The DP157 is a compact and economical solution for supplying electronic controllers, sensors, actuators and other loads in industrial plants and environments. Output is stable over the total load range, with excellent ripple and noise values of < 25mVpp. Low weight and small size allow quick installation on DIN rails (TS35). In complex systems, the Power Fail signal can be very useful to start a controlled shut down process.

Changes of line voltage and other disturbances (according to EN 61000-4), and VDE 0160 pulses - class 2 for total load range! - are filtered and regulated by the power supply. The unit is also protected against over-voltage and short-circuits. Isolation is equivalent to safety transformers according to VDE 0551, and meets VBG 4.

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

**Output**

- **Accuracy** max. ± 2% Includes: production-adjustment, line regulation, and load regulation.
- **Sense lines** None Not available.
- **Minimum load** None Not necessary.
- **Output power** Pout max. 240W Mounting with 8mm lat. spacing.
- **Noise, Ripple** incl. spikes max. 25mVpp 20Hz...200kHz.
- **Over-voltage protection** typ. 29.0V Threshold accuracy ± 4%.
- **Derating** 5W/K +60°C to +70°C Ta.
- **Operating indicator** 1 green LED On the front.
- **Isolation Vout to Vin** SELV EN 60950, VDE 0805.
  The output is protected against open-circuit, short-circuit, and overload.

**Input**

- **Line input AC 1**
  - Range 100...127V AC Switch position 115V.
  - Derated, see page 2.
- **Line input AC 2**
  - Range 220...240V AC Switch position 230V.
  - Derated, see page 2.
- **Line frequency** 47...63Hz DC or 400Hz, see page 2.
- **Input current rms.** max. 6.0Aeff. / 2.8Aeff. @ 115 / 230V AC.
- **Noise suppression** EN 55 022/B 10kHz...30MHz, conducted.

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

Voltage regulation:
- Line regulation max. % ± 0.2
- Load regulation stat. ΔUstat max. % ± 0.2
- Load regulation dyn. ΔUdyn max. % ± 1
- Response time tRiset typ. µs 800
- Temperature coefficient ΔUtyp max. % ± 0.01
- Ripple max. mVpp 25
- inc. spikes max. mVpp 30

Current limitation
- Threshold min/max. A
- Characteristic ΔIstat max. % See graph on page 3
- Short-circuit max. A
- Start delay tDelay typ. ms 50
- Vout rise-up time tRiset typ. ms 35

Power back immunity UBack max. V 28

Input (continued)

AC input range 1 / 2 V AC
DC input range V DC
Derated AC range 1 / 2 V AC
Derated DC range V DC

Frequency range Hz
Derated frequency range Hz
In-rush current max. A 50
Hold-up time min. ms 18
min. ms 25
Power factor λ typ. 0.67

Internal fuse
Input range selection

Logic Functions

Power Fail signal PF
- PF high if
- from power failure to PF-signal min. ms 15
- from PF-signal min. ms 5

Electromagnetic Compatibility

Emissions according to EN 50081-1
- Radio interference, EN 55011, EN 55022

Immunity according to EN 50082-2
- Electrostatic discharge ESD
- Radiated fields, EN 61000-4-3
- Fast transients, EN 61000-4-4
- Surge transients, EN 61000-4-5
- Conducted disturb., ENV 50141 (draft of IEC 801-6)

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)

EN 50081-2 is also satisfied
Class B
Class A
No degradation of performance
8kV direct discharge (level 4)
15kV air discharge (level 4)
10V/m (level 3)
4kV (level 4)
2kV level 3
2kV (level 4) cap. coupling
4kV (isolation class 4)
2kV (isolation class 4)
10V (level 3)

5kV
Satisfied

EN 50082-1 is also satisfied
Class B
Class A
For conducted emissions, 10kHz...30MHz,
30MHz...1000MHz, EN 50082-1 is also satisfied
80MHz...1000MHz, ACin, Vout and signal lines: I = 1m.
Coupled to ACin line.
Coupled to DCout line.
Common mode, unit on.
Differential mode, unit on.
150kHz...80MHz.

Common mode, unit off.

Open-collector
ACin > 83.160V AC

EN 50081-1
5x20mm T8A/250V
(IEC127/2-5)
Manual (230V AC set at factory)

50

EN 50082-2
115/230V switch, position see page 4.

Approximately monotonic.
Unit off/on.

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1 Output • DIN Rail Power Supply • 240 Watt • DP157

**Protection**

- **Unit protection**
  - Overload: Yes
  - Short-circuit proof: Yes
  - Open-circuit proof: —
  - Over-temperature (OTP): —
  - Reverse battery prot.: Yes
  - ACin range selection: Manual

- **Over-voltage (OVP)**
  - Threshold: typ. 29.0V
  - Accuracy: max. ± 4%
  - Method: —

- **Over-voltage class**
  - IIE

**Safety**

- **Test voltage**
  - 3kV AC Primary / secondary.
  - 2.5kV AC Primary / PE.
  - 500V AC Secondary / PE.

- **Air- and leakage distance**
  - 6.4 / 8mm Primary / secondary.
  - 4mm Primary / PE.

- **Isolation resistance**
  - min. 5MΩ VDE 0551.

- **PE resistance**
  - < 0.1Ω VDE 0805.

- **Protection class**
  - I VDE 0106 part 1, IEC 536.
  - II VDE 0085, EN 60 950, VDE 0160.

- **Protection system**
  - IP20 DIN 40050, IEC 529.

- **Leakage current**
  - max. 0.75mA EN 60 950 (47...63Hz line).

- **Safe low voltage**
  - SELV VDE 0100 §6, EN 60 950, VBG4.

- **Over-voltage class**
  - IIE 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. 0°...+70°C Ta (measured at 1cm distance).
  - Derated range +60°...+70°C Derating, see diagram.

- **Storage temperature**
  - typ. -20°...+100°C Ta.
  - max. 95% Non-condensing.

- **Mechanical usage**
  - Vertical See page 4.
  - Lateral spacing 0mm / 8mm For 192W / 240W operation.

- **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 and Power Loss**

- **Efficiency**
  - DP157.132 typ. 88% / 33W @ 230V ACin, Iout = 100%.

**Reliability and Lifetime**

- **MTBF according to Siemens standard SN29500**
  - typ. 300,000h 230VAC, Iout = 100%, +40°C Ta.

- **Only long life (> 2,000h @105° C) electrolytic capacitors are used.**

- **Function test**
  - 100% Test certificate enclosed.

- **In-circuit test**
  - Yes

- **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.
## 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. The height of the plastic studs is 3.5mm total for top and bottom.
2. Do not remove PE screw.
3. The height of this screw head is max. 2.5mm (both sides of the unit).

**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 60950.

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

## Modifications (contact supplier)
Other DC input ranges.
Other output voltages.
Lower cost versions.