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practical, versatile and reliable like  
the SilverLine – yet small like no other.

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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 <sub>out</sub> ) <0.6A (@ AC 196V, 50W P <sub>out</sub> )
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 <sub>amb</sub> = +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<sub>amb</sub> = +60°C, on/off cycle)
- Functional test (100%)

## ◆ Construction, Mechanics, Installation

Robust plastic housing (US Patent No. D442, 923S), 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<sup>2</sup> (28-12 AWG)
  - solid cable 0.3-4mm<sup>2</sup> (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

## ◆ Output (incl. Logic)

Output voltage	DC 24-28V, adj. by front panel potentiometer • preset 24.5V ±0.5% (ML50.101: at half I <sub>rated</sub> )
Voltage regulation	stat. 0.5% V <sub>out</sub> (ML50.100) / 5% (ML50.101, load sharing), dyn. ±2% V <sub>out</sub> overall
Ripple/Noise	<50mV <sub>pp</sub> (20MHz bandw., 50 Ω-measur.)
Oversvoltage 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 <sub>in</sub> and T <sub>amb</sub> ; for details see derating diagram below
Overload behaviour	<b>PULS Overload Design™</b> : No switch-off at overload/short-circuit, instead: up to 1.5 · I <sub>rated</sub> . 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 <sub>rated</sub> )
Power back immunity	35V
Operation indicator	Green LED (DC OK), threshold: V <sub>out</sub> = 20V
DC OK output	To feed a 24V relay (R <sub>coil</sub> >700Ω). Relay operates, if output voltage exceeds threshold value Free-wheeling diode for relay is included in the power supply unit
Threshold	V <sub>out</sub> = 20V ±4%

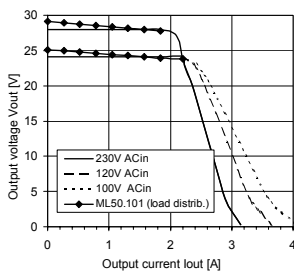
## ◆ Environmental Data, EMC, Safety

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)

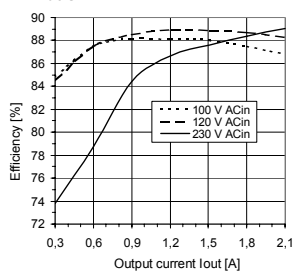
The PSU complies with all major **safety approvals** for EU (EN 60950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

## ◆ Diagrams

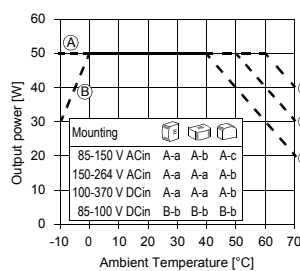
**Output characteristic V<sub>out</sub>/I<sub>out</sub> (min.)**



**Efficiency (@ V<sub>out</sub> = 24V, typ.)**



**Derating of output power**



**Hold-up time with ACin (@ V<sub>out</sub> = 24V, typ. + min.)**

