

CapSwitcher® High Voltage Capacitor Switching Device

The expansion of Southern States family of SF₆ products continues with the addition of the *CapSwitcher*®, a special purpose device which brings new levels of performance and long-life reliability to the field of capacitor bank switching at an economically attractive price unmatched by other SF₆ equipment used to perform this function. With power quality issues becoming more and more important in today's world of highly sensitive electrical equipment such as computers, CNC machines, variable speed drives, etc., the need for transient suppression when doing capacitor switching has never been more paramount. Furnished with transient suppressing closing resistors, the *CapSwitcher*® is designed to satisfy any capacitor bank switching requirement at system voltages of 38 kV through 170 kV. Its compact size consumes a minimum of substation space, and its feature of energizing the capacitor bank by making the circuit in SF₆ gas rather than in air like some of the competition's offerings further enhances its condensed space capabilities. For capabilities, performance, long-life reliability, compactness of design, and economy the Southern States *CapSwitcher*® is the best selection available in the market today.



**72.5 kV *CapSwitcher*®
with closing resistors shown
at left.**

**123 kV *CapSwitcher*®
with closing resistors shown
at right.**

Units up through 72.5 kV are single-column design with 48 inch phase spacing. 123 kV through 170 kV units are two-column design with 84 inch phase spacing.



Ratings

Maximum Voltage	38 kV	48.3 kV	72.5 kV	123 kV	145 kV	170 kV
BIL	200 kV	250 kV	350 kV	550 kV	650 kV	750 kV
Maximum Bank Size	40 MVAR	48 MVAR	72 MVAR	130 MVAR	155 MVAR	181 MVAR
Continuous Current	600 A			650 A		
Capacitive Switching Current	600 A			650 A		
Closing Resistor Value	6 Ω, 10 Ω, 12 Ω, 20 Ω, 30 Ω, 40 Ω, 80 Ω, or 90 Ω			37.5 Ω, 75 Ω, 150 Ω, or 300 Ω		
Primary Fault Interrupting Current	25 kA			40 kA		
Interrupting Time	5 cycles			3 cycles		
High-Frequency Transient Making Current	18 kA @ 4630 Hz			20 kA @ 4600 Hz		
Number of Full Fault Operations	30			10 at 40 kA, 15 at 31.5 kA, 30 at 20 kA		
Rated Short Time Withstand	40 kA RMS (1sec)			40kA RMS (1 sec) / 63 kA RMS (18 cycles)		
Peak Withstand Current	104 kA			163 kA		
Fault Closing	10 time 40 kA, 15 time 31.5 kA, 30 time 20 kA			2 time 63 kA, 10 time 40 kA, 15 time 31.5 kA, 30 time 20 kA		
Ambient Temperature Range	-40°C to +50°C standard for all kV ratings (-50°C to +50°C optional)					

Applications

- Single Capacitor Bank
- Back-to-Back Capacitor Banks
- Grounded or Ungrounded Banks

Southern States, LLC 30 Georgia Avenue Hampton, GA 30228 phone: 770-946-4562
fax: 770-946-8106 e-mail: psdsales@southernstatesLLC.com website: www.southernstatesLLC.com

The Quality Name in High Voltage Switching

Key Advantages

- ❑ Circuit making occurs in SF₆ gas rather than in air, meaning no external arcing in air occurs thus contacts have a longer operational life. Additionally, there are no arcing horns to erode due to open air arcing, requiring an outage to replace the arcing horns. Finally, icing is not an issue for the *CapSwitcher*[®] as it would be for making-in-air equipment.
- ❑ Closing resistors provide more reliable and consistently repeatable transient suppression than synchronous closing devices. These closing resistors provide both voltage transient suppression and current transient suppression.
- ❑ Simple, easy erection minimizes field installation time required.
- ❑ Single mechanism spring operator provides much more reliable operation than individually pole operated mechanisms and requires far less maintenance than hydraulic mechanisms or pneumatic mechanisms.
- ❑ True pure puffer interrupters provide much greater contact life than arc-assisted interrupters.
- ❑ Structure baseplates can have their hole locations and hole sizes varied when required to fit existing foundation locations and anchor bolt sizes. (The standard offering has a 20 inch X 20 inch anchor bolt pattern to fit 1 inch diameter anchor bolts.)
- ❑ Common gas system allows remote gas monitoring, low pressure alarm, and trip on low pressure. Common gas system also has pressure gauge for local visual gas pressure indication.
- ❑ 4 hole NEMA terminal pads are readily reversible to fit specific installation requirements.
- ❑ Each unit is completely assembled and tested at the factory with only the disassembly required to accommodate shipment restrictions being performed.
- ❑ Capable of 10,000 operations.
- ❑ Designed and tested for restrike-free performance.
- ❑ Backed by Southern States 5 year warranty.
- ❑ Available with *CMD*[™] current measuring device, allowing the *CapSwitcher*[®] to protect the utility system from capacitor bank faults without the additional foundations and structures that conventional free-standing current transformers require.

Standard Features of the *CapSwitcher*[®] operating mechanism

- electric spring charging motor (either 48 VDC; 125 VDC; 250 VDC; 120 VAC, 60 Hz, 1Ø; or 240 VAC, 60 Hz, 1Ø)
- trip-close pistol grip switch
- close coil
- trip coil
- operations counter
- local-remote selector switch
- 10 spare non-adjustable auxiliary switch contacts set as 5 normally open (NO) and 5 normally closed (NC) contacts (38 kV-72.5 kV units)
- 12 spare non-adjustable auxiliary switch contacts set as 6 normally open (NO) and 6 normally closed (NC) contacts (123 kV-170 kV units)
- terminal blocks
- thermostatically controlled heater (either 120 VAC, 60 Hz, 1Ø or 240 VAC, 60 Hz, 1Ø)
- molded case circuit breakers for protection of motor circuit, control circuit, and heater circuit
- manual closing spring charging handle
- manual trip and close lever
- internal 120 VAC cabinet light with door actuated switch
- common gas system with fill port; gas pressure gauge; and temperature-compensated gas density switch with low pressure alarm contact and trip on low pressure contact (The low pressure alarm contact and the trip on low pressure contact provide remote status indication of SF₆ gas pressure.)
- open-close position indicator
- view window in cabinet door
- anti-pump relay
- time delay relay
- 120 VAC duplex receptacle with GFCI
- spring charged-discharged indicator

Optional features (provided if specified)

- position indicating lights (green=open, red=closed)
- knife switches (either fused in lieu of molded case circuit breakers or unfused in series with molded case circuit breakers)
- fused pullouts in lieu of molded case circuit breakers
- trip circuit monitoring relay
- toggle switch for cabinet light (in lieu of door actuated switch)
- door actuated remote blocking switch
- loss of AC relay
- loss of DC relay
- others (Please contact Southern States for additional options desired, if any.)

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