



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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

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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 0.3-2.5mm² (28-12 AWG)
- solid cable 0.3-4mm² (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 _{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%

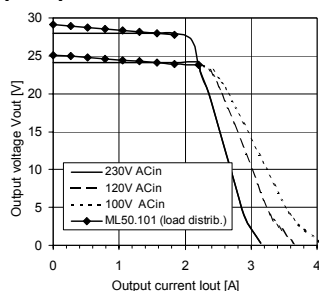
◆ Environmental Data, EMC, Safety

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)

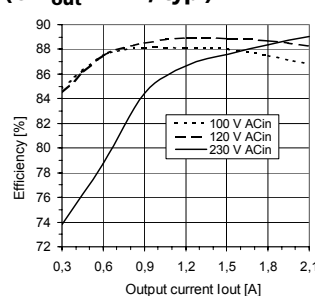
The PSU complies with all major **safety approvals** for EU (EN 60950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

◆ Diagrams

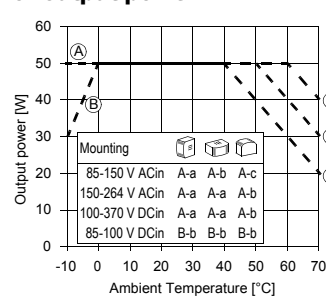
Output characteristic V_{out}/I_{out} (min.)



Efficiency (@ V_{out} = 24V, typ.)



Derating of output power



Hold-up time with ACin (@ V_{out} = 24V, typ. + min.)

