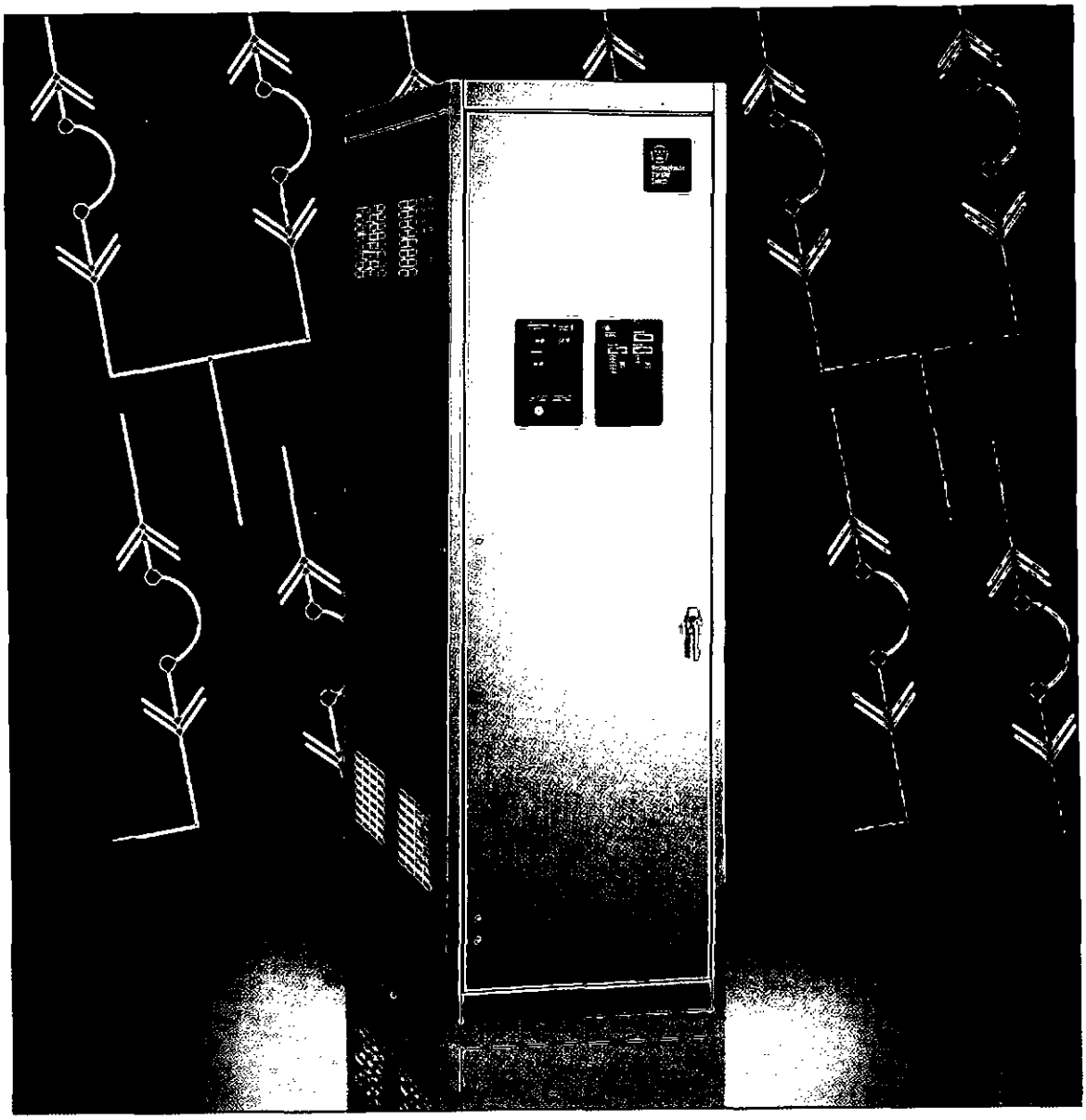
Westinghouse Transfer Switch Equipment

Drawout Transfer Switches
800 - 4000 Amperes

Compact drawout cassette design, fully interchangeable switching devices and modular Solid State Logic Elements offer exceptional versatility in switch configuration for critical power transfer applications.



Cutler-Hammer

EATON

Westinghouse Transfer Switch Equipment

Switch Application Section

Westinghouse Drawout SPB Transfer Switches are designed for applications where preventive maintenance, inspection and testing must be accomplished while maintaining continuity of power to the load. This is typically required in critical life support systems and standby power situations that require safe maintenance of the system with no disruption of the power. Westinghouse Drawout 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. They also comply with emergency and standby system requirements as defined in NFPA 99 for health care facilities.

DESIGN HIGHLIGHTS

- Utilizes SPB insulated case switches as power switching elements
- Westinghouse drawout cassette design
- Overcurrent protection available
- UL 1008 service entrance available
- Seismic qualified for UBC Zone 4
- Significant size advantage over competitors' designs
- Ability to test power switching elements during drawout process
- Power switching devices completely interchangeable
- Manufactured in an ISO 9002 facility and designed in an ISO 9001 facility

Westinghouse 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 next page). Cutler-Hammer also offers an extensive array of optional features and accessories that permits the user to customize a new transfer switch to match the application. The customization process is simple. Select the appropriate catalog number for your application from the charts below. Then choose any optional features or accessories needed to complete the project requirements.

CATALOG NUMBER

SWITCH TYPE	*ARRANGEMENT NORMAL/ EMERGENCY*	*NUMBER OF SWITCHED POLES*	*SWITCH RATING*	*VOLTAGE FREQUENCY*	*ENCLOSURE TYPE*	*UL*
ATVSSP	E = Switch/Switch	2 = 2 Pole	0800 = 800A	A = 120/60	S = Type 1	U
	F = Breaker/Switch	3 = 3 Pole	1000 = 1000A	B = 208/60	R = Type 3R	
	G = Breaker/Switch	4 = 4 Pole	1200 = 1200A	E = 600/60		
	H = Switch/Breaker		1600 = 1600A	G = 220/50/60		
			2000 = 2000A	H = 380/50		
			2500 = 2500A	K = 600/50		
			3000 = 3000A	M = 230/50		
			4000* = 4000A	N = 401/50		
				O = 415/50		
				W = 240/60		
			*Only available in 2 and 3 poles	X = 480/60		
				Z = 365/50		

SYSTEMS COORDINATION INFORMATION

STANDARD WITHSTAND, CLOSING & INTERRUPTING RATINGS

Rating when used with upstream breaker (kA)				Rating when used with upstream fuse (kA)		
AMPERE RATING	*240V*	*480V*	*600V*	*MAX. FUSE RATING*	*FUSE TYPE*	*600V*
800	100	100	85	2000	L	200
1000	100	100	85	2000	L	200
1200	100	100	85	2000	L	200
1600	100	100	85	3000	L	200
2000	100	100	85	3000	L	200
2500	100	100	85	4000	L	200
3000	100	100	85	4000	L	200

Tested in accordance with UL 1008.

Westinghouse Drawout SPB Transfer Switches will coordinate with a power circuit breaker's short time rating. Contact factory for details.

RELIABLE AND EASY TO USE

SUPERIOR MAIN CONTACT STRUCTURE

The Westinghouse Drawout SPB Transfer Switch meets or exceeds the standards set forth in UL 1008, UL 1087 and UL 489. No other transfer switch manufacturer has met the rigid testing requirements of this combination of standards. Completely enclosed contacts provide both safety and reliability. They also ensure the integrity of the contact assemblies and minimize the need for periodic maintenance of the contacts, reducing downtime and maintenance time.

RELIABLE SOLID STATE LOGIC

The transfer switch intelligence panel utilizes the reliable, close differential sensing Westinghouse Modular Solid State Logic Package. This provides the system designer the opportunity to tailor the switch to the application as well as providing the capability of future upgrading of logic components in the field.

EASE OF OPERATION

The Westinghouse Drawout SPB Transfer Switch utilizes Systems Pow-R Breaker Drawout Cassettes for mounting of the insulated case switches. This design allows for quick removal of the switches for inspection or maintenance, or if required, quick replacement.

EASE OF COORDINATION

The Westinghouse Drawout SPB Transfer Switch is easily coordinated with any system power or air circuit breaker. The SPB switches have been tested to withstand a short circuit for up to 60 cycles. With optionally added overcurrent protection, the Westinghouse Drawout SPB Transfer Switch offers the greatest flexibility in system coordination of any transfer switch design.

ULTIMATE MAINTAINABILITY

With the use of drawout cassettes for the ATS, maintenance can be performed easily on the ATS. Logic panels are on drawout rails for easy accessibility. No other transfer switch manufactured offers this level of maintainability.

STANDARD FEATURES AND ACCESSORIES

TEST SELECTOR SWITCH

Provides a spring release push button for test operation of the ATS. It simulates a loss of the Normal Power Source, initiates an engine start and transfers the load to the Emergency/Standby Power Source.

ENGINE STARTING CONTACT

Provides a 10A, 30VDC contact closure to initiate engine starting upon failure of the Normal Power Source. This feature, specifically designed for low current applications, is wired to red terminal blocks on the control panel for ease of identification and maintenance.

FULL PHASE PROTECTION

Provides phase failure protection on each phase of the Normal Power Source. Should the voltage drop below a pre-selected, fully adjustable value on any phase, a signal is sent to initiate engine start.

TIME DELAY NORMAL TO EMERGENCY

Provides a delay, adjustable .2 - 64 minutes, when transferring from the Normal Power Source to the Emergency Power Source. This accessory does not affect the engine starting circuit. Timing begins when emergency/standby voltage begins.

TIME DELAY ENGINE START

This accessory is for use when the Emergency Power Source is an engine generator. It delays initiation of the engine start circuit for .5 - 15 seconds (adjustable) in order to override momentary power outages or voltage fluctuations of the Normal Power Source.

TIME DELAY EMERGENCY TO NORMAL

Delays the retransfer from the Emergency/Standby Power Source to the Normal Power Source to permit stabilization of the Normal Power Source before retransfer is made. Timing is adjustable .2 - 64 minutes and begins when the Normal Power Source appears. If the Emergency/Standby Power Source fails during timing, retransfer to the Normal Power Source is immediate, overriding the time delay.

TIME DELAY ENGINE COOLDOWN

Permits the engine to continue to run unloaded after retransfer to the Normal Power Source has been made. Timing is adjustable .2 - 64 minutes and begins when retransfer is completed.

FULLY RATED NEUTRAL

Provides a fully rated solid neutral for all 2 and 3 pole switches. All 4 pole switches are supplied with switched neutral contacts of identical construction and rating as the power poles and are mounted on the power contact shaft, integral to the completely enclosed contact assemblies.

MULTI-TAP VOLTAGE SELECTION

Provides line voltage selection of 208, 220, 240, 380, 415, 480 or 600VAC, 50 to 60 Hz by proper insertion of voltage selection plug.

EMERGENCY/STANDBY SOURCE MONITORING

Relay monitor prevents transfer from the Normal Power Source to the Emergency/Standby Power Source until that source has attained 90% of nominal voltage and frequency. In addition, when the switch is in the Emergency/Standby position and that source falls outside the monitored parameters, a load retransfer is initiated to the Normal Power Source if it is present.

INDICATING LIGHTS

Indicate switch position. Green for Normal position, red for Emergency/Standby position.

RELAY AUXILIARY CONTACTS

Provides three Form C contacts for each source. On the Normal Power Source, energized when the load is connected to the Normal Power Source and normal voltage is present. On the Emergency/Standby Power Source, energized whenever emergency/standby voltage is present.

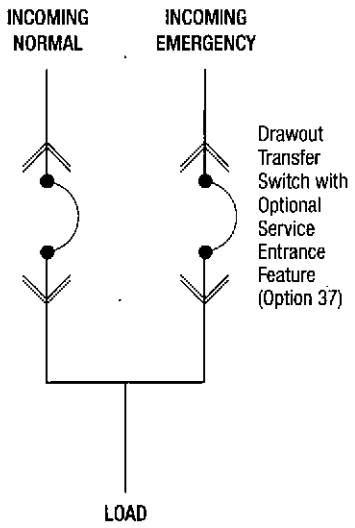
Functional and Operational Capabilities

Our overall design criteria is to provide you with a Drawout SPB Transfer Switch that offers the utmost in flexibility, reliability and value. The long list of standards and codes below illustrates the versatility of our unit. The Westinghouse Drawout SPB Transfer Switch meets or exceeds many national and international standards. It is also designed and built in accordance with the following:

UL 1008	***Standard for Safety for Automatic Transfer Switches***
UL 489	***Standard for Circuit Breakers***
UL 1087	***Standard for Molded Case Switches***
NEC	***Articles 517, 700, 701, 702***
ANSI/NFPA 70	
NFPA 110	***Emergency and Standby Power Systems***
NFPA 99	***Health Care Facilities***
EGSA	***Standard for Transfer Switches***
NEMA	***ICS 2-447.10***
UBC	***Uniform Building Code for Seismic Zone 4***
ISO 9000	***International Organization for Standardization***

SERVICE ENTRANCE – TRANSFER SWITCH

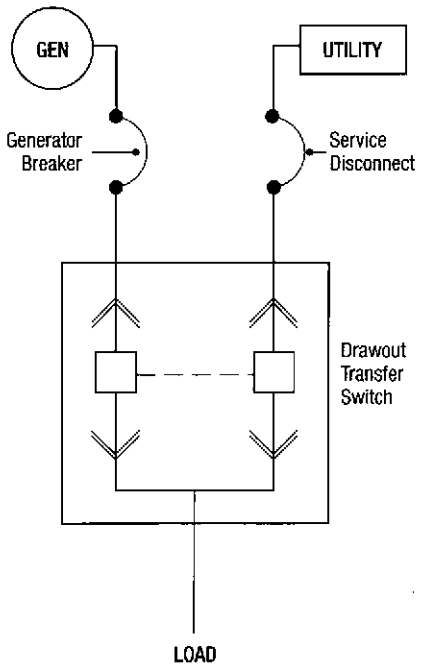
Often, it is desirable to apply the transfer switch as a service equipment device thereby eliminating the need for separate service disconnects and overcurrent protective devices. This switch is particularly adaptable to waste water and water treatment plants, pumping stations, industrial plants, telecommunications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



Service Entrance Application

UTILITY SERVICE – STANDBY GENERATOR

The most common applications of transfer switch equipment involve switching of critical loads from a preferred utility service to an onsite, engine-driven power source.



Standard Application

The Westinghouse 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.

An added benefit of the Westinghouse Drawout SPB Switch is its applicability on systems with high fault capacity. The Westinghouse design incorporates the highest withstand rated version of the SPB power switch, and can easily coordinate with an upstream power circuit breaker's short time rating and delay. As an optional feature, Cutler-Hammer can incorporate RMS-sensing Westinghouse Digitrip solid state trip units into the power switching section.

MAINTENANCE OF NORMAL SWITCHING SECTION

1. Transfer to emergency by placing ATS test operator to "TEST".
2. Rack out Normal side switch.
3. Perform maintenance and replace or rack in a spare switching element.
4. Place test operator to Automatic mode for retransfer to Normal.

Racking a switch element out and replacing with a spare switch can be accomplished in less than 10 minutes. The load is connected to the standby source during this interval.

MAINTENANCE OF STANDBY SWITCHING SECTION

1. Rack out Standby side switch.
2. Replace with spare or repair and return to the cubicle.

Note: The Drawout SPB Switch is designed to prevent the automatic switching to a source if the switching section is withdrawn. Additionally, like all drawout-type devices, there are four positions –"CONNECTED", "TEST", "ISOLATED" and "WITHDRAWN".

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.

Maintaining the logic is an easy process and by using the Cutler-Hammer portable test kit, the user can calibrate and set sensing and timing circuits of the Westinghouse modular, close differential sensing logic.

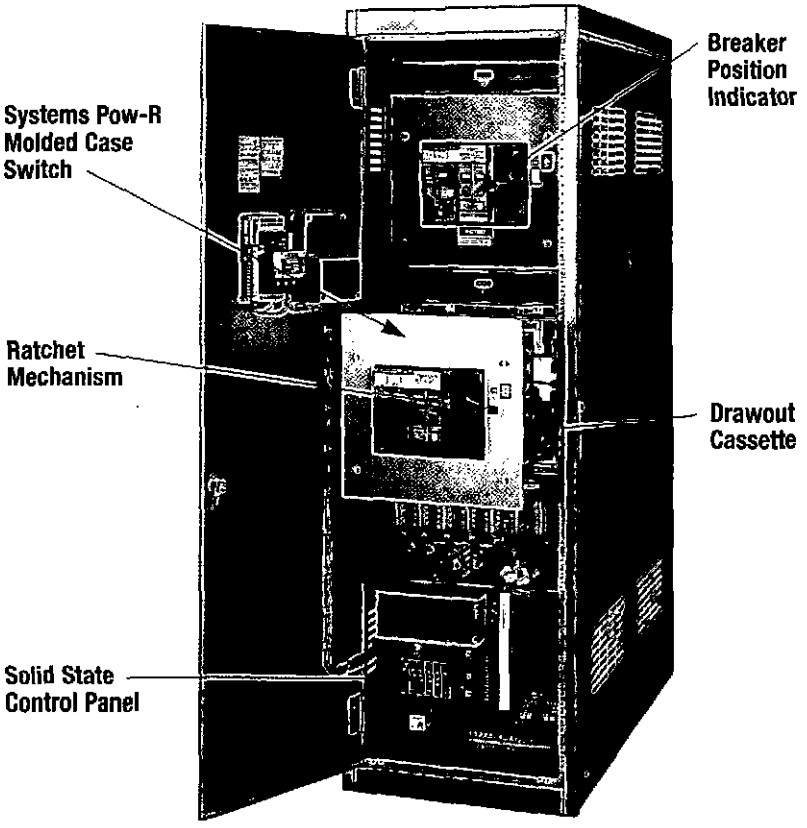
MAINTENANCE OF THE LOGIC PANEL

1. Position start controls on engine generator to "OFF".
2. Unlock and open front door panel.
3. Disconnect both mate and lock socket connectors.
4. The logic is now disconnected from both line sources and can be maintained or the logic cards can be individually tested.
5. Reconnect the mate and lock connectors. Reconnecting is simple and reliable due to the mate and lock design.
6. Reposition engine start controls to "AUTO START".

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

In emergency conditions, the Westinghouse Drawout SPB switch offers the user a number of advantages.

1. Each switching section is independent and can be independently replaced; either with a spare switch or–for less critical replacement needs–the Beaver, PA factory will build a replacement unit within 24 hours.
2. The Drawout SPB switch has been tested to withstand fault currents for up to 60 cycles. This allows upstream breakers, even those with 30-cycle short time delays, to clear a fault.
3. The Drawout SPB switch is both mechanically and electrically interlocked to prevent the interconnection of two live sources.
4. The totally enclosed contact assemblies provide an added measure of switching safety and dramatically lower the long-term negative effects of dirt, dust and residue.



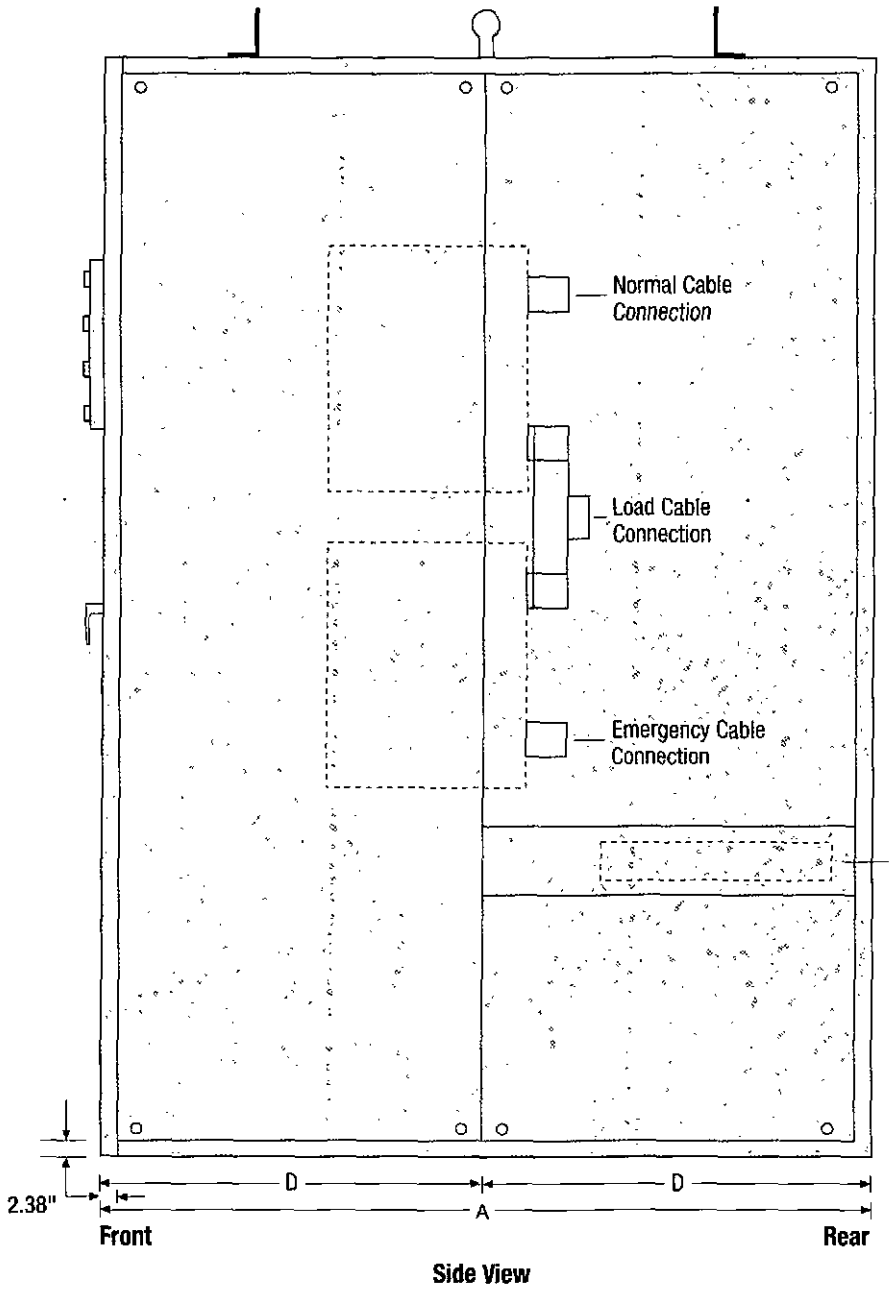
Westinghouse Drawout SPB Transfer Switch

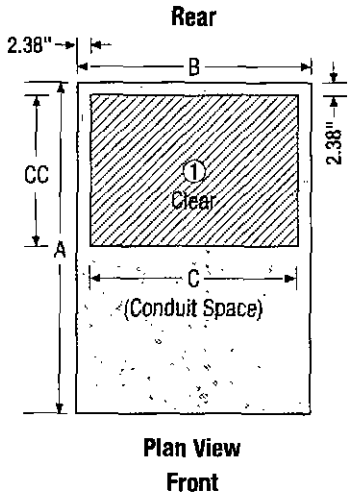
Transfer Switch Dimensions

All transfer switch enclosures are constructed of high quality, 12 gauge steel and include a key lockable door handle as standard equipment. Enclosures for Westinghouse Drawout SPB Switches are *freestanding Type 1 and Type 3R and meet* all current applicable NEMA and UL standards for conduit entry, cable bending, gutter space and shielding of live components. Approximate enclosure dimensions can be determined from the chart once you specify the Ampere rating and number of poles required.

Depth In Inches		
Rating	**A**	**D**
800-2000A	60.00	30.00
2500-4000A	72.00	36.00

Dimensions & Conduit Opening In Inches	**A**	**B**	**C**	**CC Cable Space Depth**	**Wt. (lbs.)**
3 Pole 800-2000A	60.00	28.00	23.24	28.44	1650
4 Pole 800-2000A	60.00	34.00	29.24	28.44	1900
3 Pole 2500-4000A	72.00	48.00	43.24	33.84	2200
4 Pole 2500-3000A	72.00	48.00	43.24	29.62	2400





Optional Features and Accessories

In addition to the standard features and accessories, the following optional features and accessories are also available to match your application requirements:

SOURCE MONITORING – NORMAL POWER SUPPLY

- ❑ 26C OVER VOLTAGE – Full Phase, adjustable
- ❑ 26D AREA PROTECTION – Remote Sensing
- ❑ 26E UNDER FREQUENCY – Single Phase, adjustable
- ❑ 26F OVER FREQUENCY – Single Phase, adjustable

SOURCE MONITORING – EMERGENCY POWER SUPPLY

- ❑ 5C OVER FREQUENCY – Single Phase, adjustable
- ❑ 5E OVER VOLTAGE – Single Phase,adjustable
- ❑ 5F UNDER VOLTAGE – Three Phase, adjustable
- ❑ 5G OVER VOLTAGE – Three Phase, adjustable

TIME DELAYS

- ❑ 2C TDES, adjustable 4-120 seconds
- ❑ 30A CRANKING LIMITER – adjustable 4-120 seconds
- ❑ 32A DELAYED TRANSITION – adjustable 0-120 seconds
- ❑ 35A PRE-TRANSFER SIGNAL DEVICE – adjustable 0-120 seconds

TIME DELAY BYPASS PUSHBUTTONS

- ❑ 8C BYPASS TDEN PUSHBUTTON
- ❑ 8D BYPASS TDNE PUSHBUTTON

ALTERNATE TEST OPERATORS & SELECTOR SWITCHES

- ❑ 6D AUTO/TEST SWITCH – Maintained contact
- ❑ 6G KEY OPERATED AUTO/TEST SWITCH – Maintained contact
- ❑ 6H FOUR POSITION SELECTOR SWITCH – Test, Auto, Off, Engine Start
- ❑ 9B MAINTENANCE SELECTOR SWITCH – Maintained contact
- ❑ 10B PREFERRED SOURCE SELECTOR SWITCH – Utility/Utility or Utility/Generator
- ❑ 10D PREFERRED SOURCE SELECTOR SWITCH – Dual Generator

INDICATING LIGHTS

- ❑ 12G NORMAL SOURCE PILOT LIGHT – White
- ❑ 12H EMERGENCY SOURCE PILOT LIGHT – White
- ❑ 12L NORMAL TRIP PILOT LIGHT – Amber
- ❑ 12M EMERGENCY TRIP PILOT LIGHT – Amber (12L & 12M available only with Option 16)

BATTERY CHARGERS

- ❑ 24C 5A, 12VDC OUTPUT – Separate mount, requires 120VAC power source
- ❑ 24D 5A, 24VDC OUTPUT – Separate mount, requires 120VAC power source

SHUNT TRIPS

- ❑ 33A SHUNT TRIP ON NORMAL POWER SOURCE – Coil Voltage_____
- ❑ 33B SHUNT TRIP ON EMERGENCY POWER SOURCE–Coil Voltage _____

INTEGRAL OVERCURRENT PROTECTION

- ❑ 16B DIGITRIP – Both sources
- ❑ 16E DIGITRIP – Emergency Source
- ❑ 16N DIGITRIP – Normal Source

SERVICE ENTRANCE RATING

- ❑ 37A SERVICE ENTRANCE RATING WITHOUT GROUND FAULT PROTECTION
- ❑ 37B SERVICE ENTRANCE RATING WITH GROUND FAULT PROTECTION

SOLID STATE DIGITAL PLANT EXERCISERS

- ❑ 23C PLANT EXERCISER WITHOUT LOAD TRANSFER – Adjustable 0-168 hours, 0-10 programs
- ❑ 23D PLANT EXERCISER WITH LOAD TRANSFER – Adjustable 0-168 hours, 0-10 programs
- ❑ 23G PLANT EXERCISER WITH SELECTOR SWITCH – Allows choice of exercise with or without load transfer, or a bypass of exercise period
- ❑ 23I PLANT EXERCISER WITH LOAD TRANSFER AND FAIL-SAFE FEATURE
- ❑ 23J PLANT EXERCISER WITH SELECTOR SWITCH AND FAIL-SAFE FEATURE

METERING

- ❑ 18I IQ GENERATOR – Normal Power Source only – Microprocessor based voltmeter, ammeter, and frequency meter
- ❑ 18J IQ GENERATOR – Emergency Source only
- ❑ 18K IQ GENERATOR – Both sources
- ❑ 18L IQ DATA PLUS II – Normal Source only, advanced microprocessor based metering
- ❑ 18M IQ DATA PLUS II – Emergency Source only
- ❑ 18N IQ DATA PLUS II – Both sources
- ❑ 18P IMPACC Communications

PORTABLE TEST KIT

- ❑ 38A TEST KIT – Portable, hand-held test kit to test solid state control logic cards and output relays

SPACE HEATER WITH THERMOSTAT

- ❑ 41A 100 WATT HEATER – Requires separate 120V power supply
- ❑ 41B 200 WATT HEATER – Requires separate 120V power supply
- ❑ 41C 400 WATT HEATER – Requires separate 120V power supply

INTELLIGENCE CIRCUIT FUSES

- ❑ 28A INTELLIGENCE CIRCUIT FUSES – Fuses all non-essential circuitry

ALTERNATE OPERATIONAL MODES

- ❑ 29D PUSHBUTTON OPERATED TRANSFER SWITCH – Provides non-automatic operation of the transfer switch
- ❑ 29E PUSHBUTTON RETURN TO NORMAL
- ❑ 29G SELECTABLE AUTOMATIC/NON-AUTOMATIC OPERATION OF TRANSFER SWITCH – Non-UL.
- ❑ 29J SELECTABLE AUTOMATIC/PUSH-BUTTON RETURN TO NORMAL ON TRANSFER SWITCH

FOR ADDITIONAL INFORMATION ON WESTINGHOUSE TRANSFER SWITCHES:

Bypass Isolation Transfer Switches 800-3000 Amperes	B 1221
Mini-SPB Transfer Switches 600-1200 Amperes	B 1222
ATS Solid State Logic	SA 12075
ATS Relay Logic	SA 12076
ATS Renewal Parts Catalog	SA 12077
Automatic, Manual, Non-Automatic Transfer Switches Vertical Design 150-1000 Amperes	B 1223
Automatic, Manual, Non-Automatic Transfer Switches 30-4000 Amperes, Price List	PL 29-920
Transfer Switch Equipment 30-4000 Amperes	TB 29-925
ATS Renewal Parts Price List	PL 29-995
Combination Bypass Isolation and Automatic Transfer Switches 100-1000 Amperes	SA 11844

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