

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

## with DC 48-56V / 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
- Adjustable output voltage up to DC 56V
- 115/230V Auto Select Input
- PULS Overload Design™ (high output overload capability)
- Selectable single/parallel operation (jumper)

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**Mini is more.**

## ◆ Technical Data ML100.105

### ◆ 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 <sub>in</sub> , 100W P <sub>out</sub> ) <1A (@ AC 220V <sub>in</sub> , 100W P <sub>out</sub> )
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, 48V / 2.1A >20 ms @ AC 196V, 48V / 2.1A >20 ms @ AC 100V, 48V / 2.1A

### ◆ Efficiency, Reliability

Efficiency	typ. 91% (AC 230V, 48V / 2.1A) (see also diagram below)
Losses	typ. 10W (AC 230V, 48V / 2.1A)
MTBF (Reliability)	appr. 500.000 h acc. to Siemensnorm SN 29500 48V / 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

- 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.: 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

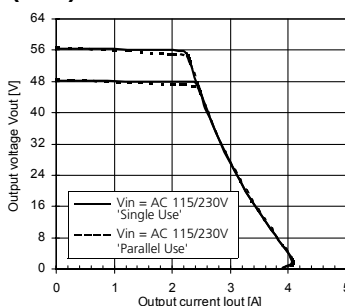
- flexible cable 0.3-2.5mm<sup>2</sup> (28-12 AWG)
- solid cable 0.3-4mm<sup>2</sup> (28-12 AWG)  
Ferrules admissible
- Wire strip length 6mm (0.24in) recommended

Design details – for your advantage:

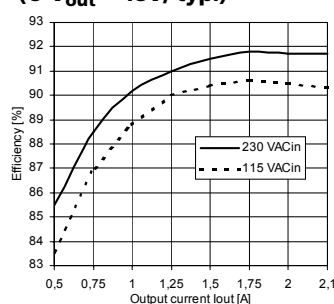
- All terminals are easy to reach as mounted on the front panel.
- Input and output are strictly apart from each other (input below, out-put above) and so cannot be mixed up.
- **Mounting and connection do not require any screwdriver**

### ◆ Diagrams

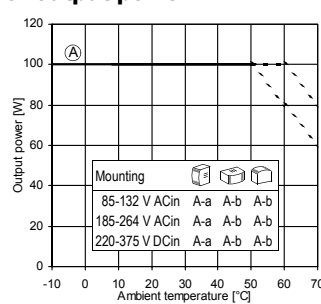
**Output characteristic V<sub>out</sub>/I<sub>out</sub> (min.)**



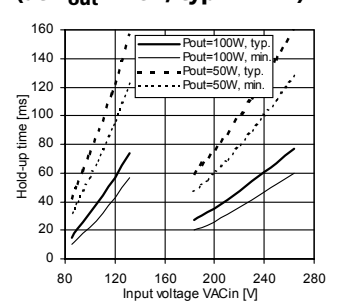
**Efficiency (@ V<sub>out</sub> = 48V, typ.)**



**Derating of output power**



**Hold-up time with ACin (at V<sub>out</sub> = 48V, typ. + min.)**



### ◆ Output

Output voltage	DC 48-56V (adj. by front panel potentiometer) • preset 48V ± 0.5% @ 2.1A
Voltage regulation	stat. <1% V <sub>out</sub> (Jumper in pos. 'Single Use') stat. <3% V <sub>out</sub> (Jumper in pos. 'Parallel Use'), dyn. ±1.5% V <sub>out</sub> over all
Ripple/Noise	<50mV <sub>pp</sub> (20 MHz bandw., 50 Ω measur.)
Overvoltage prot. (OVP)	<60V
Output noise suppression	Radiated EMI values below EN 61000-6-3, even when using long (>2m), unshielded output cables
Rated continuous loading	up to 2.1A @ 48V / 1.8A @ 56V (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 1.9 · 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 (selectable by front panel jumper)
Power back immunity	63V
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 55022) incl. Annex A thanks to noise suppression EN 61000-3-2 (PFC)
Electromagnetic immunity (EMI)	EN 61000-6-2 (includes EN 55024)
Safe low voltage:	SELV (EN 60950, VDE0100/T.410), PELV (EN 50178)
Prot. class/degree:	Class 1 (EN 60950) / IP20 (EN 60529)
This unit fulfills all major <b>safety approvals</b> 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).	