









## OVERVIEW OF COMPLETE LINE OF SF<sub>6</sub> PRODUCTS

PRODUCT LINE	FEATURES	APPLICATION
<p><b>Load &amp; Line Switchers</b> LLS-II-2000 &amp; LLS-II-3000</p> 	<ul style="list-style-type: none"> <li>• SF<sub>6</sub> gas load break device</li> <li>• Single gap true puffer interrupters</li> <li>• 72.5 kV through 245 kV</li> <li>• 2000 A or 3000 A load break capability</li> <li>• 2000 A or 3000 A loop break capability</li> <li>• Up to 300 A of line charging interrupting capability</li> <li>• Composite housed interrupter</li> <li>• Long life: 2000 full load operations</li> <li>• Very cost effective when compared with vacuum interrupters and other SF<sub>6</sub> devices used for load and line switching functions</li> <li>• The switch it is mounted on can be outfitted with <b>CMD™</b> three-phase non-contact current transformer to allow rapid detection and isolation of a faulted transmission tap, allowing prompt restoration of other customers on the non-faulted taps of the transmission circuit</li> </ul>	<ul style="list-style-type: none"> <li>• Load breaking</li> <li>• Parallel switching (loop splitting)</li> <li>• Line charging current interrupting (line dropping)</li> <li>• Transformer magnetizing current interrupting</li> <li>• Cable switching</li> <li>• Reactor switching</li> <li>• Tap sectionalizing</li> <li>• Equally well suited for installations in substations or on transmission lines</li> <li>• Can be installed on any Southern States vertical break switch or essentially any manufacturer's vertical break switch</li> <li>• Can be installed on both horizontal upright mounted vertical break switches and on vertical mounted vertical break switches as well</li> </ul>
<p><b>Horizontal Interrupter Style Circuit Switchers</b> CSH &amp; CSH-B</p>    	<ul style="list-style-type: none"> <li>• SF<sub>6</sub> gas load and fault interruption capability</li> <li>• Available with or without integral disconnect switch</li> <li>• 38 kV through 245 kV [Can be applied at 15.5 kV and 27 kV system voltages when required.]</li> <li>• 1200 A, 1600 A, or 2000 A continuous current</li> <li>• 20 kA primary fault current interrupting rating</li> <li>• 5 cycle (up through 170 kV) or 6 cycle (at 245 kV) interrupting speed</li> <li>• 10 time 40 kA fault closing, 15 time 31.5 kA fault closing, 30 time 20 kA fault closing</li> <li>• 30 full fault interruptions</li> <li>• Single gap true puffer interrupters</li> <li>• Makes and breaks the circuit in SF<sub>6</sub> gas (no external arcing on opening or on closing)</li> <li>• Also available without shunt trips for load and line switching applications, reactor switching applications (See second photo in left column.), and cable switching applications (LSH &amp; LSH-B models) [The LSH and LSH-B can be outfitted with <b>CMD™</b> three-phase non-contact current transformer to allow rapid detection and isolation of a faulted transmission tap, allowing prompt restoration of other customers on the non-faulted taps of the transmission circuit]</li> </ul>	<ul style="list-style-type: none"> <li>• Power transformer switching and protection</li> <li>• Reactor switching and protection</li> <li>• Series capacitor bypassing</li> <li>• Load breaking/line dropping/loop splitting/cable switching</li> <li>• Can be installed in fixed substation installations or on mobile substation trailers</li> <li>• Can be installed on Southern States furnished support structure at virtually any desired mounting height and on most anchor bolt patterns and anchor bolt sizes, on many existing support structures (including in the vertical and underhung mounting positions as well as the traditional horizontal upright mounting position), and on new and existing mobile substations</li> <li>• Can be outfitted with <b>CMD™</b> three-phase non-contact current transformer which can be integrally mounted on the CSH or on the CSH-B to provide the circuit switcher with current sensing capability and also to allow the unprotected zone between the circuit switcher and the power transformer's primary side bushings and arresters to be protected</li> <li>• CSH-B integrates both protection and isolation into a single, compact installation</li> <li>• LSH-B integrates both switching and isolation into a single, compact installation</li> </ul> 

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PRODUCT LINE	FEATURES	APPLICATION
<p><b>Vertical Interrupter Style (“Candlestick”) Circuit Switchers CSV, CSV-DB, &amp; CSV-CB</b></p>  	<ul style="list-style-type: none"> <li>• SF<sub>6</sub> gas load and fault interruption capability</li> <li>• 15.5 kV through 170 kV</li> <li>• 1200 A, 1600 A, 2000 A, 3000 A, and 4000 A continuous current (48.3 kV-170 kV)</li> <li>• 1200 A and 1600 A continuous current (15.5 kV-38 kV)</li> <li>• 20 kA, 25 kA, 31.5 kA, and 40 kA primary fault current interrupting (48.3 kV-170 kV)</li> <li>• 20 kA and 25 kA primary fault current interrupting (15.5 kV-38 kV)</li> <li>• 3 cycle interrupting speed (48.3 kV-170 kV)</li> <li>• 5 cycle interrupting speed (15.5 kV-38 kV)</li> <li>• 5 time 40 kA fault closing or 10 time 31.5 kA fault closing (48.3 kV-170 kV)</li> <li>• 5 time 25 kA fault closing (15.5 kV -38 kV)</li> <li>• True puffer interrupters (longer life than arc assisted interrupters)</li> <li>• Gas system with pressure gauge, density switch, low pressure alarm &amp; low pressure lockout contacts, allowing both local visual &amp; remote status monitoring</li> </ul> 	<ul style="list-style-type: none"> <li>• Power transformer switching and protection</li> <li>• Capacitor switching (non-transient mitigating as unit is not available with pre-insertion resistors or synchronous closing capability) and protection</li> <li>• Reactor switching and protection</li> <li>• Load breaking/line dropping/loop splitting/cable switching</li> <li>• Line switching and protection</li> <li>• Bus switching and protection</li> <li>• Can be installed on Southern States furnished support structure at virtually any desired mounting height and on most anchor bolt patterns and anchor bolt sizes</li> <li>• Can even be installed on existing support structures</li> <li>• CSV-DB and CSV-CB integrate both protection and isolation (CSV-DB with a double end break Vee switch and CSV-CB with a center break Vee switch) into a single, compact installation</li> <li>• Can be outfitted with <b>CMD™</b> three-phase non-contact current transformer which can be integrally mounted on the CSV (See photo in the center column.), CSV-DB, or CSV-CB to provide the circuit switcher with current sensing capability and also to allow the unprotected zone between the circuit switcher and the power transformer’s primary side bushings and arresters to be protected</li> </ul>
<p><b>Capacitor Switch CapSwitcher®</b></p>   <p><i>CapSwitcher</i> is a registered trademark of Southern States, LLC</p>	<ul style="list-style-type: none"> <li>• SF<sub>6</sub> gas special purpose capacitor switch</li> <li>• 15.5 kV through 170 kV</li> <li>• 600 A continuous current &amp; capacitor switching current (15.5 kV-72.5 kV)</li> <li>• 650 A continuous current &amp; capacitor switching current (123 kV-170 kV)</li> <li>• 25 kA fault current interrupting (38 kV-72.5 kV)</li> <li>• 40 kA fault current interrupting (123 kV-170 kV)</li> <li>• 5 cycle interrupting speed (38 kV-72.5 kV)</li> <li>• 3 cycle interrupting speed (123 kV-170 kV)</li> <li>• 10 time 40 kA fault closing, 15 time 31.5 kA fault closing, 30 time 20 kA fault closing (38 kV-72.5 kV)</li> <li>• 2 time 63 kA fault closing, 10 time 40 kA fault closing, 15 time 40 kA fault closing, 30 time 20 kA fault closing (123 kV-170 kV)</li> <li>• 30 full fault (25 kA) interruptions (38 kV-72.5 kV)</li> <li>• 10 full fault (40 kA) interruptions (123 kV-170 kV)</li> <li>• 6 Ω, 10 Ω, 12 Ω, 20 Ω, 30 Ω, and 90 Ω closing resistors (15.5 kV-38 kV)</li> <li>• 12 Ω, 20 Ω, 30 Ω, 40 Ω, 80 Ω, and 90 Ω closing resistors (38 kV-72.5 kV)</li> <li>• 37.5 Ω, 75 Ω, 150 Ω, and 300 Ω closing resistors (123 kV-170 kV)</li> <li>• Available with <b>CMD™</b> three-phase non-contact current transformer</li> </ul>	<ul style="list-style-type: none"> <li>• Capacitor switching of single bank, back-to-back banks, grounded or ungrounded banks</li> <li>• Closing resistors provide mitigation of voltage transients and current transients</li> <li>• 15.5 kV-38 kV size <i>CapSwitcher®</i> (See bottom photo in leftmost column.) can be directly retrofitted in place when replacing existing three phase vacuum switches or existing three phase oil switches in structure mounting, rack mounting, or pole mounting applications</li> <li>• Capacitor bank protection when furnished with <b>CMD™</b> three-phase non-contact current transformer (See below photo.)</li> </ul> 