The DPA148 is a very compact power supply designed for fieldbus applications in which power and data share the same twisted-pair.

The unit supplies power, decouples data from the power supply, and makes the two cables symmetrical with respect to the shield terminal. The decoupling allows the use of unshielded cables.

The PELV output circuit has electronic protection against overload and short-circuit. Isolation is equivalent to safety transformers as specified in VDE 0551.

The output is protected against open-circuit, short-circuit, and overload.

Specifications are valid at 230V AC, unless otherwise stated. They are subject to change without prior notice.

---

**Output**

<table>
<thead>
<tr>
<th>Vout</th>
<th>Iout</th>
<th>Pout</th>
<th>Features</th>
<th>Order-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.55V</td>
<td>8A</td>
<td>244W</td>
<td>OVP</td>
<td>DPA148.141</td>
</tr>
</tbody>
</table>

Warranty: 2 years from date of delivery.

---

**Input**

<table>
<thead>
<tr>
<th>Line input 1</th>
<th>Range</th>
<th>100...127V AC</th>
<th>Switch position 115V.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>88...132V AC</td>
<td>Full spec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80...150V AC</td>
<td>Derated, see page 2.</td>
</tr>
<tr>
<td>Line input 2</td>
<td>Range</td>
<td>220...240V AC</td>
<td>Switch position 230V.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>187...264V AC</td>
<td>Full spec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150...300V AC</td>
<td>Derated, see page 2.</td>
</tr>
<tr>
<td>Line frequency</td>
<td></td>
<td>47...63Hz</td>
<td>DC or 400Hz, see page 2.</td>
</tr>
<tr>
<td>Input current</td>
<td></td>
<td>6.0Aeff. / 2.8Aeff.</td>
<td>@ 115 / 230V AC.</td>
</tr>
</tbody>
</table>

---

**Preliminary data sheet**

The output is protected against open-circuit, short-circuit, and overload.

---

**Mechanical:**

- A/M g alloy housing, snap-on mounting for DIN rail TS35/7.5 (EN 55022).
- WHxD = 120 x 134 x 120mm, the depth includes the DIN-rail mounting, see page 4.

**Weight:**

- App. 1200g

**Screw terminals:**

- Input 1 terminal, max. 2.5/4mm²
- Output 2 terminals, each max. 2.5/4mm², see page 4

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See the web for current data sheet version: [www.puls.power.de](http://www.puls.power.de)
Output (continued)

Voltage regulation:
- Line regulation max. % ± 0.2
- Load regulation stat. Δ Ustat max. % ± 0.75
- Temperature coefficient typ. %/K ± 0.02
- Ripple max. mVpp 50

Current limitation
- Threshold min/max. A 8.4/11.0
- Characteristic typ. s 1
- Short-circuit typ. A 25
- Start delay typ. s 1
- Vout rise-up time typ. ms 100
- On and off characteristic

Input (continued)

AC input range 1 / 2 V AC 88...132 / 187...264 Full spec.
DC input range V DC 250...300 Full spec.
Derated AC range 1 / 2 V AC 80...88 / 150...187, 150 / 300 for 0.5s
Derated DC range V DC 200...250 Full spec.
- Frequency range Hz 47...63 Full spec.
- Derated frequency range Hz 63...400
- In-rush current max. A 50
- Hold-up time min. ms
- Power factor λ typ. 0.6
- Internal fuse 5x20mm T8A/250V (IEC127/2-5)
- Input range selection Manual (230V AC set at factory) 115/230V switch, position in the unit.

Output (continued)

Voltage regulation:
- Line regulation max. % 88...132V AC / 187...264V AC, Iout = 8A.
- Load regulation stat. Δ Ustat max. % Iout = 50%, D Iout = ±50%.
- Temperature coefficient typ. %/K 0...+20MHz, @ ACnom, Iout = 100%, R or I-load.
- Ripple max. mVpp 0.2

Data Decoupling / Earth Symmetrization

Output inductance 100µH ± 10%
Terminating impedance 2 x 39Ω ± 1%
Symmetry tolerance ± 1%
Electric strength 500V

Electromagnetic Compatibility

Emissions according to EN 50081-1
- Radio interference, EN 55011, EN 55022
Immunity according to EN 50082-2
- Electrostatic discharge ESD EN 61000-4-2
- Radiated fields, EN 61000-4-3
- Fast transients, EN 61000-4-4
- Surge transients EN 61000-4-5
- Conducted disturb., EN 61000-4-6
Immunity according to further standards
- Transient voltage, IEC 255
- NAMUR-prescription
- Transient resistance, VDE 0160 §5.3.1.1.2
- Over-voltage resistance (PULS standard)

Output

Data Decoupling / Earth Symmetrization

According to AS-Interface-specifications

- Measured between AS-i+ und AS-i–.
- As above.
- As above.

Electromagnetic Compatibility

- EN 50081-2 is also satisfied.
- EN 50082-1 is also satisfied.
- 80MHz...1000MHz, ACin and Vout lines: l = 1m.
- Coupled to ACin line.
- Coupled to DCout line.
- Common mode, unit on.
- Differential mode, unit on.
- 150kHz...80MHz.
- Common mode, unit off.

PULS Munich
Tel.: 089 / 92 78-2 44
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1 Output • DIN Rail Power Supply • 244 Watt • DPA148

Protection

Unit protection
- Overload: Yes — See current limit.
- Short-circuit proof: Yes — Automatic voltage recovery.
- Open-circuit proof: Yes
- Over-temperature (OTP): —
- Reverse battery prot.: Yes
- ACIn range selection: Manual — Switch for 115/230V AC.

Load protection
- Over-voltage (OVP): Yes
  - Threshold: typ. 35V
  - Accuracy: max. ± 4%

Safety

Electrical safety
- Test voltage: 3kV AC — Primary / secondary.
  - according to EN 60 950 2.5kV AC — Primary / PE.
  - for t = 2sec: 500V AC — Secondary / PE.
- Air- and leakage distance: 6.4 / 8mm — Primary / secondary.
- Isolation resistance: min. 5MΩ — VDE 0551.
- Protection class: I — VDE 0106 part 1, IEC 536.
- PE resistance: < 0.1Ω — VDE 0805.
- Protection system: IP20 — DIN 40050, IEC 529.
- Leakage current: max. 0.75mA — EN 60 950 (50Hz line frequency).
- Output circuit: PELV — VDE 0160.
- Over-voltage class: ΙΙ — VDE 0110 part 1, IEC 664.

Touch safety: Finger test — VDE 0100 §6, EN 60 950, VBG4.
Penetration protection: > ∅ 3mm — e.g. screws, small parts etc.

Operation and Ambient Area

Application class: KSF — DIN 40040.
Operation temperature: max. -10° ... +70°C — Ta (measured at 1cm distance).
  - Derated range: -20° ... +100°C — Non-condensing.
Storage temperature: typ. +60° ... +70°C — Derating, see diagram.
Humidity: max. 95% — See page 4.
Mechanical usage: Vertical — No gap needed.
  - Lateral spacing: None
Cooling: Normal convection — Don't obstruct air flow.
Dirt protection level: max. 2 — VDE 0110 part 1.
Vibration: 0.075mm — IEC 68-2-6 (10...60Hz).
Shock: 11ms / 15g — IEC 68-2-27 (3 shocks).
Operation height: max. 2,000m — Above sea level.

Efficiency

DPA.141 typ. 88% — @ 230V ACin, Iout = 100% .

Reliability and Lifetime

MTBF according to Siemens standard SN29500: typ. 200,000h — 230VAC, Iout = 100%, +40°C Ta.
Only long life (> 2,000h @105° C) electrolytic capacitors are used.
Function test: 100% — Test certificate enclosed.
Run-in (burn-in): 24h — Full load, Ta = +60°C, on/off cycle.

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This technical information is valid for +25° C ambient temperature and 5 min. run in time, unless otherwise stated.
DPA148 • 1 Output • DIN Rail Power Supply • 244 Watt

Fuse
The PSU has electronic protection against external short-circuits. In case of an internal defect, a fuse disconnects the unit. It can only be replaced by opening the unit which should be done by the supplier.

Installation for Operating
Install DIN rail TS35/7.5 horizontally, ensuring correct orientation. For other installation considerations consult your representative. Ensure free air flow.

Dimensions and Connections
Fully enclosed Al/Mg alloy housing. All mechanical dimensions are in mm.

1) Do not remove PE screws.

The shield terminal should be connected to earth or to the shield of the load cable.

Screw terminals:
On the front side. These accept wire of up to 4mm² cross section (single-core cable) or 2.5mm² cross section (multi-core flex). Remove 9 to 15mm of insulation from wire. Take care of standards which must be satisfied, e.g. VDE 0100 or EN 60 950.

Caution:
Do not remove any screws on box, as internal safety connections could be disconnected!

Operation without AS-Interface
When operating without AS-Interface (e.g. in a lab test) you should connect a 470µF capacitor between AS-i + and AS-i −, because commercial lab-loads often tend to oscillate. They may resonate with the data decoupling, and the oscillations may exceed the permitted modulation voltage.

Modifications (contact supplier)
Other output voltages, OEM-versions.