Combined instrument transformers

Outdoor operation
$\text{SF}_6$-gas insulated

EJGF (245–550) kV
General description

Type EJGF combined transformers are used in high-voltage substations within the 245–550 kV range. They transfer high voltage and high current into standardised, equivalent values for meters, measuring and protection devices.

The voltage transformer component is located in the top of the pressure-resistant head housing and the current transformer cores at the bottom. In the current transformer unit, the iron core is set to high-voltage potential and the secondary windings to earth potential. The current transformer cores are fitted in a protective core shell made of massive cast aluminium, which is connected short-circuit proof to the bushing. The secondary outlets are passed through the SF₆/air bushing in the connection terminal box on the base support of the insulator.

The electrical field distribution along the insulator is optimised by a special layout of the control electrode inside the silicone composite insulator.

The housing components consist of helium-tight, corrosion-resistant cast aluminium. All housing components under pressure are individually type-tested according to applicable pressure vessel standards.

The SF₆ gas density is monitored by a temperature-compensated gas density monitor with alarm contacts. The special design means the function of the gas density monitor can be checked without dismounting it.

A corrosion-resistant metal rupture disc, protected by a metal cover, located at the top of the head housing ensures safe pressure relief in case of error.

The generously designed terminal box is equipped with a cover that opens sideways.

Pure SF₆ gas is used for ambient temperatures up to -40°C. The transformer is filled with a mixed gas for lower ambient temperatures up to -60°C.

Advantages of combined instrument transformers

- Reduced transport costs with one unit instead of two
- Less space needed with just one footprint
- Lower material costs due to a reduced number of supports and fewer primary connections
- Lower installation effort as only one unit has to be installed instead of two
Highlights

Easy primary changeover
- A clear and easy primary changeover with a ratio of 1:2 or 1:2:4 is available.
- The primary changeover is adjusted with one metal plate at each side of the head only.
- No need to dismount or move the primary connections during adjustment.

Excellent protection against moisture
- The inner side of the instrument transformer is protected against moisture by means of special sealing rings.
- All housings are designed with a drain-age area to protect the sealing surfaces of the housings against rain. This significantly reduces crevice corrosion.
- The housing elements are connected with special stainless steel screws. They are designed in such a way that no humidity can enter the screw hole.

Installation-friendly terminal box
- The generously sized terminal box with a cover that can be opened sidewards, is secured with captive screws. It can accommodate terminal blocks, fuses, surge arrestors, additional auxiliary contacts, spark gaps and sealable covers.
- The terminal box is equipped as standard with a blind flange. Cable glands can be installed on request.
- The terminal box has a protected ventilation aperture to prevent condensation.
Possible options

- Colour coated housings and flanges
- Fuses or miniature circuit breakers (MCBs) with or without auxiliary contacts in the terminal box
- Surge arrestors and spark gaps in the terminal box
- Heater in the terminal box
- Sealable cover on terminals for billing purposes
- Sealable gas filling valve
### Technical data

**Type EJGF 245 300 330 362 420 550**

<table>
<thead>
<tr>
<th>Standard</th>
<th>IEC/IEEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest voltage for equipment</td>
<td>kV 245 300 330 363 420 550</td>
</tr>
<tr>
<td>Rated power-frequency withstand voltage</td>
<td>kV 460 460 460 575 630 680</td>
</tr>
<tr>
<td>Rated lightning impulse withstand voltage</td>
<td>kV 1050 1050 1175 1175 1425 1550</td>
</tr>
<tr>
<td>Frequency</td>
<td>Hz 50/60</td>
</tr>
<tr>
<td>Primary rated current</td>
<td>A ≤ 5000</td>
</tr>
<tr>
<td>Secondary rated current</td>
<td>A 1/5</td>
</tr>
<tr>
<td>Rated short-time thermal current [Ith]</td>
<td>kA/3s ≤ 80</td>
</tr>
<tr>
<td>Rated dynamic current [Idyn]</td>
<td>kA ≤ 200</td>
</tr>
<tr>
<td>Accuracy class CT part</td>
<td>0.1 – 3; P; PR; PX; TPS; TPX; TPY; TPZ</td>
</tr>
<tr>
<td>Accuracy class VT part</td>
<td>0.1 – 3; 3P; 6P</td>
</tr>
<tr>
<td>Rated thermal limiting output VT part</td>
<td>VA ≤ 3000</td>
</tr>
<tr>
<td>Max. simultaneous burden (cl. 0.2)</td>
<td>VA 300</td>
</tr>
<tr>
<td>Max. number of CT cores</td>
<td>8</td>
</tr>
<tr>
<td>Max. number of VT windings</td>
<td>5</td>
</tr>
<tr>
<td>Nominal operating / transport overpressure (20°C)</td>
<td>bar 4 / 0.5</td>
</tr>
</tbody>
</table>

### Physical dimensions

<table>
<thead>
<tr>
<th>Type EJGF</th>
<th>245</th>
<th>300</th>
<th>330</th>
<th>362</th>
<th>420</th>
<th>550</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height of unit*</td>
<td>A mm</td>
<td>4980</td>
<td>4980</td>
<td>6140</td>
<td>6140</td>
<td>6500</td>
</tr>
<tr>
<td>Height to primary terminal*</td>
<td>B mm</td>
<td>3375</td>
<td>3375</td>
<td>4730</td>
<td>4730</td>
<td>5090</td>
</tr>
<tr>
<td>Depth of unit including terminal box</td>
<td>C mm</td>
<td>845</td>
<td>845</td>
<td>1088</td>
<td>1088</td>
<td>1088</td>
</tr>
<tr>
<td>Depth of unit base</td>
<td>D mm</td>
<td>749</td>
<td>749</td>
<td>1088</td>
<td>1088</td>
<td>1088</td>
</tr>
<tr>
<td>Width of unit base</td>
<td>E mm</td>
<td>736</td>
<td>736</td>
<td>1075</td>
<td>1075</td>
<td>1075</td>
</tr>
<tr>
<td>Distance between screw holes at base</td>
<td>F mm</td>
<td>600</td>
<td>600</td>
<td>900</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>Min. creepage distance*</td>
<td>mm</td>
<td>6700</td>
<td>7500</td>
<td>8250</td>
<td>9050</td>
<td>10500</td>
</tr>
<tr>
<td>Gross weight / gas weight, approx.*</td>
<td>kg</td>
<td>940 / 45</td>
<td>940 / 45</td>
<td>1000 / 58</td>
<td>1000 / 58</td>
<td>1600 / 60</td>
</tr>
</tbody>
</table>

* with standard composite silicone insulator, creepage distance 25 mm/kV
Global presence

PFIFFNER Instr. Transformers Ltd
5042 Hirschthal
Switzerland
☎ +41 (0)62 7392828
✉ sales@pmw.ch
🌐 www.pfiffner-group.com/pch

PFIFFNER Technologie Ltd
5042 Hirschthal
Switzerland
☎ +41 (0)62 7392828
✉ technologie@pmw.ch
🌐 www.pfiffner-group.com/pte

PFIFFNER Systems Ltd
4303 Kaiseraugst
Switzerland
☎ +41 (0)61 4676111
✉ info@pfiffner-systems.com
🌐 www.pfiffner-systems.com

PFIFFNER Deutschland GmbH
25524 Itzehoe
Germany
☎ +49 (0)48 21408270
✉ sales@pfiffner-messwandler.de
🌐 www.pfiffner-group.com/pde

PFIFFNER Transformatör A.S.
06750 Akyurt/Ankara
Turkey
☎ +90 (0)31 28475521
✉ info@pfiffner.com.tr
🌐 www.pfiffner-group.com/ptr

PFIFFNER do Brasil Ltda
88307-740 Itajaí
Brazil
☎ +55 (0)47 33481700
✉ pfiffner@pfiffner.com.br
🌐 www.pfiffner-group.com/pbr

MGC Moser-Glaser Ltd
4303 Kaiseraugst
Switzerland
☎ +41 (0)61 4676111
✉ info@mgc.ch
🌐 www.mgc.ch

ALPHA Elektrotechnik Ltd
2560 Nidau
Switzerland
☎ +41 (0)32 3328700
✉ mail@alpha-et.ch
🌐 www.alpha-et.ch

This document has been drawn up with the utmost care. We cannot, however, guarantee that it is entirely complete, correct or up-to-date. ©Copyright PFIFFNER / Subject to change without notice 2017.04

PFIFFNER
Current and voltage – our passion

HIGH VOLTAGE
MEDIUM VOLTAGE
LOW VOLTAGE