

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

PULS



CB Report
Available



Data Sheet

MiniLine ML100.100 ML100.109 with DC 24-28V / 100W

- Mounted and connected in record time, no tools required
- World-wide approvals (UL, EN, CSA, CB Scheme) for industry and office/home
- Tiny: WxHxD = 73 x 75 x 103mm
- Hazardous Location Class I Div. 2 (UL 1604)
- Adjustable output voltage up to DC 28V
- 115/230V Auto Select Input
- PULS Overload Design™ (high output overload capability)
- Selectable single/parallel operation (jumper)

PULS GmbH, Elektrastr.6, 81925 Munich
Tel. +49 (0)89 9278-0, Fax: +49.(0)89.9278-299
sales@pulspower.com, <http://www.pulspower.com>

Mini is more.

Technical Data ML100.100/109

Input

Input voltage	AC 100-120/220-240V (Auto Select), 47...63 Hz (AC 85...132V / AC 184...264V, DC 220...375V N=⊕ and L=⊖)
Input current	<2.1A (@ AC 100V _{in} , 100W P _{out}) <1A (@ AC 220V _{in} , 100W P _{out})
External fusing	not required, unit provides internal fuse (T3A15H, not accessible)
Transient immunity	Transient resistance acc. to VDE 0160 / W2 (750V/ 1.3 ms), over entire load range
Hold-up time (see diagram below)	>40 ms @ AC 230V, 24.5V / 4.2A >20 ms @ AC 196V, 24.5V / 4.2A >20 ms @ AC 100V, 24.5V / 4.2A

Efficiency, Reliability

Efficiency	typ. 90% (AC 230V, 24.5V / 4.2A) (see also diagram below)
Losses	typ. 11.4W (AC 230V, 24.5V / 4.2A)
MTBF (Reliability)	appr. 500.000 h acc. to Siemensnorm SN 29500 (24.5V / 4.2A, 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, 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 73 mm x 75 mm x 103 mm (+ DIN rail)
Depth incl. terminals: 98 mm (+ DIN rail)
- Weight 360 g
- Mounting orientation  (cf. 'Output')
- Ventilation/Cooling Normal convection, no fan required
- Free space f. cooling recom'd.: 25 mm 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

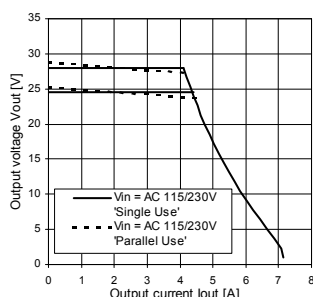
Output voltage	DC 24-28V (adj. by front panel potentiometer) • preset 24.5V ± 0.5% @ 4.2A
Voltage regulation	stat. <1% V _{out} (Jumper in pos. 'Single Use') stat. <3% V _{out} (Jumper in pos. 'Parallel Use'), dyn. ±1.5% V _{out} over all
Ripple/Noise	<50mV _{pp} (20 MHz bandw., 50 Ω measur.)
Overvoltage prot. (OVP)	<36V
Output noise suppression	EMI values below EN 61000-6-3, even when using long (>2m), unscreened output cables
Rated continuous loading	up to 4.2A @ 24.5V / 3.6A @ 28V (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 1.9 · 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 (selectable by front panel jumper)
Power back immunity	35V
Operating indicator	Green LED

Environmental Data, EMC, Safety

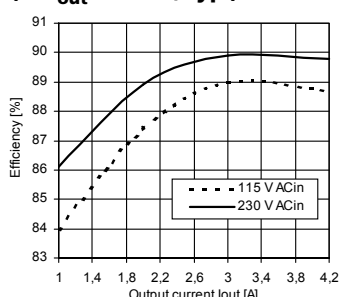
Ambient temperature range (measured 25 mm below unit)	
• storage/transport	-25°C ... +85°C
• operation	-10°C ... +70°C (for derating see diagram below)
Humidity	max. 95% (without condensation)
Electromagnetic emissions (EME)	EN 61000-6-3 (includes EN 61000-6-4) Class B (EN 55011, EN 55032) incl. output noise suppression EN 61000-3-2 (PFC)
Electromagnetic immunity (EMI)	EN 61000-6-2 (includes EN 61000-6-1)
Safety:	SELV (IEC/UL 60950-1), PELV (EN 50178)
Prot. class/degree:	Class I (EC/UL 60950-1) / IP20 (EN 60529)
The PSUs comply with all major safety approvals for EU (EN IEC 61010-2-201), USA (UL 60950-1: E137006, UL508 LISTED: E198865), Canada (CAN/CSA-C22.2 No 60950-1 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950-1, IEC 61010-2-201), Hazardous Location Class I Div 2 ML100.100 only: DNV, ABS	

Diagrams

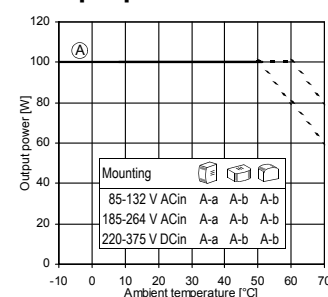
Output characteristic V_{out}/I_{out} (min.)



Efficiency (@ V_{out} = 24.5V, typ.)



Derating of output power



Hold-up time with ACin (at V_{out} = 24.5V, typ. + min.)

