

PULS does it again:
practical, versatile and reliable like
the SilverLine – yet small like no other.

PULS

CE

UL US LISTED

CB
scheme



Data Sheet

MiniLine ML50.100 with DC 24-28V / 50W

- Mounted and connected in record time, no tools required
- World-wide approvals (UL, EN, CSA, CB Scheme) for industry and office/home
- Tiny: WxHxD = 45 x 75 x 91mm
- NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)
- Output voltage adjustable to DC 28V
- 100-240V Wide Range Input (AC 85...264V permitted)
- PULS Overload Design™ (no switch-off at overload but up to 1.5 times nominal current)
- ML50.101 with load sharing for reliable parallel operation

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Mini is more.

◆ Technical Data ML50.100/.101

| ◆ Input | |
|----------------------------------|--|
| Input voltage | AC100-240V (Wide Range), 47...63Hz Admiss. limits: AC 85...264V (DC 85...375V) |
| Input current | <1.0A (@ AC 100V, 50W P _{out}) <0.6A (@ AC 196V, 50W P _{out}) |
| External Fusing | Not required, unit provides internal fuse (T3AH, not accessible) |
| Transient immunity | Transient resistance acc. to VDE 0160 / W2 (750V / 1.3ms), over entire load range |
| Hold-up time (see diagram below) | >171ms bei AC 230V, 24V / 2.1A >97ms @ AC 196V, 24V / 2.1A >17ms @ AC 100V, 24V / 2.1A |

| ◆ Efficiency, Reliability | |
|---------------------------|---|
| Efficiency | typ. 88.5% (AC 230V, 24V / 2.1A) (see also diagram below) |
| Losses | typ. 6.8W (AC 230V, 24V / 2.1A) |
| MTBF (Reliability) | ca. 600.000h acc. to Siemensnorm SN 29500 (24V / 2.1A, AC 230V, T _{amb} = +40°C) |

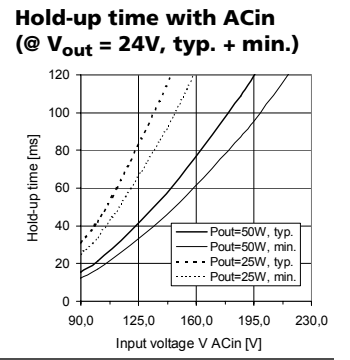
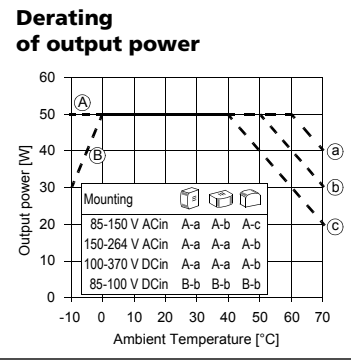
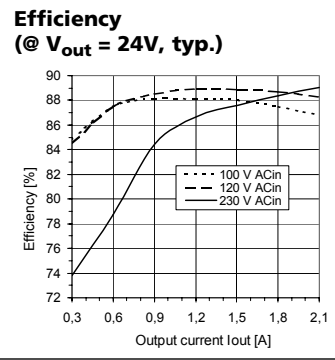
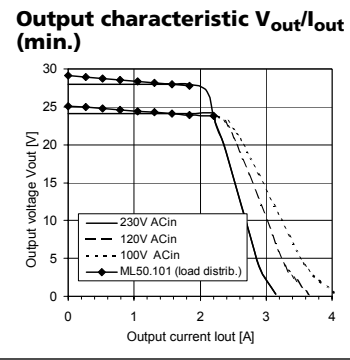
Prior to shipment, every unit undergoes the following tests in order to isolate any defective units which might suffer an early failure:

- Run-in / burn-in (Full load, T_{amb} = +60°C, on/off cycle)
- Functional test (100%)

| ◆ Construction, Mechanics, Installation | |
|---|--|
| Robust plastic housing (US Patent No. D442, 9235), fine ventilation grid on three housing sides to keep out small parts (e.g. screws), IP20 | |
| Dimensions and weight | |
| • B x H x T | 45mm x 75mm x 91mm (+ DIN Rail) Depth incl. terminals: 98mm (+ DIN Rail) |
| • Weight | 240g |
| Mounting orientation | (cf. 'Output') |
| Ventilation/Cooling | Normal convection, no fan required |
| • Free space f. cooling | recom'd.: 25mm on sides with ventilation grid |
| Easy snap-on mounting onto the DIN-rail (TS35/7,5 or TS35/15). Unit sits safely and firmly on the rail; no tools required even to remove | |
| Connection | by Spring Clamp terminals; uniformly firm hold, vibration-resistant and maintenance-free: 2 terminals per output |
| Connector size range | |
| • flexible cable | 0.3-2.5mm ² (28-12 AWG) |
| • solid cable | 0.3-4mm ² (28-12 AWG) Ferrules admissible |
| • Wire strip length | 6mm (0.24in) recommended |

- Design details – for your advantage:
- All terminals are easy to reach as mounted on the front panel.
 - Input and output are strictly apart from each other (input below, output above) and so cannot be mixed up
 - **Mounting and connection do not require any screwdriver**
- Easy, quick, durable and reliable installation

◆ Diagrams



| ◆ Output (incl. Logic) | |
|--------------------------|--|
| Output voltage | DC 24-28V, adj. by front panel potentiometer • preset 24.5V ±0.5% (ML50.101: at half I _{rated}) |
| Voltage regulation | stat. 0.5% V _{out} (ML50.100) / 5% (ML50.101, load sharing), dyn. ±2% V _{out} overall |
| Ripple/Noise | <50mV _{pp} (20MHz bandw., 50 Ω-measur.) |
| Overvoltage prot. (OVP) | <40V |
| Output noise suppression | Radiated EMI values below EN 61000-6-3, even with long (>2m), unscreened output cables |
| Rated continuous loading | up to 2.1A (convection cooling) depending on built-in orientation, V _{in} and T _{amb} ; for details see derating diagram below |
| Overload behaviour | PULS Overload Design™ : No switch-off at overload/short-circuit, instead: up to 1.5 · I _{rated} . So you need no oversizing to start awkward loads. |
| Protection | Unit is protected against (also permanent) short-circuit, overload and open-circuit |
| Derating | depending on built-in orientation; see diagram below |
| Parallel operation | Yes with ML50.101 by load sharing, inclined characteristic curve (ΔV = ±0.6V @ 0A...I _{rated}) |
| Power back immunity | 35V |
| Operation indicator | Green LED (DC OK), threshold: V _{out} = 20V |
| DC OK output | To feed a 24V relay (R _{coil} >700Ω). Relay operates, if output voltage exceeds threshold value Free-wheeling diode for relay is included in the power supply unit |
| Threshold | V _{out} = 20V ±4% |

| ◆ Environmental Data, EMC, Safety | |
|--|--|
| Ambient temperature range (measured 25mm below unit) | |
| • storage, transport | -25°C ... +85°C |
| • operation | -10°C ... +70°C (for derating see diagram below) |
| Humidity | max. 95% (without condensation) |
| Electromagnetic emissions (EME) | EN 61000-6-3 (includes EN 61000-6-4) Class B (EN 55011, EN 55022) |
| Electromagnetic immunity (EMI) | EN 61000-6-2 (includes EN 61000-6-1) |
| Safe low voltage: | SELV (EN60950, VDE0100/T.410), PELV (EN50178) |
| Prot. class/degree: | Class I (EN60950) / IP20 (EN60529) |

The PSU complies with all major **safety approvals** for EU (EN 60950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)