UniGear ZS1 can be now equipped with new active arc protection device, the Ultra-Fast Earthing Switch type UFES. The system functions on the principle of earthing all three phases just after an internal arc fault occurs. The extremely short operating time of the special vacuum primary switching device, in conjunction with rapid and reliable detection of the arc fault by the electronic unit, ensures that the arc fault is extinguished in less than 4ms (after detection)! This extension enables a passive protected switchgear to achieve the highest possible level of protection for persons and equipment.

A new, active arc fault protection system based on the knowhow gained from decades of experience with the ABB vacuum interrupter and IS-limiter technology now effectively helps to avoid these negative effects if a fault should occur.

Range of UniGear ZS1 with UFES
- ...12-17.5 kV, ...4000 A, ...50 kA
- ...24 kV, ...3150 A, ...31.5 kA
- Standard IEC
- Standard and highly customized versions

Safety
- Fitted with safety interlocks
- Internal arc classification IAC AFLR
- Classified LSC-2B, PM
- CB racking with closed door

Benefits of UniGear ZS1 with UFES
- Extinguishing of internal arc in 4ms (after detection)
- Negligible damages of panel after eventual internal arc
- Drastic reduction of down times and reparation costs leading to increased system availability and process
- Greatly increased operator safety during switchgear operation and maintenance

UFES in UniGear ZS1
- As top mounted busbar application
- Integrated in the cable compartment (available for 12-17.5 kV, 50 kA version)

UFES components
- U1, primary switching element
- QRU1, electronic detection and tripping unit expandable with ABB arc detection systems TVOC-2
- QRU100, electronic tripping unit connectable to ABB arc detection systems REA
**Technical data**

<table>
<thead>
<tr>
<th>Switchgear</th>
<th>UniGear 12 kV</th>
<th>UniGear 17 kV</th>
<th>UniGear 24 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of construction - Internal Arc Classification</td>
<td>IAC AFLR</td>
<td>IAC AFLR</td>
<td>IAC AFLR</td>
</tr>
<tr>
<td>Rated voltage [kV]</td>
<td>12</td>
<td>17.5</td>
<td>24</td>
</tr>
<tr>
<td>Insulation levels / power frequency / lightning impulse [kV]</td>
<td>12 / 28 / 75</td>
<td>17.5 / 38 / 95</td>
<td>24 / 50 / 125</td>
</tr>
<tr>
<td>Rated frequency [Hz]</td>
<td>50 / 60</td>
<td>50 / 60</td>
<td>50 / 60</td>
</tr>
<tr>
<td>Rated main busbar current (40 °C) [A]</td>
<td>... 4000</td>
<td>... 4000</td>
<td>... 3150</td>
</tr>
<tr>
<td>Rated feeder current (40 °C) [A]</td>
<td>... 4000</td>
<td>... 4000</td>
<td>... 3150</td>
</tr>
<tr>
<td>Rated short-time current [kA x 3 s]</td>
<td>... 50</td>
<td>... 50</td>
<td>... 31.5</td>
</tr>
<tr>
<td>Arc proof withstand current (IEC 62271-200) [kA x 1 s]</td>
<td>... 50</td>
<td>... 50</td>
<td>... 31.5</td>
</tr>
<tr>
<td>Tested according to</td>
<td>IEC</td>
<td>IEC</td>
<td>IEC</td>
</tr>
</tbody>
</table>

**Single-line diagram of typical units**

- **IF**: Incoming/outgoing feeder (*)
- **BT**: Bus-tie
- **R**: Riser
- **RM**: Riser with measurements
- **M**: Measurements (*)
- **IFD**: Direct incoming/outgoing feeder
- **IFDM**: Direct incoming/outgoing feeder with measurements

* (*) One set only of UFES can be installed in one panel, either as top mounted application or in cable compartment

**Typical feeder unit**

- **E**: UFES as top mounted busbar application
- **D**: Low voltage compartment
- **B**: Cable compartment
- **A**: Main busbars compartment
- **C**: Circuit-breaker compartment

For more information please contact:

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**More product information**: www.abb.com/productguide

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