



Cutler-Hammer

Automatic, Non-Automatic and Manual Wall-Mount Transfer Switches — 30 – 1000 Amperes

Technical Data

New Information

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Introduction

Cutler-Hammer® Wall-Mount Transfer Switches from Eaton's Electrical business are available in Automatic, Non-Automatic and Manual transfer configurations to manage all levels of distribution system control from advanced to basic.

Cutler-Hammer Wall-Mount Transfer Switches are designed for a variety of standby power applications for critical loads. They provide the utmost in flexibility, reliability and value in a compact package. In the event of a primary power source interruption, a transfer switch provides an effective means to transfer the load circuits to an alternate power source while reducing the possibility of injury or property damage. Cutler-Hammer Transfer Switches are designed for applications where total system coordination must be accomplished while achieving a high level of withstand, interrupting and closing performance.

Industrial Design Highlights

- Compact wall-mount design for easy installation, inspection and maintenance.
- Safe manual operation under full load.
- Integrated equipment designs available with distribution panelboards and/or TVSS.
- Superior withstand, interrupting and closing ratings.
- Molded case devices designed specifically for UL® 1008.
- Optionally rated as suitable for use as service equipment.
- Available with integral overcurrent protection.
- Field-selectable multi-tap transformer panel permits operation on a wide range of system voltages (on select switches).
- ANSI 61 powder-coated, baked-on paint enclosure.

Wall-Mount Transfer Switch Family

Residential: 30 – 225 Amperes

240/120 Vac and 208 Vac single-phase systems. Automatic operation.

Automatic: 30 – 1000 Amperes

For systems up to 600 Vac. An Automatic Transfer Switch (ATS) continuously monitors the primary power source. When the utility power source is interrupted, the ATS automatically starts the engine/generator set and transfers the load circuits after the generator has reached the correct voltage and frequency. When the utility power is restored, the ATS automatically re-transfers the load circuits and shuts down the engine/generator set. Cutler-Hammer Automatic Transfer Switches are available with three different levels of automatic transfer controllers which enable the user to select the standard feature package best suited for their particular application. Combined with a wide selection of available options, these transfer switches are ready to address the needs of any system.

Non-Automatic: 30 – 1000 Amperes

For systems up to 600 Vac. Cutler-Hammer Non-Automatic Transfer Switches are manually initiated, electrically operated transfer switches that are typically applied in non-emergency systems. Pushbutton control is standard for transfer and re-transfer operations.

Manual: 30 – 1000 Amperes

For systems up to 600 Vac. Cutler-Hammer Manual Transfer Switches are engineered for those applications requiring manual transfer of power. They include a permanently affixed operating handle and provide safe transfer and re-transfer operation under full load.

Standards

Cutler-Hammer Wall-Mount Transfer Switches meet or exceed all industry standards for endurance, reliability and performance. They are listed under UL 1008 Standard for Transfer Switch Equipment and optionally available as suitable for emergency and standby systems as defined in NFPA 99 for health care facilities.

Cutler-Hammer Wall-Mount Transfer Switches are designed and built as standard or with required options in accordance with the following standards where applicable.

UL 1008: UL Standard for Safety for Transfer Switch Equipment.

UL 489: UL Standard for Circuit Breakers and Molded Case Switches.

CSA® 22.2 No. 178: Canadian Standards Association.

NEC® Articles 517, 700, 701, 702: Code Sections Applicable to Transfer Switch Equipment.

NFPA 110: Emergency and Standby Power Systems.

NFPA 99: Health Care Facilities.

EGSA® 100S: Standard for Transfer Switches.

NEMA® ICS10: Standard for Transfer Switch Equipment.

UBC® and BOCA®: Uniform Building Code for Seismic Zone 4.

ISO® 9001 and 14001: International 9002 Organization for Standardization.

Typical Applications

Utility — Generator

Transfer switches are traditionally applied between a utility and a generator set for emergency and standby power systems.

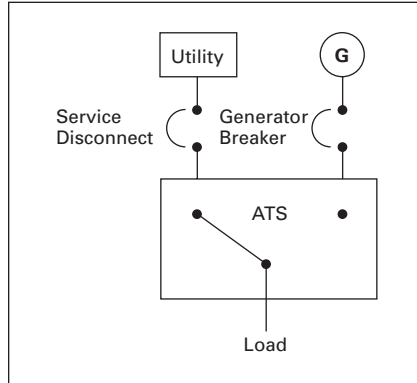


Figure 1. Standard Application Utility — Generator

Generator — Generator

Transfer switches are sometimes applied between two generator sets for prime power use, often in remote installations. In such applications, source power is periodically alternated between the generator sets to equally share run time.

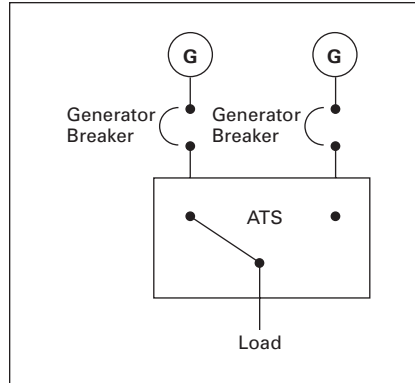


Figure 2. Standard Application Generator — Generator

Service Entrance Equipment

Service Equipment rated transfer switches are utilized when the entire load of a facility is critical and needs to be backed up by an alternate power source. Cutler-Hammer Service Equipment rated transfer switches with integral overcurrent protection may be installed at the point of Service Entrance without the need for separate upstream disconnect devices and their respective power interconnections.

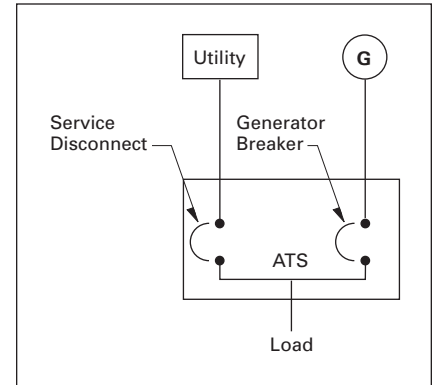
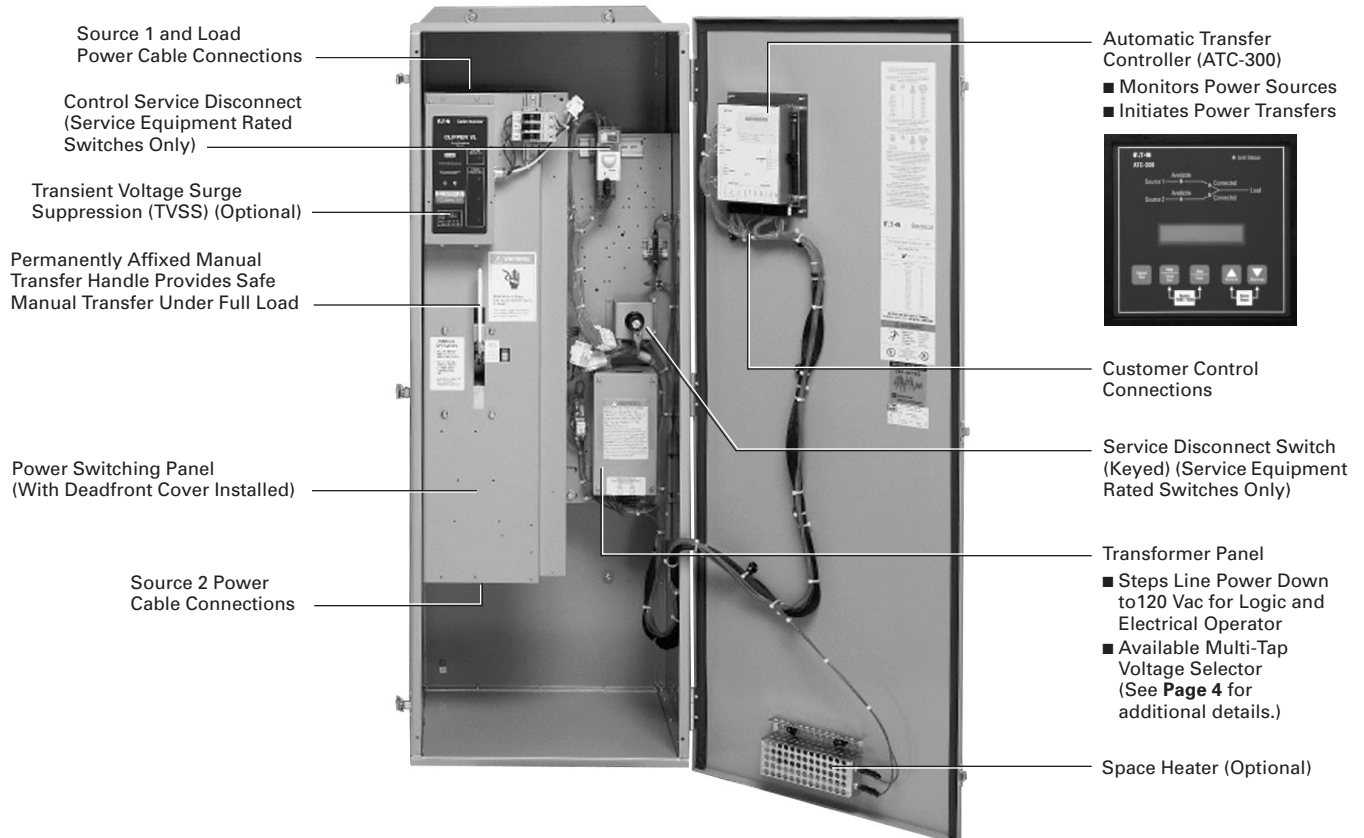


Figure 3. Service Entrance Applications

Basic Components of Automatic Transfer Switches



Basic Components of Automatic Transfer Switches

Cutler-Hammer Superior Design Transfer Switch Characteristics

Unmatched Performance and Versatility

The Cutler-Hammer family of wall-mount transfer switches offers unmatched performance, versatility and value for power switching applications. At the heart of these designs is the Cutler-Hammer Molded Case Switch, designed specifically to meet UL 1008.

Superior Main Contact Structure

All Cutler-Hammer Wall-Mount Transfer Switches meet or exceed the standards set forth in UL 1008 and UL 489. No other transfer switch manufacturer has met the rigid testing requirements of this combination of standards. Completely enclosed contacts add a measure of safety and reliability. It also ensures the integrity of the contact assemblies and minimizes the need for periodic maintenance of the contacts, reducing downtime.

Fast, Powerful and Safe Power Switching Mechanism

The power panel utilizes a uni-directional gear motor mechanism. The power panel can be operated manually under a FULL LOAD.

Transfer Switch Ratings

Table 1. Systems Coordination Information — Withstand, Closing and Interrupting Ratings ①

Standard UL 1008 3-Cycle						
ATS Ampere Rating	Any Breaker Rating			Ratings When Used with Upstream Fuse (kA)		
	240 Volts	480 Volts	600 Volts	Maximum Fuse Rating	Fuse Type ②	600 Volts
Residential/Light Commercial						
30	100	—	—	—	—	—
70	100	—	—	—	—	—
100	100	—	—	—	—	—
150	100	—	—	—	—	—
200	100	—	—	—	—	—
Horizontal and Vertical Industrial						
30	100	65	25	200	J,T	200
70	100	65	25	200	J,T	200
100	100	65	25	200	J,T	200
150	100	65	25	400	J,T	200
200	100	65	25	400	J,T	200
225	100	65	25	400	J,T	200
300	100	65	25	400	J,T	200
400	100	65	25	600	J,T	200
600	100	65 ③	25	800/1200	J,T	100/200
800	65	50 ③	25	1200/1600	L	100/200
1000	65	50 ③	25	1600	L	200

① For maximum breaker ratings in circuits when the transfer switch is evaluated as a "Motor Branch Circuit Conductor" refer to the NEC Section 430-25 for sizing.

② Class RK5 fuse with 100 kA rating.

③ 4-pole units rated 35 kA.

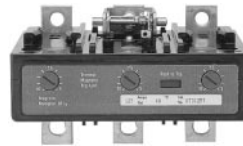
Molded Case Switch Features



Molded Case Switch

- True 4-pole switched neutral availability.
- Totally enclosed contact assembly.

Optional Integral Overcurrent Protection Capability



Optional Thermal Magnetic or Electronic Trip Units

For service entrance and other applications, trip units can be integrated into the power switching section. This eliminates the need for separate upstream protective devices, saving cost and space.

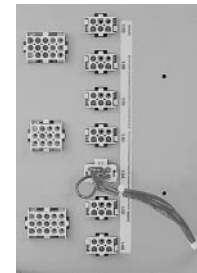
Mechanical Interlock



Triple Interlocks

Wall-mount transfer switches feature a rear-mounted, patented fail-safe mechanical interlock to prevent paralleling of sources. This is, in addition to, software interlocking and the interlocking inherently provided by the transfer mechanism.

Multi-Tap Voltage Selector



Multi-Tap Voltage Selector

The industry-exclusive Cutler-Hammer Multi-Tap System Voltage Selector allows our transfer switch to be applied on most system voltages just by proper insertion of the selector plug. Available in two configurations: Worldwide Multi-Tap with 600, 480, 415, 380, 240, 220 and 208 Vac, single- and 3-phase, 50 and 60 Hz taps. North American Multi-Tap with 600, 480, 240, 208 and 120 Vac, single- and 3-phase, 60 Hz taps.

Ease of Maintenance



Logic Disconnect Plugs




Keyed quick-disconnect plugs are provided for easy and complete isolation of the control circuitry.

Maintenance can be performed on the logic independent from the power sections and still allow the user to manually transfer power under full load conditions.

Wall-Mount Transfer Switch Logic Family

Eaton is the industry leader in transfer switch control technology and offers a full line of automatic transfer controllers. With the basic level ATC-100R, the advanced level ATC-300 and the premium level ATC-600, the Cutler-Hammer family of controllers is ready to meet the requirements of any system.

Table 2. ATC Controller Selection Chart

Description	ATC-100R	ATC-300	ATC-600
			
System Application Voltage	120/240 V, 208 V Single-phase	Up to 600 Vac	Up to 600 Vac
Voltage Specifications			
Voltage Measurements of:	Source 1 and 2	Source 1 and 2 — VAB, VBC and VCA	Source 1, 2 and Load — VAB, VBC and VCA
Voltage Measurement Range	120 – 240 Vac	0 – 790 Vac rms	0 – 790 Vac rms
Frequency Specifications			
Frequency Measurements of:	Source 2	Source 1 and 2	Source 1 and 2
Frequency Measurement Range	50 – 60 Hz	40 – 70 Hz	40 – 80 Hz
Front Panel Indication			
Mimic Diagram with LED Indication	N/A	Unit Status. Source 1 and 2 — Available and Connected (5 Total)	Automatic, Test and Program Mode. Source 1 and 2 — Available, Connected and Preferred. Load Energized (10 Total)
Main Display	N/A	LCD-Based Display	LED Display
Display Language	N/A	English, French	English
Communications Capable	N/A	N/A	PONI/INCOM™
Enclosure Compatibility	NEMA 1 and 3R	NEMA 1, 12 and 3R, UV-Resistant Faceplate	NEMA 1, 12, 3R and 4X UV-Resistant Faceplate
Operating Environmental Range	Operation -20°C to +70°C, Storage 30°C to +85°C, Humidity 0% – 95% Relative (Non-Condensing)	Operation -20°C to +70°C, Storage 30°C to +85°C, Humidity 0% – 95% Relative (Non-Condensing)	Operation -20°C to +70°C, Storage 30°C to +85°C, Humidity 0% – 95% Relative (Non-Condensing)
Programming Selections			
Time Delay Normal to Emergency	3 Seconds — Fixed	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Emergency to Normal	7 Minutes — Fixed	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Engine Cooldown	5 Minutes — Fixed	0 – 1800 Seconds	0 – 1800 Seconds
Time Delay Engine Start	10 Seconds — Fixed	0 – 120 Seconds	0 – 120 Seconds
Time Delay Neutral	N/A	0 – 120 Seconds	0 – 120 Seconds or Based on Load Voltage Decay of 2% – 30% of Nominal
Time Delay Source 2 (Emergency) Fail	N/A	0 – 6 Seconds	0 – 6 Seconds
Time Delay Voltage Unbalance	N/A	10 – 30 Seconds	N/A
Voltage Unbalance	N/A	5% – 20% (DO) Dropout -2% to 3% (PU)	N/A
Phase Reversal	N/A	Disabled, ABC, CBA	N/A
In Phase	N/A	Enabled or Disabled	Enabled or Disabled
Load Sequencing	N/A	N/A	Up to 10 Devices (via Sub-Network)
Pre-Transfer Signal	N/A	1 – 120 Seconds (Form "C" Contact)	0 – 120 Seconds (Up to 10 Devices via Sub-Network)
Plant Exerciser	Selectable Day, 7 Day Interval, 15 Minutes Run Time, No Load	Selectable — Disabled, Daily or 7, 14, 28 Day Intervals, 0 – 600 Minutes, Load or No Load	Selectable — Disabled or 7 Day Interval, 0 – 600 Minutes, Load or No Load
Preferred Source Selection	N/A	N/A	Source 1 or 2 or None
Commitment to Transfer in TDNE	N/A	N/A	Enabled or Disabled
Re-Transfer Mode	N/A	N/A	Automatic or Manual
Auto Daylight Savings Time Adjustment	N/A	Enabled or Disabled	—
System Selection	Utility/Generator or Dual Utility	Utility/Generator or Dual Utility	Utility/Generator or Dual Utility or Dual Generator
Additional Information	PA01600002E	TBD	TD.15A.05.T.E

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

Switch and Feature Selection

Cutler-Hammer Transfer Switch Equipment Catalog and Feature Numbering Systems permit at-a-glance specification and complete ordering information for custom transfer switch configurations built to meet your application requirements.

The Feature Numbering System allows the specifier to easily identify the required standard and optional features. As shown in **Table 3**, each feature is assigned a specific “**Feature Number**.” A brief description of the feature has been provided. For a detailed description of Cutler-Hammer Transfer Switch Features, refer to

Technical Data TD01602005E “Standard and Optional Features of Cutler-Hammer Transfer Switches.” For each type of transfer switch, the feature status is shown as “S” Standard or “O” Optional. If neither “S” nor “O” is indicated, the feature is not available for that particular switch.

To order a transfer switch, review **Table 3** to select the transfer switch with the standard feature group and available optional features that meet the application requirements. Then use the Transfer Switch Equipment Catalog Numbering System shown in **Table 4**, to construct the 15-digit

catalog number. The 15-digit catalog number combined with the desired Feature Number(s) provides the complete information necessary to order or specify a Cutler-Hammer Transfer Switch.

Example: To order or specify: Automatic Transfer Switch, Feature Group FG323, ATC-300 Transfer Controller, NEMA 3R, 100 watt space heater (Feature 41A), 600 ampere, 480Y/277 Vac, 60 Hz, 3-phase, 4-wire system, solid neutral, UL 1008 listed.

Specify Number: ATV3MDA30600XRU – FG323, 41A

Table 3. Wall-Mount Transfer Switch Family — Standard and Optional Features

Feature Number	Description	RTHM	ATH3/ATV3	ATHI/ATVI	NTHE/NTVE	MTHX/MTVX
		Automatic Residential Transfer Switch with ATC-100R Controller	Automatic Transfer Switch with ATC-300 Controller	Automatic Transfer Switch with ATC-600 Controller	Non-Automatic Transfer Switch	Manual Transfer Switch
FG323	Includes: 1, 2, 3, 4, 5B/5J, 6B, 7, 8C, 8D, 12C, 12D, 12G, 12H, 15E, 15F, 21A, 23K, 26A, 26D, 29A, 32A, 35A, 42		S			
FG613	Includes: 1, 2, 3, 4, 5B/5J, 6B, 12C, 12D, 12G, 12H, 14C, 14D, 42			S		
1	Time Delay Source 1 (Normal) to Source 2 (Emergency) (TDNE) Fixed 3 Seconds Adjustable 0 – 1800 Seconds	S	S	S		
2	Time Delay Engine Start (TDES) Fixed 10 Seconds Adjustable 0 – 120 Seconds	S	S	S		
3	Time Delay Source 2 (Emergency) to Source 1 (Normal) (TDEN) Fixed 7 Minutes Adjustable 0 – 1800 Seconds	S	S	S		
4	Time Delay Engine Cooldown (TDEC) Fixed 5 Minutes Adjustable 0 – 1800 Seconds	S	S	S		
5	Source 2 (Emergency) Sensing	S	S	S		
5B	Single-Phase Undervoltage/Underfrequency		O	O		
5C	Single-Phase Overvoltage/Overfrequency		O	O		
5D	Single-Phase Undervoltage		O	O		
5E	Single-Phase Overvoltage		O	O		
5F	3-Phase Undervoltage		O	O		
5G	3-Phase Overvoltage		O	O		
5H	Phase Reversal		O	O		
5J	3-Phase Undervoltage/Underfrequency		O	S		
5K	3-Phase Overvoltage/Overfrequency		O	O		
5L	3-Phase Voltage Unbalance/Loss		O			
6	System or Engine Test		S	S		
6B	System Test Pushbutton			O		
6D	Maintained 2-Position Test Switch			O		
6H	Maintained 4-Position Test Switch			O		
7	Time Delay Source 2 (Emergency) Fail (TDEF) Adjustable 0 – 6 Seconds		S	S		
8	Bypass Time Delays (Pushbutton)		S	O		
8C	Bypass TDEN		S	O		
8D	Bypass TDNE					
9	Maintenance Selector Switch					
9B	Electrical Operator Isolator Switch			O		
10	Preferred Source Selector Switch					
10B	Utility to Utility or Utility to Generator			O		
10D	Generator to Generator			O		

Legend: “S” = Standard
“O” = Optional

Table 3. Wall-Mount Transfer Switch Family — Standard and Optional Features (Continued)

Feature Number	Description	RTHM	ATH3/ATV3	ATHI/ATVI	NTHE/NTVE	MTHX/MTVX
		Automatic Residential Transfer Switch with ATC-100R Controller	Automatic Transfer Switch with ATC-300 Controller	Automatic Transfer Switch with ATC-600 Controller	Non-Automatic Transfer Switch	Manual Transfer Switch
12	Pilot Lights					
12C	Source 1 (Normal) Connected		S	S	O	
12D	Source 2 (Emergency) Connected		S	S	O	
12G	Source 1 (Normal) Available		S	S	O	
12H	Source 2 (Emergency) Available		S	S	O	
12L	Source 1 (Normal) Tripped (Requires Feature 16)		O	O	O	
12M	Source 2 (Emergency) Tripped (Requires Feature 16)		O	O	O	
14	Auxiliary Relay Contacts					
14C	Source 1 (Normal) Available 4NO & 4NC			S		
14D	Source 2 (Emergency) Available 4NO & 4NC			S		
14E	Source 1 (Normal) Available 1NO & 1NC					
14F	Source 2 (Emergency) Available 1NO & 1NC					
14G	Source 1 (Normal) Present 2NO & 2NC		O			
14H	Source 2 (Emergency) Present 2NO & 2NC		O			
15	Switch Position Indication Contacts					
15E	Source 1 (Normal) Position 1NO & 1NC		S			
15F	Source 2 (Emergency) Position 1NO & 1NC		S			
16	Integral Overcurrent Protection					
16N	Source 1 (Normal) Switch Only		O	O	O	O
16E	Source 2 (Emergency) Switch Only		O	O	O	O
16B	Source 1 (Normal) and Source 2 (Emergency) Switches		O	O	O	O
18	Metering — Connection Point					
18O	IQ Analyzer — Source 1 (Normal)		O	O	O	
18P	IQ Analyzer — Source 2 (Emergency)		O	O	O	
18Q	IQ Analyzer Switch Selectable (Source 1) & (Source 2)		O	O	O	
18V	IQ Analyzer — Load Side		O	O	O	
18R	IQ DP-4000 — Source 1 (Normal)		O	O	O	
18S	IQ DP-4000 — Source 2 (Emergency)		O	O	O	
18T	IQ DP-4000 Switch Selectable — (Source 1) & (Source 2)		O	O	O	
18U	IQ DP-4000 — Load Side		O	O	O	
18W	Ammeter — Load Side (Digital, All Phases Metered)		O	O	O	
21A	Non-Standard Terminals		S	O	O	O
23	Automatic Plant Exerciser					
23C	Automatic No Load Exerciser (7 Day)	S				
23J	Selectable – Disabled or 7 Day Interval, 0 – 600 Minutes, Load/No Load, with Fail-Safe			O		
23K	Selectable – Disabled, 1, 7, 14, 28 Day Interval, 0 – 600 Minutes, Load/No Load, with Fail-Safe		S			
24	Self-Contained Battery Charger					
24C	120 Vac Input, 12 Vdc Output		O	O		
24D	120 Vac Input, 24 Vdc Output		O	O		
26	Source 1 (Normal) Sensing			S		
26A	All Phase Undervoltage	S	S			
26C	All Phase Overvoltage		O	O		
26D	Go to Source 2 (Emergency) Input		S	O		
26E	Underfrequency Protection		O	O		
26F	Overfrequency Protection		O	O		
26H	Phase Reversal Protection		O	O		
26L	3-Phase Voltage Unbalance/Loss		O	O		
29	Alternate Transfer Modes of Operation					
29A	Automatic Transfer and Retransfer	S	S	S		
29G	Automatic or Non-Automatic Operation Selector Switch ①		O	O		
29J	Automatic Transfer Operation with Selectable (via Programming) Automatic or Non-Automatic Retransfer Operation with Fail-Safe			O		
32	Programmed Transition Transfer Operation Modes					
32A	Time Delay Neutral		S	O		
32B	Load Voltage Decay			O		
32E	Time Delay Neutral (3 – 60 Seconds)			O	S	
33	Remote Shunt Trip					
33A	Source 1 120 Vac Shunt Trip			O		
33B	Source 2 120 Vac Shunt Trip			O		

① Switch must be labeled as non-automatic.

Legend: "S" = Standard
"O" = Optional

**Automatic, Non-Automatic
and Manual Wall-Mount
Transfer Switches —
30 – 1000 Amperes**



Cutler-Hammer

Table 3. Wall-Mount Transfer Switch Family — Standard and Optional Features (Continued)

Feature Number	Description	RTHM	ATH3/ATV3	ATHI/ATVI	NTHE/NTVE	MTHX/MTVX
		Automatic Residential Transfer Switch with ATC-100R Controller	Automatic Transfer Switch with ATC-300 Controller	Automatic Transfer Switch with ATC-600 Controller	Non-Automatic Transfer Switch	Manual Transfer Switch
34	Logic Extender Cable					
34A	48 Inches (1219 mm)			O	O	
34B	72 Inches (1829 mm)		O	O		
34C	96 Inches (2438 mm)			O	O	
34D	120 Inches (3048 mm)			O		
34E	144 Inches (3658 mm)			O	O	
35A	Pre-Transfer Signal Contacts 1NO/1NC		S	O		
36	Load Shed from Source 2 (Emergency)			O		
37	Rated as Suitable for Use as Service Equipment ^① (Requires 16B or 16N)					
37A	Without Ground Fault Protection 30 – 1000 Amperes		O	O	O	
37B	With Ground Fault Protection 30 – 1000 Amperes		O	O	O	
38	Stainless Steel Device Covers					
38A	SS Cover for Device Plate or Service Equipment Disconnect			O		
38B	SS Cover for Controller		O	O		
39	Distribution Panel (For 240/120 V, AT3 Switches Only)					
39A	225 Amperes with (2) 200 Ampere Feeders		O			
39B	300 Amperes with (3) 200 Ampere Feeders		O			
39C	400 Amperes with (4) 200 Ampere Feeders		O			
41	Space Heater with Thermostat					
41A	100 Watts		O	O	O	
41B	200 Watts			O		
41C	400 Watts			O		
42	Seismic Zone 4 Certified		S	S	S	S
45	Load Sequencing Contacts					
45A	Load Sequencing Contacts (1)			O		
45B	Load Sequencing Contacts (2)			O		
45C	Load Sequencing Contacts (3)			O		
45D	Load Sequencing Contacts (4)			O		
45E	Load Sequencing Contacts (5)			O		
45F	Load Sequencing Contacts (6)			O		
45G	Load Sequencing Contacts (7)			O		
45H	Load Sequencing Contacts (8)			O		
45I	Load Sequencing Contacts (9)			O		
45J	Load Sequencing Contacts (10)			O		
48	Communications					
48A	IPONI Module			O		
48B	IPONI Module and PMCOM5			O		
48C	IPONI Module, PMCOM5 and Null Modem Cable			O		
48D	EPONI Module (10Base-T Only)			O		
48E	EPONI Module (10Base-T and 10Base-FL)			O		
48F	MPONI Module (Modbus®)			O		
51	Transient Voltage Surge Protection (Listed Rating is per Phase)					
51D1	50 kA — Connected to Source 1		O	O	O	O
51D2	50 kA — Connected to Source 2		O	O	O	O
51D3	50 kA — Connected to Load		O	O	O	O
51E1	80 kA — Connected to Source 1		O	O	O	O
51E2	80 kA — Connected to Source 2		O	O	O	O
51E3	80 kA — Connected to Load		O	O	O	O
51F1	100 kA — Connected to Source 1		O	O	O	O
51F2	100 kA — Connected to Source 2		O	O	O	O
51F3	100 kA — Connected to Load		O	O	O	O
51G1	50 kA — Connected to Source 1 (240/120 Vac Systems Only)		O	O	O	O
51G2	50 kA — Connected to Source 2 (240/120 Vac Systems Only)		O	O	O	O
51G3	50 kA — Connected to Load (240/120 Vac Systems Only)		O	O	O	O
51H1	75 kA — Connected to Source 1 (240/120 Vac Systems Only)		O	O	O	O
51H2	75 kA — Connected to Source 2 (240/120 Vac Systems Only)		O	O	O	O
51H3	75 kA — Connected to Load (240/120 Vac Systems Only)		O	O	O	O
51J4	Telephone/Modem/DSL (4 Lines Total)		O	O	O	O
51K4	Cable TV/Satellite Cable/Cable Modem (2 Lines Total)		O	O	O	O
51M4A	12 Vdc Generator Start Circuit Protection		O	O	O	O
51M4B	24 Vdc Generator Start Circuit Protection		O	O	O	O

^① Ground Fault protection is required for Service Disconnects rated 1000 amperes or more if the electrical service is a solidly grounded wye system of more than 150 volts to ground but not exceeding 600 volts phase to phase.

Legend: "S" = Standard
"O" = Optional

Transfer Switch Product Family

Cutler-Hammer Transfer Switch Equipment Catalog and Feature Numbering Systems permit at-a-glance specification and complete ordering information for custom transfer switch configurations built to meet your application requirements.





The Catalog Numbering System allows the specifier to generate a 15-digit catalog number that represents the following information:

- Type
- Orientation
- Logic
- Frame
- Switch
- Poles
- Ampere Rating
- Voltage
- Enclosure Type
- Listing

The Feature Numbering System allows the specifier to easily identify the required standard and optional features.

To order a transfer switch, review **Table 3** to select the transfer switch with the standard Feature Group and available optional features that meet the application requirements. Then use **Table 4** to construct the 15-digit catalog number. The 15-digit catalog number combined with the desired Feature Number(s) provides the complete information necessary to order or specify a Cutler-Hammer Transfer Switch.

Table 4. Transfer Switch Product Family

Description	Transfer Switch Equipment Catalog Numbering System									
	Type	Orientation	Logic	Frame ①	Switch	Poles	Amperes	Voltage	Enclosure	Listing
 Residential (208 – 240 Vac 1-Phase) (30 – 200 A)	RT = Residential	H = Horizontal (FD)	M = Microprocessor (ATC-100R)	Molded Case Device FD = 30 – 225 A	Fixed Mount A = FM, N(MCS) E(MCS)	2 = 2-Poles	0030 = 30 A 0070 = 70 A 0100 = 100 A 0150 = 150 A 0200 = 200 A	B = 208 V 60 Hz Single-Phase W = 240 V 60 Hz Single-Phase	S = NEMA 1 R = NEMA 3R	U = UL Listed/ CSA Certified R = UL Recognized X = No Listing
 Manual (600 Vac) (30 – 1000 A)	MT = Manual	H = Horizontal (FD) V = Vertical (KD, LD, MD, NB)	X = No Logic	Molded Case Device FD = 30 – 150 A KD = 150 – 300 A LD = 400 A MD = 600 A NB = 800 – 1000 A	Fixed Mount A = FM, N(MCS) E(MCS) B = FM, N(MCB) E(MCB) C = FM, N(MCB) E(MCS) D = FM, N(MCS) E(MCB)	2 = 2-Poles 3 = 3-Poles 4 = 4-Poles	0030 = 30 A 0070 = 70 A 0100 = 100 A 0150 = 150 A 0225 = 225 A 0300 = 300 A 0400 = 400 A 0600 = 600 A 0800 = 800 A 1000 = 1000 A	E = 600 V 60 Hz	K = Open S = NEMA 1 J = NEMA 12 R = NEMA 3R L = NEMA 4 D = NEMA 4X	U = UL Listed/ CSA Certified R = UL Recognized X = No Listing
 Non-Automatic (600 Vac) (30 – 1000 A)	NT = Non-Automatic	H = Horizontal (FD) V = Vertical (KD, LD, MD, NB)	S = Solid State	Molded Case Device FD = 30 – 150 A KD = 150 – 300 A LD = 400 A MD = 600 A NB = 800 – 1000 A	Fixed Mount A = FM, N(MCS) E(MCS) B = FM, N(MCB) E(MCB) C = FM, N(MCB) E(MCS) D = FM, N(MCS) E(MCB)	2 = 2-Poles 3 = 3-Poles 4 = 4-Poles	0030 = 30 A 0070 = 70 A 0100 = 100 A 0150 = 150 A 0225 = 225 A 0300 = 300 A 0400 = 400 A 0600 = 600 A 0800 = 800 A 1000 = 1000 A	A = 120 V 60 Hz B = 208 V 60 Hz E = 600 V 60 Hz G = 220 V 50/60 Hz H = 380 V 50 Hz K = 600 V 50 Hz M = 230 V 50 Hz N = 401 V 50 Hz O = 415 V 50 Hz W = 240 V 60 Hz X = 480 V 60 Hz Z = 365 V 50 Hz	K = Open S = NEMA 1 J = NEMA 12 R = NEMA 3R L = NEMA 4 D = NEMA 4X	U = UL Listed/ CSA Certified R = UL Recognized X = No Listing
 Automatic (Wall Mount) (600 Vac) (30 – 1000 A)	AT = Automatic	H = Horizontal (FD) V = Vertical (KD, LD, MD, NB)	1 = ATC-600 3 = ATC-300	Molded Case Device FD = 30 – 225 A KD = 225 – 300 A LD = 400 – 600 A MD = 600 – 800 A NB = 800 – 1000 A Note: FD = 200 – 225 A, LD = 600 A, MD = 800 A, on 240/120 V and 208 V applications only.	Fixed Mount A = FM, N(MCS) E(MCS) B = FM, N(MCB) E(MCB) C = FM, N(MCB) E(MCS) D = FM, N(MCS) E(MCB)	2 = 2-Poles 3 = 3-Poles 4 = 4-Poles	0030 = 30 A 0070 = 70 A 0100 = 100 A 0150 = 150 A 0200 = 200 A 0225 = 225 A 0300 = 300 A 0400 = 400 A 0600 = 600 A 0800 = 800 A 1000 = 1000 A	A = 120 V 60 Hz B = 208 V 60 Hz E = 600 V 60 Hz G = 220 V 50/60 Hz H = 380 V 50 Hz K = 600 V 50 Hz M = 230 V 50 Hz N = 401 V 50 Hz O = 415 V 50 Hz W = 240 V 60 Hz X = 480 V 60 Hz Z = 365 V 50 Hz	K = Open S = NEMA 1 J = NEMA 12 R = NEMA 3R L = NEMA 4 D = NEMA 4X	U = UL Listed/ CSA Certified R = UL Recognized X = No Listing
Catalog Number Position	A T Position 1-2	V Position 3	4 Position 4	M D Position 5-6	A Position 7	3 Position 8	0 6 0 0 Position 9-12	X Position 13	R Position 14	U Position 15

① The HFD, HKD, HLD, HMDL and HNB frames are supplied as standard.

Legend: FM = Fixed Mount
 N = Normal or Source 1
 E = Emergency or Source 2
 MCB = Molded Case Breaker
 MCS = Molded Case Switch

Example: To order or specify: Automatic Transfer Switch, Feature Group FG323, ATC-300 Transfer Controller, NEMA 3R, 100 watt space heater, 600 ampere, 480Y/277 Vac, 60 Hz, 3-phase, 4-wire system, solid neutral, UL 1008 listed.

Specify Number: ATV3MDA30600XRU – FG323, 41A

Technical Data

Residential ATS

Table 5. Dimensions and Weights — Refer to Figure 4

Ampere Rating	Dimensions in Inches (mm)						Lbs. (kg)
	A	B	C	D	E	F	
30 – 100	20.00 (508.0)	18.22 (462.8)	8.00 (203.2)	16.00 (406.4)	11.00 (279.4)	4.33 (110.0)	45 (21)
150 – 225	20.00 (508.0)	28.22 (716.8)	8.00 (203.2)	16.00 (406.4)	15.00 (381.0)	5.21 (132.3)	65 (30)

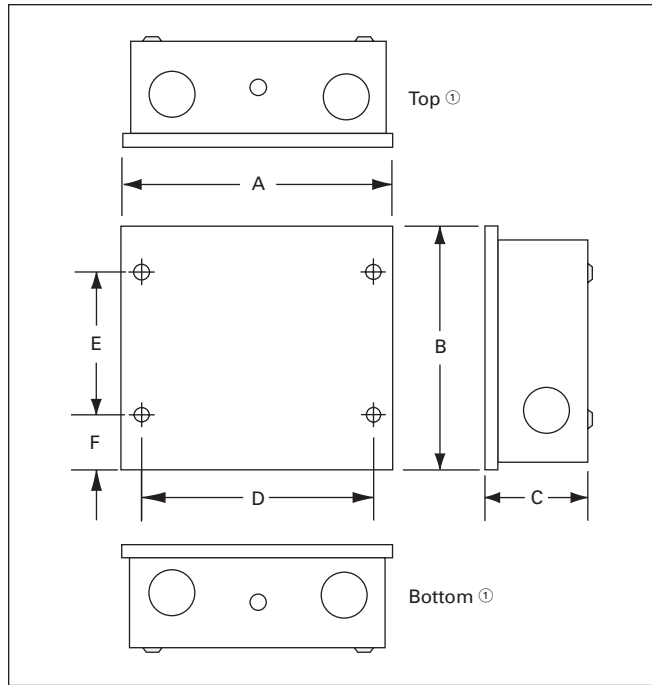


Figure 4. Dimensional Drawing

Ⓢ Convenient knockouts provided on top, bottom and sides of enclosure.

Manual Transfer Switch

Table 6. 30 – 150 Amperes Type MTHXFD Manual — Dimensions and Weights — Refer to Figure 5

Amps	Dimensions in Inches (mm)								Lbs. (kg)
	A	B	C	D	E	F	G	H	
30 – 150	22.88 (581.2)	13.13 (333.5)	22.74 (577.6)	22.62 (574.5)	24.50 (622.3)	9.78 (248.4)	10.28 (261.1)	32.31 (820.7)	143 (65)

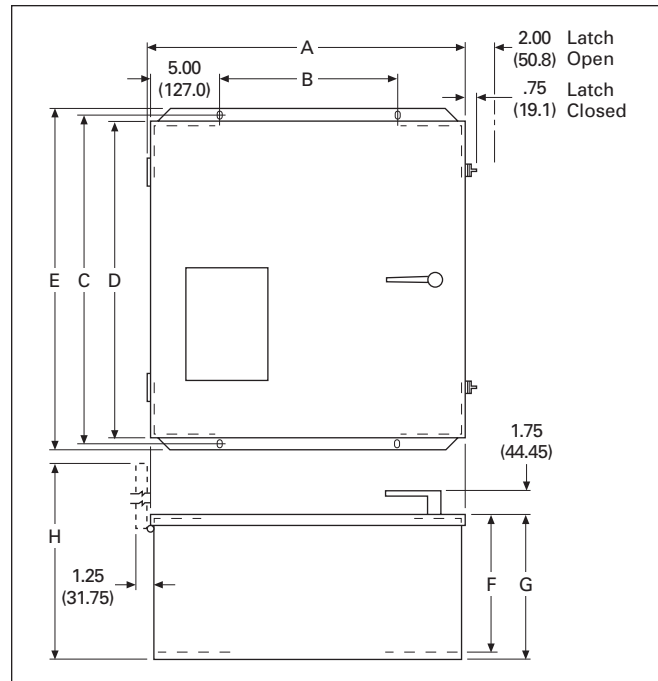


Figure 5. Manual Switches — Dimensions in Inches (mm)

Table 7. Wall-Mount Transfer Switch Standard Terminal Data for Power Cable Connections

Switch Rating (Amperes)	Breaker Frame	Line Side (Normal and Standby Source)	Load Connection	Neutral Connection
30 – 100	HFD	(1) #14 – 1/0	(1) #14 – 1/0	(3) #14 – 1/0
150 – 225	HFD	(1) #6 – 300	(1) #6 – 300	(3) #4 – 300
225 – 300	HKD	(1) #3 – 350	(1) #6 – 350	(3) #4 – 350
400	HLD	(1) 4/0 – 600	(2) #1 – 500	(6) 250 – 350
600	HLD	(1) 3/0 – 350	(2) #1 – 500	(6) 250 – 350
600 (4-Pole)	HMDL	(2) #1 – 500	(2) #1 – 500	(12) 4/0 – 500
600	NB	(3) 3/0 – 400	(3) 3/0 – 400	(3) 3/0 – 400
800	HMDL	(3) 3/0 – 400	(3) 3/0 – 400	(12) 4/0 – 500
800	HNB	(4) 4/0 – 500	(4) 4/0 – 500	(12) 4/0 – 500
1000	HNB	(4) 4/0 – 500	(4) 4/0 – 500	(12) 4/0 – 500

Note: All terminals suitable for copper or aluminum conductors.

Note: For alternate terminal sizes, contact Eaton.

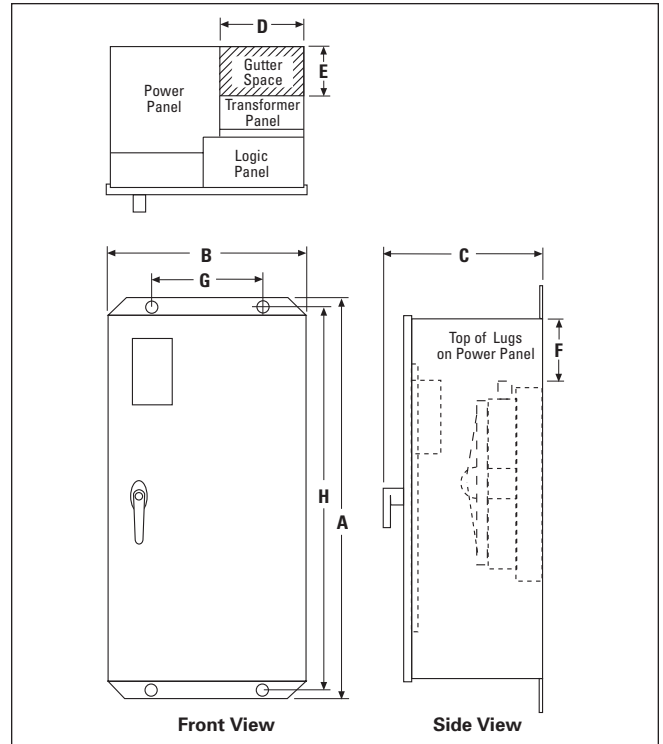
**Table 8. 30 – 1000 Ampere Types ATH3, ATV3, ATH1, ATV1, MTVX, NTHE, NTVE —
Dimensions in Inches (mm) and Approximate Shipping Weights — Refer to Figure 6**

Switch Type	Enclosure			Gutter Space			Bolt Pattern		Standard Terminals ①			Lbs. (kg)
	A	B	C	D	E	F	G	H	Line	Load	Neutral	
	Height	Width	Depth	Width	Depth	Bending	Horizontal	Vertical				
HFD (30 – 100 A) ②	35.61 (904.5)	20.06 (509.5)	13.34 (338.8)	8.00 (203.2)	4.00 (101.6)	9.62 (244.3)	10.25 (260.4)	34.73 (882.1)	(1) #14 – 1/0	(1) #14 – 1/0	(3) #14 – 1/0	150 (68)
HFD (150 – 225 A) ②	35.61 (904.5)	20.06 (509.5)	13.34 (338.8)	8.00 (203.2)	4.00 (101.6)	9.62 (244.3)	10.25 (260.4)	34.73 (882.1)	(1) #6 – 300	(1) #6 – 300	(3) #4 – 300	150 (68)
HFD (30 – 100 A) ③	47.74 (1213.0)	20.81 (528.6)	17.22 (437.0)	8.00 (203.2)	4.00 (101.6)	6.22 (157.9)	10.75 (273.0)	45.24 (1049.1)	(1) #14 – 1/0	(1) #14 – 1/0	(3) #14 – 1/0	227 (103)
HFD (150 A) ③	47.74 (1213.0)	20.81 (528.6)	17.22 (437.0)	8.00 (203.2)	4.00 (101.6)	6.22 (157.9)	10.75 (273.0)	45.24 (1049.1)	(1) #6 – 300	(1) #6 – 300	(3) #4 – 300	227 (103)
HKD (150 – 225 A)	48.00 (1219.2)	20.81 (528.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	10.59 (269.0)	11.00 (279.4)	45.50 (1155.7)	(1) #3 – 350	(1) #6 – 350	(3) #4 – 350	305 (138)
HKD (300 A)	56.00 (1422.4)	20.81 (528.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	13.59 (345.2)	11.00 (279.4)	53.50 (1358.9)	(1) #3 – 350	(1) #6 – 350	(3) #4 – 350	395 (179)
HLD (400 A)	64.00 (1625.6)	25.81 (655.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	10.54 (267.7)	16.00 (406.4)	61.48 (1561.6)	(1) 4/0 – 600	(2) #1 – 500	(6) 250 – 350	395 (179)
HLD (400 A) ④	53.00 (1346.2)	25.81 (655.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	11.85 (301.0)	16.00 (406.4)	50.48 (1282.2)	(2) 3/0 – 350	(2) #1 – 500	(6) 250 – 350	395 (179)
HLD (600 A) ②	64.00 (1625.6)	25.81 (655.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	10.54 (267.7)	16.00 (406.4)	61.48 (1561.6)	(2) 3/0 – 350	(2) #1 – 500	(12) 4/0 – 500	395 (179)
HLD (600 A) ②④	64.00 (1625.6)	25.81 (655.6)	18.40 (467.4)	8.00 (203.2)	4.00 (101.6)	10.54 (267.7)	16.00 (406.4)	61.48 (1561.6)	(2) 400 – 500	(2) #1 – 500	(12) 4/0 – 500	395 (179)
HMDL (600 A)	76.74 (1949.2)	25.81 (655.6)	19.50 (495.3)	8.00 (203.2)	4.00 (101.6)	17.73 (450.3)	16.00 (406.4)	75.15 (1908.8)	(2) #1 – 500	(2) #1 – 500	(12) 4/0 – 500	510 (232)
HMDL (800 A) ②	76.74 (1949.2)	25.81 (655.6)	19.50 (495.3)	8.00 (203.2)	4.00 (101.6)	17.73 (450.3)	16.00 (406.4)	75.15 (1908.8)	(3) 3/0 – 400	(3) 3/0 – 400	(12) 4/0 – 500	510 (232)
NB (800 – 1000 A)	76.74 (1949.2)	25.81 (655.6)	19.50 (495.3)	8.00 (203.2)	4.00 (101.6)	17.58 (446.5)	16.00 (406.4)	75.15 (1908.8)	(4) 4/0 – 500	(4) 4/0 – 500	(12) 4/0 – 500	540 (245)

- ① Suitable for Cu or Al wire. Consult the factory for other available terminal sizes.
- ② ATH3 or ATV3 for 240/120 volt, single-phase, 3-wire or 208 volt, 3-phase, 4-wire systems only.
- ③ All ATH1, NTHE and ATV3 with multi-tap voltage selection panel.
- ④ Alternate line terminals.

Table 9. Power Panel and Transformer Panel

Power Panel Type	Dimensions in Inches (mm)		
	Height	Width	Depth
Power Panel			
HFD	11.00 (279.4)	17.00 (431.8)	6.81 (173.0)
HKD	24.50 (622.3)	11.88 (301.8)	17.50 (444.5)
HLD	26.00 (660.4)	16.88 (428.8)	17.50 (444.5)
HMDL	36.25 (920.8)	16.88 (428.8)	17.50 (444.5)
NB	36.25 (920.8)	16.88 (428.8)	19.00 (482.6)
Transformer Panel			
HFD	22.00 (558.8)	16.50 (419.1)	6.50 (165.1)
HKD, HLD, HMDL and NB	28.63 (727.2)	8.25 (209.6)	5.50 (139.7)



*Dimensions are approximate in inches (mm).
Should not be used for construction purposes.*

Figure 6. Automatic, Non-Automatic and Manual — Refer to Table 8

**Automatic, Non-Automatic
and Manual Wall-Mount
Transfer Switches —
30 – 1000 Amperes**

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