**PSURGE 30.2**
Modular 30kV / 30kA Surge Test System

- **This test system** is used to perform high energy surge tests. Energy surges are generated by atmospheric lightning in power circuits. A surge is characterized by high energy and relative fast front times. Pulse durations are widely variable as are the coupling paths.

The PSURGE 30.2 is designed to generate a broad variety of surge impulses. Impulse modules can be exchanged quickly allowing PSURGE 30.2 to be used for different applications. Impulse module type is detected by the system software.

The built-in microprocessor control unit serves as user interface and control all the internal functions. When adding the remote control option, it is possible to use the PSURGE 30.2 with the WinPATS control and reporting software.

The integration in the WinPATS control and reporting software package enhances an efficient set-up and operation of this test system. Most importantly, the test load can be transferred to a computer freeing valuable resources. An integrated test cabinet provides optimal and safe connections for component testing.

<table>
<thead>
<tr>
<th>Features</th>
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<tbody>
<tr>
<td>☑ Up to 30kV impulse voltage</td>
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<tr>
<td>☑ Up to 30kA impulse current</td>
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<tr>
<td>☑ automatic polarity switching</td>
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<tr>
<td>☑ Peak voltage and current monitoring</td>
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<tr>
<td>☑ Integrated large test cabinet</td>
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<tr>
<td>☑ Remote control option</td>
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<thead>
<tr>
<th>Benefits</th>
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<tr>
<td>International application – Specifically designed to meet and exceed the requirements of IEC, EN, ITU and ANSI tests for power line applications.</td>
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</table>

Modular system - The impulse circuit can be changed quickly and easily by the user. Only one generator is needed for up to four impulse shapes.

Safe and Easy - The interlocked test cabinets allow your operators to test safely and easily. The warning lamp indicates the system status clearly.

Mains superposition – The combination wave impulse can be superimposed onto mains lines with the FP-SURGE 3010 according ANSI C62.45. This allows a surge test on a powered EUT.

Sturdy and Reliable – System components are selected for reliability and high impulse duty cycle.

<table>
<thead>
<tr>
<th>Applications</th>
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<tbody>
<tr>
<td>☑ Combination wave according IEC 61000-4-5</td>
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<tr>
<td>☑ Safety tests as defined e.g. in IEC 61010</td>
</tr>
<tr>
<td>☑ Telecom system tests according ITU K series</td>
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<tr>
<td>☑ Surge tests as described e.g. in IEC 60060-1 and ANSI C62.41</td>
</tr>
<tr>
<td>☑ Component test as described e.g. in IEC 60664 and IEC 61643-1</td>
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<tr>
<td>☑ Many IEC &amp; EN Product standards</td>
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</tbody>
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PSURGE 30.2 generator rack (left) with FPSURGE 3010 coupling network (right)
## Technical Specifications

### PSURGE 30.2 Mainframe
- **Charging voltage range**: 3...33kV
- **Capacitors**: 9uF / 36uF
- **Stored energy**: 5kJ at max. charging voltage
- **HV output**: terminals inside the test cabinet
- **Power mains**: 208, 230 or 240V 50/60Hz, 1800VA

### Test cabinet
- **Dimensions**: 39 x 29 x 32 cm (W x D x H)
- **HV switch**: triggered spark gap
- **Impulse polarity**: positive, negative, alternating
- **Impulse circuit**: floating, max. voltage between common and ground 500V AC
- **External synchronisation**: 0°...360° in 1° steps

### Weights and Dimensions (W x D x H, net weight)
- **PSURGE 30.2**: 60 x 100 x 190 cm approx. 320 kg

### Impulse Module PS30-CW
- **Impulse type**: Combination wave
- **Voltage front time**: 1.2us ±30%
- **Voltage decay time**: 50us ±20%
- **Voltage undershoot**: ≤30%
- **Voltage amplitude range**: 3...30kV
- **Impulse repetition**: up to 6 impulses per minute at max. voltage

### Impulse Module PS30-8x20
- **Impulse type**: current
- **Voltage front time**: not defined
- **Voltage decay time**: not defined
- **Undershoot**: not defined
- **Charging voltage range**: 3...15kV
- **Impulse repetition**: up to 2 impulses per minute at max. current

### Impulse Module PS30-10x350
- **Impulse type**: current
- **Voltage front time**: not defined
- **Voltage decay time**: not defined
- **Charging voltage range**: 3...15kV
- **Impulse repetition**: up to 2 impulses per minute at max. current

### Impulse Module PS30-10x1000
- **Impulse type**: current
- **Voltage front time**: not defined
- **Voltage decay time**: not defined
- **Charging voltage range**: 3...15kV
- **Impulse repetition**: up to 2 impulses per minute at max. current

### Impulse Module PS30-8x20
- **Output impedance**: 2 Ohm
- **Current front time**: 8us ±20%
- **Current decay time**: 20us ±20%
- **Current undershoot**: ≤20%
- **Current amplitude range**: 1.5...15kA

### Impulse Module PS30-8x20
- **Output impedance**: 0.5 Ohm
- **Current front time**: 8us ±20%
- **Current decay time**: 20us ±20%
- **Current undershoot**: <20%
- **Current amplitude range**: 6...30kA

### Impulse Module PS30-10x350
- **Output impedance**: 12 Ohm
- **Current front time**: 10us ±20%
- **Current decay time**: 350us ±20%
- **Current amplitude range**: 240...1200A

### Impulse Module PS30-10x1000
- **Output impedance**: 37 Ohm
- **Current front time**: 10us ±20%
- **Current decay time**: 1000us ±20%
- **Current amplitude range**: 80...400A
### Coupling and decoupling network FP-SURGE 3010

<table>
<thead>
<tr>
<th>Impulse shape</th>
<th>Combination wave only</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUT line voltage</td>
<td>480V AC (\text{AC})</td>
</tr>
<tr>
<td></td>
<td>110V DC</td>
</tr>
<tr>
<td>EUT current</td>
<td>10A</td>
</tr>
<tr>
<td>Test cabinet</td>
<td>40 x 40 x 80 cm (W \times D \times H)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Imp. amplitude</th>
<th>30kV / 15kA</th>
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<tbody>
<tr>
<td>Coupling modes</td>
<td>Line to neutral</td>
</tr>
<tr>
<td></td>
<td>Line or neutral to ground</td>
</tr>
<tr>
<td></td>
<td>Line and neutral to ground</td>
</tr>
<tr>
<td>Coupling capacitors</td>
<td>2x9\mu F / 1x18\mu F</td>
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</table>

**Residual voltage at EUT line input**: 15% of the applied test voltage, limited to approx. 1200V

**Weights and Dimensions (W x D x H, net weight)**

| FP-SURGE 3010 | 60 x 100 x 190 cm | approx. 250 kg |

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**PSURGE 30.2 System Ordering Information**

- **PSURGE 30.2 Mainframe**
  - Including users manual, mains cable (country specific), warning lamp, emergency stop switch
  
  *Art. No. 249320*

- **PS30-CW combination wave module**
  
  *Art. No. 249321*

- **PS30-8x20 current impulse module 8/20us**
  
  *Art. No. 249322*

- **PS30-10x350 current impulse module 10/350us**
  
  *Art. No. 249323*

- **PS30-10x1000 current impulse module 10/1000us**
  
  *Art. No. 249324*

- **FP-SURGE 3010** Single phase CDN
  - Including users manual, mains cable (country specific), cable set, cables to connect PSURGE 30.2
  
  *Art. No. 249452*

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**Options and Accessories**

- **EUT-OPT.1 Optical fiber for EUT failed input**
  
  *Art. No. 249449*

- **P90-Opt.2 Optical fiber link for RS-232. Needed for remote control of the PSURGE 30.2**
  
  *Art. No. 249225*

- **WinPATS Control and reporting software. Runs under Windows 98**
  
  *Art. No. 249309*