	44 (1118)	63 (1600)	2400 (1090)
2500 – 3200	4	90 (2286)	44 (1118)	63 (1600)	2500 (1135)
4000	2 or 3	100 (2540)	54 (1372)	72 (1829)	3800 (1727)
4000	4	100 (2540)	60 (1524)	72 (1829)	4100 (1863)
5000	2 or 3	100 (2540)	54 (1372)	72 (1829)	4100 (1863)
5000	4	100 (2540)	60 (1524)	72 (1829)	4400 (2000)

NOTE: 4000 and 5000A ATS require a wireway if cable is used.

### MAGNUM DRAWOUT TRANSFER SWITCHES — DIMENSIONS IN INCHES (MM)

Ampere Rating	Number of Poles	Height	Width	Depth	Shipping Weight Lbs. (kg)
<b>NEMA 1 Enclosed Drawout Transfer Switch</b>					
200 – 2000	2	90 (2286)	32 (813)	60 (1524)	1600 (726)
200 – 2000	3	90 (2286)	32 (813)	60 (1524)	1600 (726)
200 – 2000	4	90 (2286)	32 (813)	60 (1524)	1900 (863)
2500 – 3200	2	90 (2286)	44 (1118)	60 (1524)	2500 (1135)
2500 – 3200	3	90 (2286)	44 (1118)	60 (1524)	2500 (1135)
2500 – 3200	4	90 (2286)	44 (1118)	60 (1524)	2800 (1271)
4000	2 or 3	90 (2286)	48 (1219)	72 (1829)	2500 (1135)
4000	4	90 (2286)	54 (1372)	72 (1829)	2800 (1271)
5000	2 or 3	90 (2286)	48 (1219)	72 (1829)	2800 (1271)
5000	4	90 (2286)	54 (1372)	72 (1829)	3100 (1407)
<b>NEMA 3R Enclosed Drawout Transfer Switch</b>					
200 – 2000	2	90 (2286)	32 (813)	75 (1905)	2100 (953)
200 – 2000	3	90 (2286)	32 (813)	75 (1905)	2100 (953)
200 – 2000	4	90 (2286)	32 (813)	75 (1905)	2400 (1090)
2500 – 3200	2	90 (2286)	44 (1118)	75 (1905)	3000 (1362)
2500 – 3200	3	90 (2286)	44 (1118)	75 (1905)	3000 (1362)
2500 – 3200	4	90 (2286)	44 (1118)	75 (1905)	3300 (1498)
4000	2 or 3	100 (2540)	54 (1372)	84 (2133)	4000 (1818)
4000	4	100 (2540)	60 (1524)	84 (2133)	4300 (1954)
5000	2 or 3	100 (2540)	54 (1372)	84 (2133)	4300 (1954)
5000	4	100 (2540)	60 (1524)	84 (2133)	4600 (2090)

NOTE: 4000 and 5000A ATS require a wireway if cable is used.

### MAGNUM BYPASS ISOLATION TRANSFER SWITCHES DIMENSIONS IN INCHES (MM)

Ampere Rating	Number of Poles	Height	Width	Depth	Shipping Weight Lbs. (kg)
<b>NEMA 1 Enclosed Drawout Transfer Switch</b>					
200 – 2000	2	90 (2286)	64 (1626)	60 (1524)	3100 (1409)
200 – 2000	3	90 (2286)	64 (1626)	60 (1524)	3100 (1409)
200 – 2000	4	90 (2286)	64 (1626)	60 (1524)	3700 (1682)
2500 – 3200	2	90 (2286)	64 (1626)	60 (1524)	4700 (2136)
2500 – 3200	3	90 (2286)	64 (1626)	60 (1524)	4700 (2136)
2500 – 3200	4	90 (2286)	64 (1626)	60 (1524)	5500 (2500)
4000	2 or 3	90 (2286)	96 (2439)	72 (1829)	4900 (2227)
4000	4	90 (2286)	108 (2743)	72 (1829)	5500 (2500)
5000	2 or 3	90 (2286)	96 (2439)	72 (1829)	5500 (2750)
5000	4	90 (2286)	108 (2743)	72 (1829)	6100 (2772)
<b>NEMA 3R Enclosed Drawout Transfer Switch</b>					
200 – 2000	2	90 (2286)	64 (1626)	75 (1905)	3700 (1682)
200 – 2000	3	90 (2286)	64 (1626)	75 (1905)	3700 (1682)
200 – 2000	4	90 (2286)	64 (1626)	75 (1905)	4300 (1955)
2500 – 3200	2	90 (2286)	64 (1626)	75 (1905)	5300 (2410)
2500 – 3200	3	90 (2286)	64 (1626)	75 (1905)	5300 (2410)
2500 – 3200	4	90 (2286)	64 (1626)	75 (1905)	6000 (2730)
4000	2 or 3	100 (2540)	102 (2590)	84 (2133)	7400 (3363)
4000	4	100 (2540)	114 (2895)	84 (2133)	8000 (3636)
5000	2 or 3	100 (2540)	102 (2590)	84 (2133)	8000 (3636)
5000	4	100 (2540)	114 (2895)	84 (2133)	8600 (3909)

NOTE: 4000 and 5000A ATS require a wireway if cable is used.

### REQUIRED WIREWAY (4000 +5000A ONLY)

Connection Type	Emergency	Load	Wireway
Cable	Cable	Cable	Yes
Bus	Cable	Cable	Yes
Cable	Bus	Cable	Yes
Cable	Cable	Bus	Yes
Bus	Bus	Cable	No
Bus	Cable	Bus	No
Cable	Bus	Bus	No
Bus	Bus	Bus	No

### WIREWAY — DIMENSIONS IN INCHES (MM)

Ampere Rating	Number of Poles	Height	Width	Depth	Shipping Weight Lbs. (kg)
3200 & Below	All	90 (2286)	32 (813)	48 (1219)	850 (386)
4000	3	90 (2286)	38 (965)	60 (1524)	900 (409)
4000	4	90 (2286)	38 (965)	60 (1524)	1050 (477)
5000	3	90 (2286)	38 (965)	60 (1524)	1100 (499)
5000	4	90 (2286)	38 (965)	60 (1524)	1250 (568)

Weights are approximate. Not to be used for construction.

**Eaton's electrical business is a global leader in electrical control, power distribution, and industrial automation products and services. Through advanced product development, world-class manufacturing methods, and global engineering services and support, Eaton's electrical business provides customer-driven solutions under brand names such as Cutler-Hammer®, Powerware®, Durant®, Heinemann®, Holec® and MEM®, which globally serve the changing needs of the industrial, utility, light commercial, residential, and OEM markets. For more information, visit [www.eatonelectrical.ca](http://www.eatonelectrical.ca).**

**Eaton Corporation is a diversified industrial manufacturer with 2006 sales of \$12.4 billion. Eaton is a global leader in electrical systems and components for power quality, distribution and control; fluid power systems and services for industrial, mobile and aircraft equipment; intelligent truck drivetrain systems for safety and fuel economy; and automotive engine air management systems, powertrain solutions and specialty controls for performance, fuel economy and safety. Eaton has 61,000 employees and sells products to customers in more than 125 countries. For more information, visit [www.eaton.com](http://www.eaton.com)**

Eaton Yale Company  
5050 Mainway  
Burlington, ON L7L 5Z1  
Canada  
1-800-268-3578  
[www.EatonElectrical.ca](http://www.EatonElectrical.ca)

Cutler-Hammer is a federally registered trademark of Eaton Corporation. NEMA is the registered trademark and service mark of the National Electrical Manufacturers Association. UL is a federally registered trademark of Underwriters Laboratories Inc. National Electrical Code and NEC are registered trademarks of the National Fire Protection Association, Quincy, Mass. CSA is a registered trademark of the Canadian Standards Association. BOCA is a registered trademark of Building Officials and Code Administrators International, Inc. Uniform Building Code (UBC) is a trademark of the International Conference of Building Officials (ICBO). ISO is the registered trademark and sole property of the International Organization for Standardization.

**EAT•N**

**Cutler-Hammer**

© 2007 Eaton Corporation  
All Rights Reserved  
Printed in Canada  
Publication No. BR01600002K  
March 2007