

PULS MiniLine:
practical, versatile and reliable like
the Silverline – yet small like
no other.

PULS

CE

UL US LISTED

CB
scheme



Data Sheet

MiniLine ML30.101 with 5 V DC / 25 W

- 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
- Adjustable output voltage up to DC 5.5V
- 100-240V Wide Range Input
- NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

PULS GmbH, Arabellastrasse 15, 81925 Munich
Tel. +49.(0)89.9278-244, Fax: +49.(0)89.9278-299
sales@puls-power.com, <http://www.puls-power.com>

Mini is more.

Technical Data ML30.101

Spring Clamps

Input

Input voltage	AC 100-240V (Wide Range), 47...63Hz Admiss. limits: AC 85...264V (DC 85...370V)
Input current	<0.6A (@ AC 100V, 25W P_{out}) <0.35A (@ AC 196V, 25W P_{out})
External fusing	not required, unit provides internal fuse (T3A15H, not accessible)
Transient immunity	Transient resistance acc. to VDE 0160 / W2 (750V / 1.3ms), over entire load range
Hold-up time (see diagram below)	>19ms @ AC 100V, 5.1V / 5A >107ms @ AC 196V, 5.1V / 5A >170ms @ AC 230V, 5.1V / 5A

Efficiency, Reliability

Efficiency	>80% (AC 230V, 5.1V / 5A) (see also diagram below)
Losses	typ. 6W (AC 230V, 5.1V / 5A)
MTBF (Reliability)	600.000h acc. to Siemensnorm SN 29500 (5.1V / 5A, AC 230V, $T_{amb} = +40^{\circ}C$)

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, $T_{amb} = +60^{\circ}C$, 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

- W x H x D 45mm x 75mm x 91mm (+ DIN Rail)
Depth incl. terminals: 98 mm (+ 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

Output

Output voltage	DC 5-5.5V; adj. by front panel potentiometer
• preset	5.1V $\pm 0.5\%$ @ 5A
Voltage regulation	stat. <2% V_{out} dyn. $\pm 5\%$ V_{out} over all
Ripple/Noise	<50mV _{pp} (20MHz bandw., 50 Ω measurement)
Overvoltage prot. (OVP)	<6.5V
Rated continuous loading	$I_{out} = 5A$ @ $V_{out} = 5.1V$ (convection cooling); details see derating diagram below
• power reserve	20%-35% (depending on V_{in}); for details see diagram 'output characteristic' below
Overload behaviour	Straight V/I characteristic (depending on V_{in}); details see diagr. 'output characteristic' below
Protection	Unit is protected against (also permanent) short-circuit, overload and open-circuit.
Derating	depending on built-in orientation; details see diagram below
Power back immunity	10V
Operating indicator	Green LED

Environmental Data, EMC, Safety

Ambient temperature range (measured 25mm below unit)

- storage/transport $-25^{\circ}C \dots +85^{\circ}C$
- operation $-10^{\circ}C \dots +70^{\circ}C$ (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)

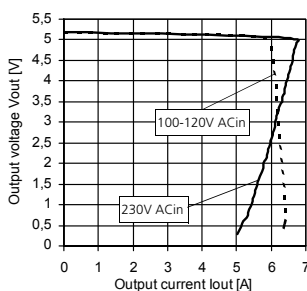
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

Design details – for your advantage:

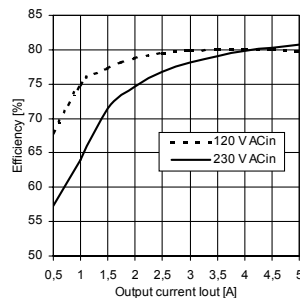
- All terminals are easy to reach as mounted on the front panel.
- Input and output are strictly apart from each other (input below, output above) and so cannot be mixed up
- **Mounting and connection do not require any screwdriver**
→ Easy, quick, durable and reliable installation

Diagrams

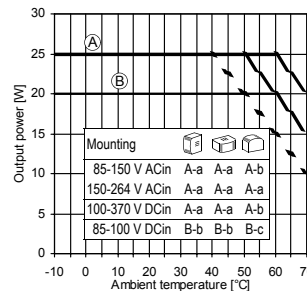
Output characteristic V_{out}/I_{out} (@ $V_{out} = 5.1V$, typ.)



Efficiency (@ $V_{out} = 5.1V$, typ.)



Derating of output power



Hold-up time with ACin (@ $V_{out} = 5.1V$, typ. + min.)

