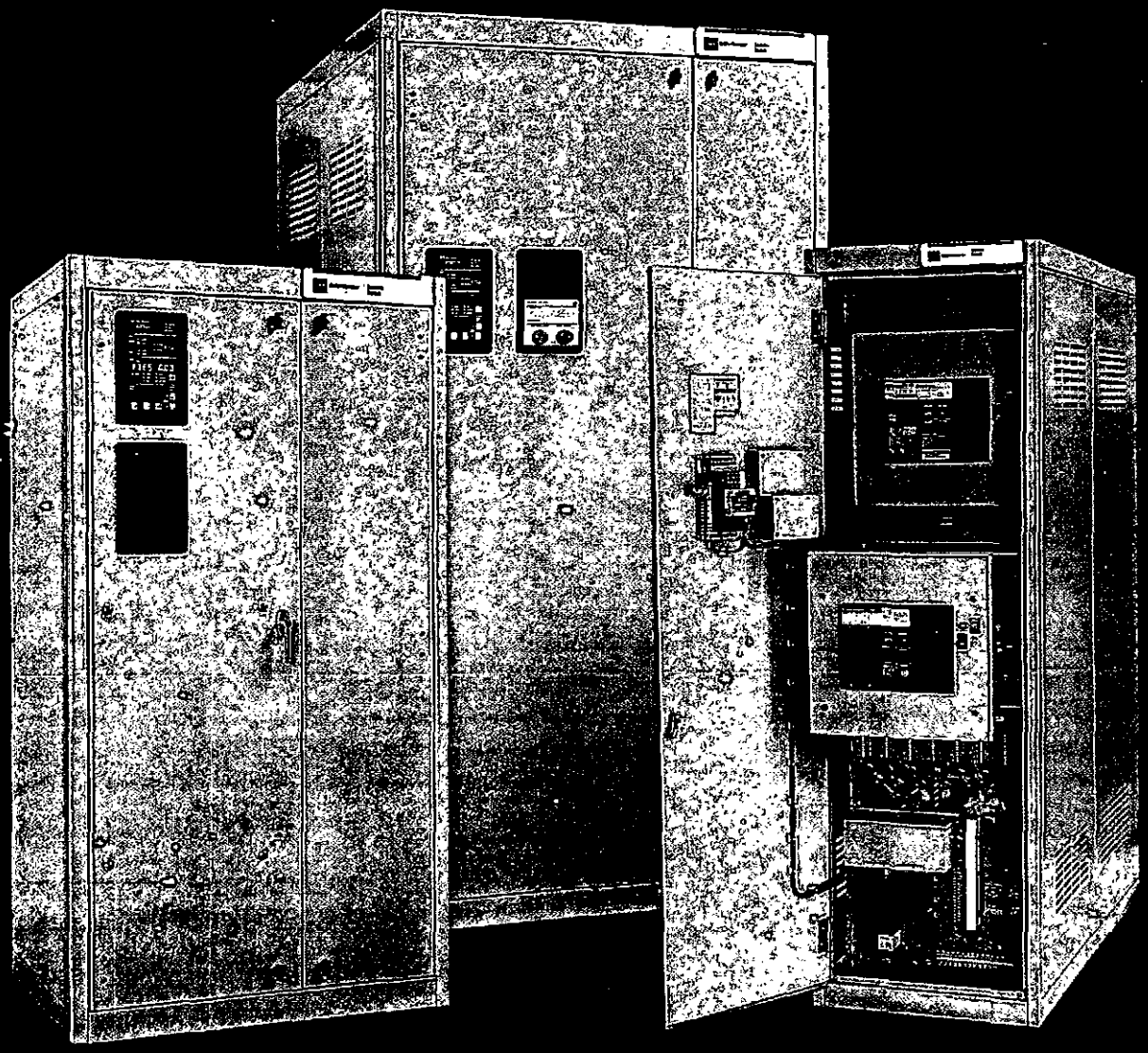
AUTOMATIC, NON-AUTOMATIC AND MANUAL TRANSFER SWITCHES FREE STANDING 600-4000 AMPERES



Cutler-Hammer

EATON

Introduction

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SPB TRANSFER SWITCH FAMILY

- Mini-SPB Fixed Mount 600-1200A
- SPB Fixed Mount 800-4000A
- SPB Drawout 800-4000A

The Cutler-Hammer family of SPB Transfer Switches offers the utmost in flexibility, reliability, and value. These switches must exceed many national and international standards. They are designed and built in accordance with the following:

UL 1008	*Standard for Safety for Automatic Transfer Switches*
UL 489	*Standard for Circuit Breakers and Molded Case Switches*
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	*Uniform Building Code for Seismic Zone 4*
ISO 9000	*International Organization for Standardization*

Cutler-Hammer SPB Transfer Switches are designed for a variety of standby power applications for critical loads. They monitor both normal and standby power sources. In the event of a primary power source interruption, these switches will automatically transfer the load circuits to the standby power source. Once primary power has been restored, the process is automatically reversed.

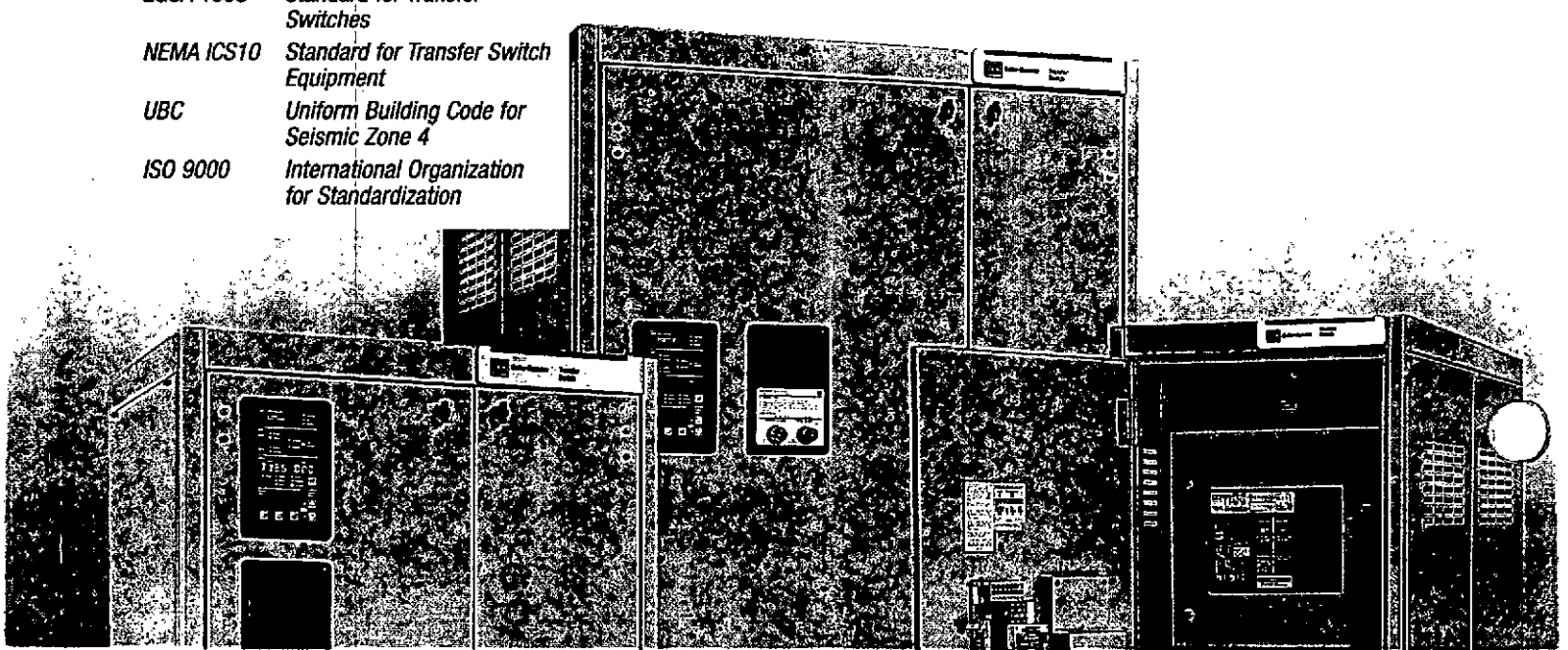
The SPB family of transfer switches cover applications ranging from 600 to 4000A through 600VAC, in Automatic, Manual or Non-Automatic configurations, open or closed transition, standard or service entrance. They are designed for applications where total system coordination must be accomplished while achieving a high 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.

Cutler-Hammer SPB Transfer Switches meet or exceed all industry standards for endurance, reliability and performance. They are listed under Underwriters Laboratories UL 1008 Standard for Transfer Switch Equipment. With certain options, they also comply with emergency and standby system requirements as defined in NFPA 99 for health care facilities.

Design Highlights

- UL 1008 Listed
- Free Standing
- SPB Insulated Case Switches
- High Withstand Ratings
- Full 60 Cycle Short Time Withstand Capability
- Safe Manual Transfer Under Load
- IQ Transfer Logic (Automatic)
- Multi-Tap Voltage Selection Plug
- Integral Service Entrance Capability
- Integral Overcurrent Protection Capability
- Drawout Capability
- Durable Powder-Coated Steel Enclosures
- UBC Zone 4 Seismic Qualified
- American Bureau of Shipping Qualified
- ISO 9001 Designed
- ISO 9002 Manufactured



Typical Applications

UTILITY - GENERATOR

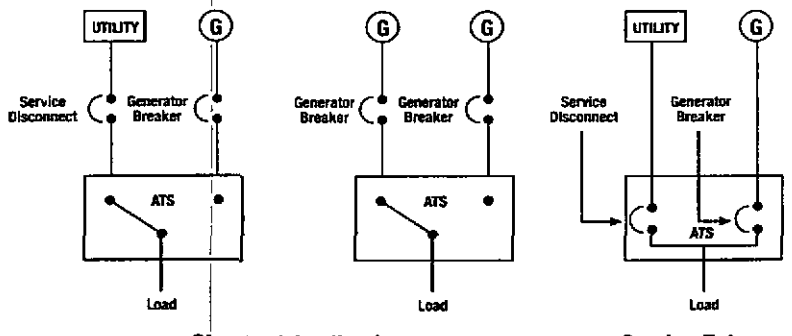
Transfer switches are traditionally applied between a utility and a generator set for emergency and stand-by power systems.

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 between the two.

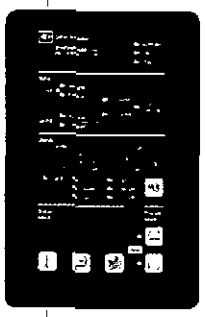
SERVICE ENTRANCE EQUIPMENT

Often, it is desirable to apply the transfer switch as a service equipment device thereby eliminating the need for separate service disconnects and overcurrent protective devices. This switch is particularly adaptable to wastewater and water treatment plants, pumping stations, industrial plants, telecommunications facilities and other installations where all the loads are critical in nature and need to be backed up by an alternate power source. See Publication PA.15A.03.S.E for more information.



Standard Applications | **Service Entrance Application**

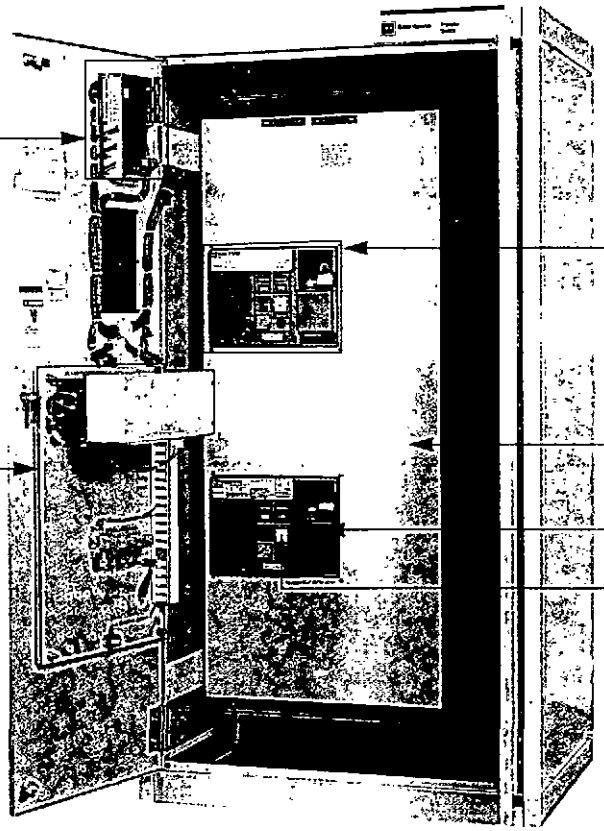
Basic Components Of SPB Automatic Transfer Switches



Indicating Lights

Logic (IQ Transfer Shown)

- Monitors Source Condition
- Initiates Power Transfers



Power Panel

- Performs power transfer between Normal and Emergency Sources utilizing SPB Insulated Case Switches or Circuit Breakers

Transformer Panel

- Steps line power down to 120Vac for logic and electrical operator control power
- Multi-Tap Voltage Selector for application on a variety of system voltages
- Engine Start Contacts

Dead Front Cover

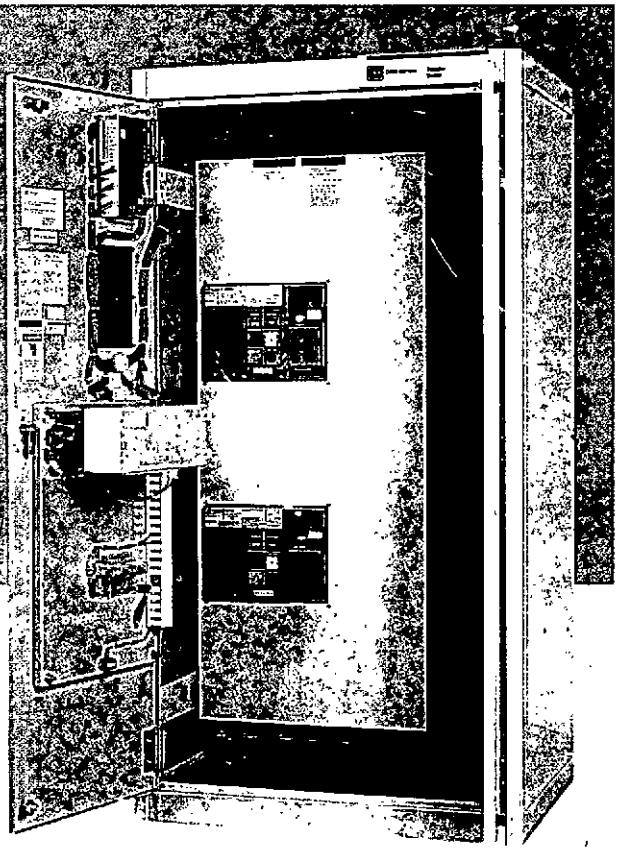
Manual Charging Handle

Electrical Operator Push Button

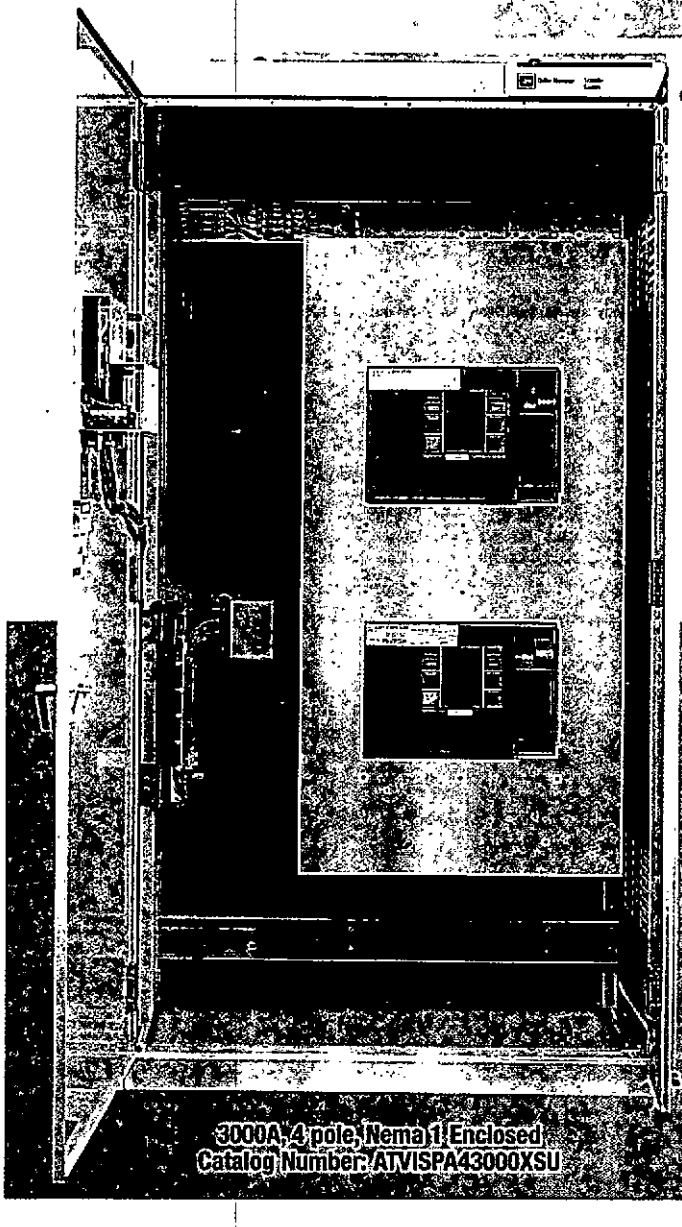
Mini-SPB and SPB Fixed Mount Transfer Switches

MINI-SPB FIXED MOUNT

- 600-1200A
- 2, 3, 4 pole
- 120-600 Vac
- 65,000A Withstand/Closing/Interrupting at 480 Vac
- Fixed Mount Construction
- Available in Type 1, 3R, 4, 4X and 12 Enclosures
- Front Cable Access



1200 ampere, 3 pole Nema 1 Enclosed
Catalog Number ATVISPA31200XSU



3000A, 4 pole, Nema 1 Enclosed
Catalog Number ATVISPA43000XSU

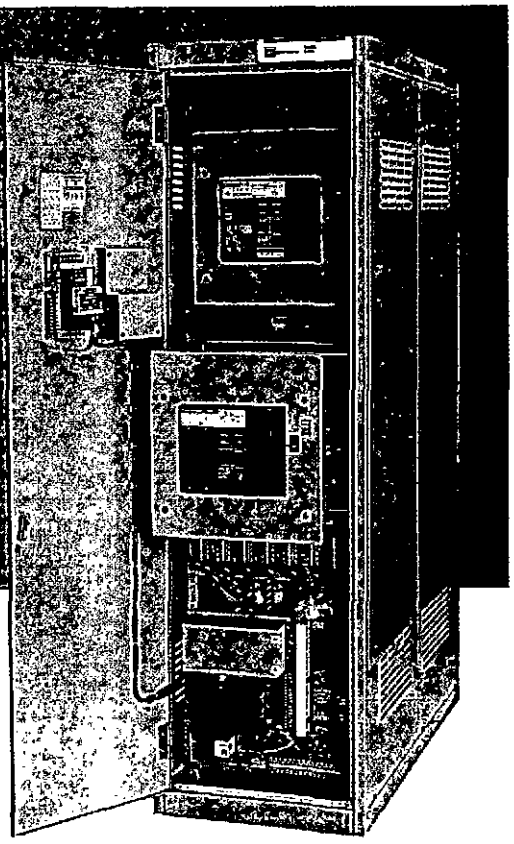
SPB FIXED MOUNT

- 800-4000A
- 2, 3, 4 pole (Except 4000A: 2 and 3 pole only)
- 120-600 Vac
- 100,000A Withstand/Closing/Interrupting at 480 Vac
- Fixed Mount Construction
- Available in Type 1 and 3R Enclosures
- Rear, Side and Top Cable Access

SPB Drawout Transfer Switch

SPB DRAWOUT

- **800-4000A**
- **2, 3, 4 pole (Except 4000A: 2 and 3 pole only)**
- **120-600 Vac**
- **100,000A Withstand/ Closing/Interrupting at 480 Vac**
- **Drawout Construction with switch position indicator**
- **Completely interchangeable Power Switching Devices**
- **Available in Type 1 and 3R Enclosures**
- **Rear, Sides, and Top Cable Access**



2000A, 3 pole Nema 1 Enclosed Drawout
Catalog Number ATVISPG32000XSU

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

The Cutler-Hammer Drawout SPB Switch provides the capability to isolate either of the two power sources-Normal or Emergency- and its associated logic, while maintaining power to the load.

Each switching section is independent and can be replaced either with a spare switch or for less critical replacement needs, a replacement unit is available from the factory within 24 hours.

Transfer Switch Withstand Ratings

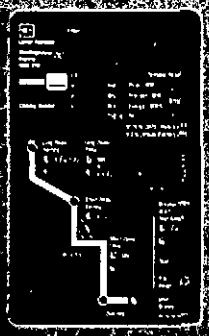
SYSTEMS COORDINATION INFORMATION – WITHSTAND, CLOSING & INTERRUPTING RATINGS

STANDARD UL1008 3 CYCLE							***60 CYCLE, EXTENDED RATING***		
ATS AMPERE RATING	Ratings when used with upstream breaker (kA)			Ratings when used with upstream fuse (kA)			Ratings used for coordination with upstream breakers with short time ratings		
	240V	480V	600V	Max Fuse Rating	Fuse Type	600V	240V	480V	600V
Mini-SPB									
600	85	65	65	800	L	200	35	35	35
800	85	65	65	1000	L	200	51	51	51
1000	85	65	65	1600	L	200	51	51	51
1200	85	65	65	1600	L	200	51	51	51
SPB Fixed And Drawout									
800	100	100	85	2000	L	200	51	51	51
1000	100	100	85	2000	L	200	51	51	51
1200	100	100	85	2000	L	200	51	51	51
1600	100	100	85	3000	L	200	51	51	51
2000	100	100	85	3000	L	200	51	51	51
2500	100	100	85	4000	L	200	51	51	51
3000	100	100	85	4000	L	200	51	51	51
4000	100	100	85				85	85	85

SPB Insulated Case Switch

SPB SWITCH FEATURES

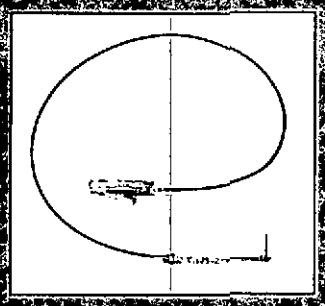
- UL 489 and UL1008 listed
- 65-100KA standard withstand ratings
- 60-cycle, extended withstand ratings
- Five-cycle closing speed
- Electrically operated
- True 4 pole switched neutral availability
- Totally enclosed contact assembly
- 3A/3B auxiliary contacts for customer connection (each SPB switch)



Optional Digitrip SPB Trip Unit

OPTIONAL INTEGRAL OVERCURRENT PROTECTION CAPABILITY

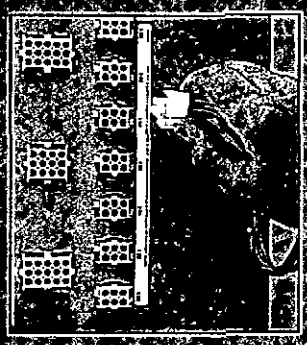
For service entrance and other applications, Digitrip solid state trip units can be integrated into the power switching section. This eliminates the need for separate upstream protective devices, saving cost and space. Available with various combinations of Long, Short Time, Instantaneous, Ground Fault Protection and Communications.



Mechanical Cable Interlock

INTERLOCKING FOR OPEN TRANSITION APPLICATIONS

The open transition type SPB Transfer Switches feature both mechanical (cable) and electrical interlocking to prevent paralleling of sources.



Multi-tap Voltage Selector

MULTI-TAP VOLTAGE SELECTOR

Allows transfer switch to be readily applied on most system voltages worldwide by proper insertion of selector plug. Available system voltages include 208, 220, 240, 380, 415, 480 or 600 Vac, 50 or 60 Hz.

UNMATCHED PERFORMANCE AND VERSATILITY

The Cutler-Hammer family of SPB transfer switches offers unmatched performance, versatility, and value for standby power applications. At the heart of these designs is the SPB insulated case switch with the following features:

SUPERIOR MAIN CONTACT STRUCTURE

All Cutler-Hammer SPB Transfer Switches meet or exceed the standards set forth in UL 1008 and UL 489 with high withstand, totally enclosed SPB switches. 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 and maintenance time.

FAST, POWERFUL AND SAFE SWITCHING MECHANISM

The mechanism utilizes a high speed five-cycle stored energy switching mechanism. This mechanism can be operated manually under a FULL LOAD.

EASE OF COORDINATION AND APPLICATION - SHORT TIME WITHSTAND

The use of electronic trips has allowed performance curve shaping to facilitate proper system coordination. The most significant is the "short-time" rated trip unit.

These trip settings may be set for what are considered extremely high currents for much longer durations than the three cycle withstand test required under UL1008. To facilitate improved coordination, Cutler-Hammer's SPB transfer switches have been tested and are provided with 60 Cycle, extended withstand ratings.

Logic

APPLICATION VERSATILITY

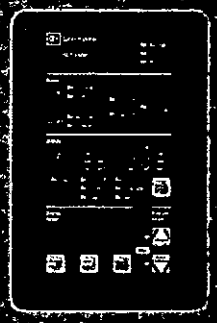
Whether the application calls for open or closed transition, manual or automatic operation, Cutler-Hammer has the right logic controller for the task. IQ Transfer controllers have set a new standard for transfer switch technology featuring:

- Microprocessor based logic
- Digital display
- Field Set Point programmability
- Transfer History
- IMPACC communications capability
- Voltmeter and Ammeter
- True RMS voltage sensing
- Mimic BUS/LED display
- Load Voltage Decay delayed transition capability
- Inphase Monitor Capability
- Field upgrade capability

Open Transition: Open transition type SPB transfer switches utilize the Cutler-Hammer programmable IQ Transfer microprocessor logic controller. See publication B.15A.02.S.E for a more detailed description.

Available with:

- Time Delayed Neutral
- Delayed Transition-Load Voltage Decay
- Inphase Monitor

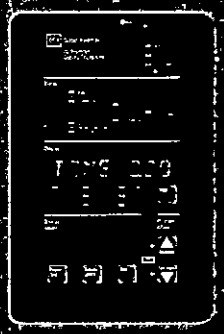


IQ Transfer

Closed Transition: Closed transition applications feature the Closed Transition IQ Transfer logic controller. See publication B.15A.01.S.E for a more detailed description.

Available with Two Operating Sequence Choices:

- Closed/Alarm
- Closed/Inphase/Load Voltage Decay



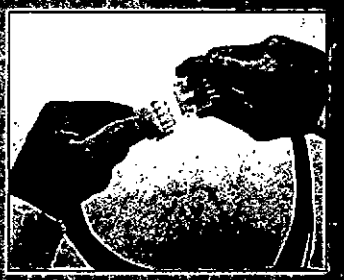
Closed Transition IQ Transfer

Manual Transition: Manually initiated, electrically operated transfers are accomplished with the Cutler-Hammer Solid State logic package. See publication B.15A.10.S.E for a more detailed description.

Solid State

Ease of Maintenance: 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.



Logic Disconnect Plugs

Switch and Feature Selection

Cutler-Hammer Transfer Switch Equipment offers flexibility and versatility to the system designer and user. All switches include the basic features necessary for normal operation as standard (see pages 6-7). Cutler-Hammer also offers an extensive array of optional features/accessories that allows the user to customize a new transfer switch to match the application. Select the appropriate catalog number for the application from the table to the right. Then choose from the table below and opposite page any optional features/accessories needed to complete the project requirements.

① ATVISP: Automatic, Open Transition IQ Transfer Logic
② CTVISP: Automatic, Closed Transition IQ Transfer Logic
③ NTVISP: Manual, Open Transition Solid State Logic
④ Mini-SPB only
⑤ 4-pole not available

CATALOG NUMBER SYSTEM

SWITCH TYPE	ARRANGEMENT NORMAL/ EMERGENCY	NUMBER OF SWITCHED POLES	SWITCH RATING	VOLTAGE/ FREQUENCY	ENCLOSURE TYPE	LISTING
ATVISP①	A = Fixed Switch/Switch	2 = 2 Pole	0600 = 600A④	A = 120/60	S-Type 1	U=UL
CTVISP②	B = Fixed Breaker/Breaker	3 = 3 Pole	0800 = 800A	B = 208/60	R-Type 3R	X=Not Listed
NTVSSP③	C = Fixed Breaker/Switch	4 = 4 Pole	1000 = 1000A	E = 600/60	L-Type 4④	
	D = Fixed Switch/Breaker		1200 = 1200A	G = 220/50/60	D-Type 4X④	
	E = Drawout Switch/Switch		1600 = 1600A	H = 380/50	J-Type 12④	
	F = Drawout Breaker/Breaker		2000 = 2000A	K = 600/50		
	G = Drawout Breaker/Switch		2500 = 2500A	M = 230/50		
	H = Drawout Switch/Breaker		3000 = 3000A	N = 401/50		
			4000 = 4000A⑤	O = 415/50		
				W = 240/60		
				X = 480/60		
				Z = 365/50		

Catalog Number: ATVISPB30800XRU with Optional Features 16B, 37B, 32B, 23J, 42

The above example would specify the following:

Automatic Transfer Switch, 480V, 3 phase, 4 wire, 3 pole, 800 Amperes, IQ Transfer Logic, NEMA 3R enclosure, UL Listed, Integral Overcurrent Protection Both Sources, Service Entrance Rated, Delayed Transition Load Voltage Decay, Plant Exerciser, Seismic Zone 4 Certified

TRANSFER SWITCH FEATURES Feature Numbers indicated with an asterisk(*) are part of Feature Group 9	FEATURE NUMBER	ATVISP Automatic Open Transition	CTVISP Automatic Closed Transition	NTVSSP Non-Automatic Open Transition
Source Monitoring-Normal Power (All Phases)				
Undervoltage Sensing - All Phases		S	S	...
Overvoltage Sensing - All Phases	26C	O	O	...
Underfrequency	26E	O	O	...
Overfrequency	26F	O	O	...
Go To Emergency Rate (Area Protection)	26D	O	O	...
Phase Rotation	26H	O	O	...
Source Monitoring-Emergency Power				
1 Phase, Undervoltage/Underfrequency	5B*	S	S	...
1 Phase, Overvoltage/Overfrequency	5C	O	O	...
Phase Rotation	5H	O	O	...
3 Phase, Undervoltage/Underfrequency	5J*	S	S	...
3 Phase, Overfrequency and Overvoltage Sensing	5K	O	O	...
Time Delays				
Time Delay, Normal to Emergency (TDNE)	1*	S	S	...
Time Delay Emergency to Normal (TDEN)	3*	S	S	...
Time Delay Engine Start (TDES)	2*	S	S	...
Time Delay Engine Cooldown (TDEC)	4*	S	S	...
Bypass TDEN Pushbutton	8C	O	O	...
Bypass TDNE Pushbutton	8D	O	O	...
Pre-transfer Signal Contacts (Elevator Control), up to 10 Devices	35A	O	O	...
Cranking Limiter	30A	O	O	...
Test Operators & Selector Switches				
Programmable Engine Test	6	S	S	...
System Selection		S	S	...
Maintenance Selector Switch	9B	O	O	...
Preferred Source Selector Switch Utility/Utility or Utility/Generator	10B	O	O	...
Preferred Source Selector Switch Generator/Generator	10D	O	O	...
Pushbutton Return to Normal	29E	O	O	...
Relay Auxiliary Contacts	14C*& 14D*	S	S	...
Indicating Lights				
Position Indicators	12C*& 12D*	S	S	O
Source Availability Indicators	12G*& 12H*	S	S	O
Preferred Source Indicator		S	S	...
Load Energized Indication		S	S	...
History Display				
• Source Availability Time		S	S	...
• Source Run Time		S	S	...
• Source Connected Time		S	S	...
• Load Energized Time		S	S	...
• Number of Transfers		S	S	...
• Date, Time and Reason for last 16 transfers		S	S	...

Feature Selection

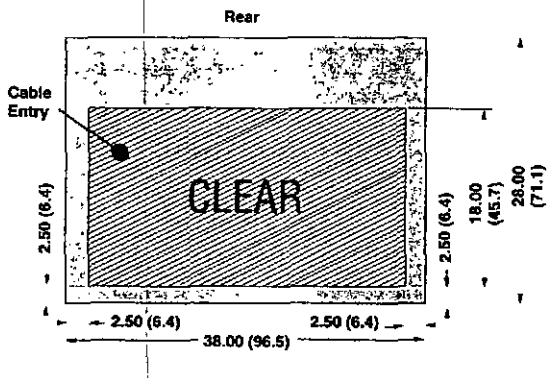
TRANSFER SWITCH FEATURES	FEATURE NUMBER	ATVISP Automatic Open Transition	CTVISP Automatic Closed Transition	NTVSSP Non-Automatic Open Transition
Viewable Set Points				
Digital Display		S	S	...
Real Time Clock		S	S	...
Integral Overcurrent Protection⑥				
Digitrip-Both Sources	16B	O	O	O
Digitrip-Normal Source	16N	O	O	O
Digitrip-Emergency Source	16E	O	O	O
Service Entrance Rating (Requires Feature 16B or 16N)				
Service Entrance without Ground Fault Protection	37A③	O	O	O
Service Entrance with Ground Fault Protection	37B③	O	O	O
High Withstand Rating (100kA @ 480Vac)				
600A to 1200A	17C	O	O	O
1600A to 4000A	17C	S	S	S
Plant Exerciser-Solid State Digital				
Plant Exerciser with fail safe	23J	O	O	...
Battery Chargers (For Separate Mounting)				
5A, 12 Vac output- requires 120 Vac source	24C	O	O	O
5A, 24 Vac output- requires 120 Vac source	24D	O	O	O
Load Transitioning (Inductive Motors and Transformers)				
Delayed Transition-Timer (Time Delay Neutral)	32A	O	...	...
Delayed Transition-Load Voltage Decay	32B	O	...	...
In-Phase Monitor, Load Voltage Decay	32C	O	...	...
In-Phase Monitor, Time Delay Neutral Timer	32D	O	②	...
Load Control				
Load Sequencing, up to 10 Devices	45	O	O	...
Load Shed from Emergency (Remote)	36	O	O	...
Metering				
Integrated Digital Meters				
Voltage-Normal, Emergency, Load		S	S	...
Frequency - Normal, Emergency		S	S	...
IQ Generator (Volts, Amps, Frequency)				
Normal Source	18I	O	O	O
Emergency Source	18J	O	O	O
Both Sources	18K	O	O	O
IQ DP 4000 Microprocessor Metering Package				
Normal Source	18R	O	O	O
Emergency Source	18S	O	O	O
Both Sources	18T	O	O	O
IQ Analyzer Power Quality Metering Package		O	O	O
Normal Source	18O	O	O	O
Emergency Source	18P	O	O	O
Both Sources	18Q	O	O	O
IMPACC Communications				
IMPACC System	④	O	O	...
Remote Alarm Contact		S	S	...
Space Heater with Thermostat (Requires separate 120V Power Supply)				
100 Watts	41A	O	O	O
200 Watts	41B	O	O	O
400 Watts	41C	O	O	O
Rear Bus Connections	20A⑤	O	O	O
Non-Standard Terminals	21A	O	O	O
Logic Extender Cable				
48"	34A	O	O	O
72"	34B	O	O	O
96"	34C	O	O	O
120"	34D	O	O	O
144"	34E	O	O	O
Closed Transition (Operation Sequence)				
Closed, Alarm	47D	...	⑦	...
Closed, In-Phase, Load Voltage Decay	47C	...	⑦	...
Seismic Zone 4 Certification	42	S	S	S

① See IQ Transfer logic controller Brochures B.15A.01.S.E. and B.15A.02.S.E. for additional details/customer adjustments.
② Included as standard in Closed Transition with Feature Set 47C.
③ See Service Entrance Product Aid PA.15A.03.S.E. for more information.
④ Contact Factory.
⑤ Not available on Mini-SPB.
⑥ Digitrip 510 Standard with Optional Feature 16. Digitrip 610, 810, 910, and Optim 1050 also available. Contact Factory.
⑦ CTVISP must be selected with either 47C or 47D.

S = Standard
O = Optional
... = Not Available

Dimensions and Weights—Mini-SPB Fixed Mount

Transfer Switch Rating	Wt. Lbs. (kg.)
3 pole, 600-1200A	850 (386)
4 pole, 600-1200A	950 (431)



Top View

AUTOMATIC, NON AUTOMATIC AND MANUAL TRANSFER SWITCHES

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

Available Enclosures

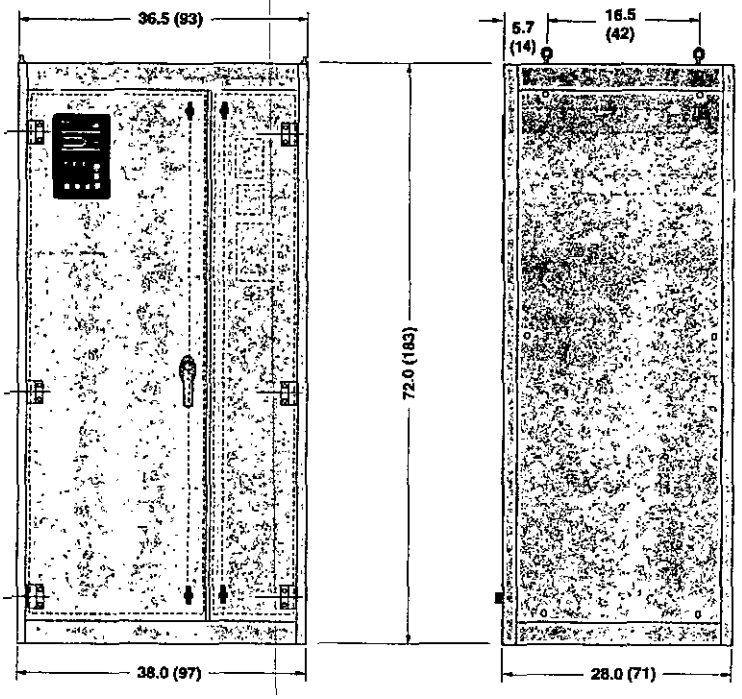
NEMA 1
NEMA 3R
NEMA 4
NEMA 4X
NEMA 12

NEMA 1 Enclosures

NEMA 1 Transfer Switches are supplied with a front door only. They can be mounted in corner or against a wall.

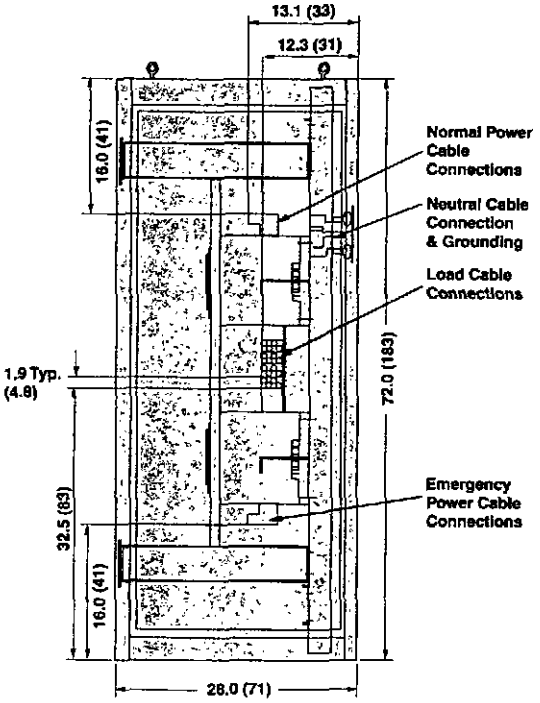
All mini-SPB enclosure designs feature front cable access.

Dimensions are approximate in inches (centimeters) and should not be used for construction purposes.



Front View

Side View



Side View with Panel Removed

Dimensions and Weights—SPB Fixed Mount and Drawout Transfer Switches

AUTOMATIC, NON-AUTOMATIC AND MANUAL TRANSFER SWITCHES

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

NEMA 1 Enclosures

NEMA 1 Transfer Switches are supplied with a front door only. They can be mounted in corner or against a wall. Access to cable space can be via either side, bottom, top, or the rear.

NEMA 3R Enclosures

Additional 2" (5.1cm) clearance on each side of enclosure for hooded vent patterns.

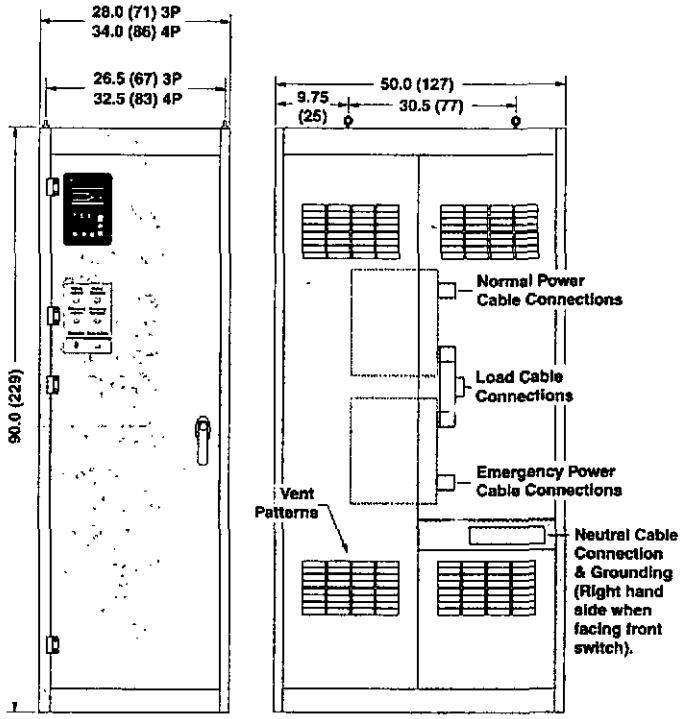
Requires appropriate rear-end clearance based on 26-34" (66-86cm) door (800-2000A) or 24" (61cm) double doors (2500-4000A).

NEMA 3R Transfer Switches are supplied with front & rear doors. They can be mounted against a wall (allowing for hooded vent pattern clearance) but not in a corner. Access to cable space is via rear only.

NOTE: When open switch is mounted in customer enclosure, a vent pattern similar to that used on a Cutler-Hammer enclosure must be utilized.

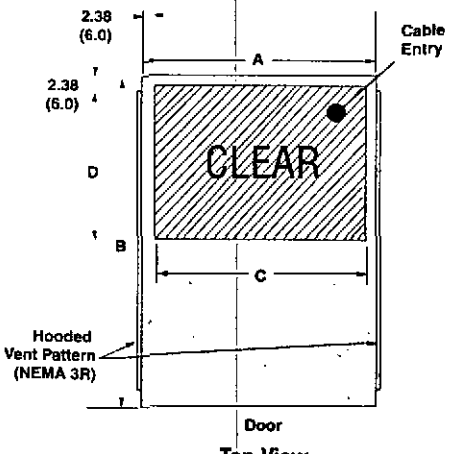
Transfer Switch Rating		Dimensions & Conduit Opening				Wt
		A in (cm)	B in (cm)	C in (cm)	D in (cm)	lb (kg)
3 pole 800-2000①	Fixed	28.00 (71.1)	50.00 (127.0)	23.50 (59.7)	22.00 (55.9)	1300 (590)
	Drawout		60.00 (152.4)		28.40 (72.1)	1650 (748)
4 pole 800-2000①	Fixed	34.00 (86.4)	50.00 (127.0)	29.50 (74.9)	22.00 (55.9)	1400 (635)
	Drawout		60.00 (152.4)		28.40 (72.1)	1900 (862)
3 pole 2500-4000A	Fixed	48.00 (121.9)	60.00 (152.4)	43.25 (109.9)	22.00 (55.9)	1900 (862)
	Drawout		72.00 (182.9)		33.80 (85.9)	2200 (998)
4 pole 2500-3000A	Fixed	48.00 (121.9)	60.00 (152.4)	43.25 (109.9)	22.00 (55.9)	2100 (953)
	Drawout		72.00 (182.9)		29.60 (75.2)	2400 (1089)

① 800-1200A supplied with Option 17C.

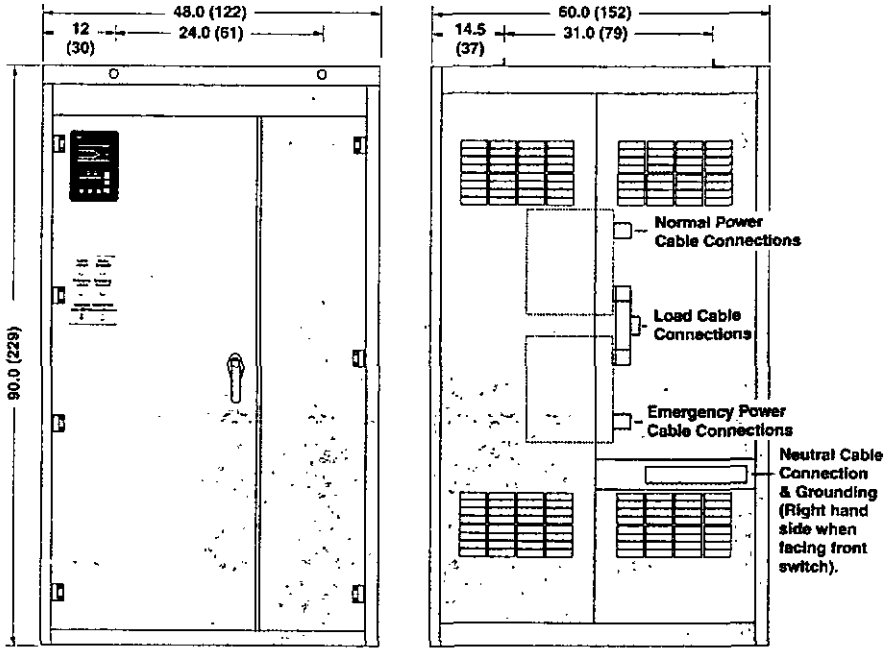


Front View **Side View**

800-2000 amperes, 3 or 4 poles
800-1200 only if Option 17C is selected



Top View



Front View **Side View**

2500-4000 amperes, 3 poles
2500-3000 amperes, 4 poles

Dimensions are approximate in inches (centimeters) and should not be used for construction purposes.

Cutler-Hammer, a part of Eaton Corporation, is a leader in the development and manufacturing of power distribution equipment, electrical control products, and advanced industrial automation solutions.

For more information on Cutler-Hammer products and services, call 1-800-525-2000 or 1-732-417-5660 or visit our web site at www.cutlerhammer.eaton.com

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