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

PULS

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

Spring Clamps

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, 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_{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	, or (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

Output voltage	DC 48-56V (adj. by front panel potentiometer)
• preset	48V ± 0.5% @ 2.1A
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 measurem.)
Overvoltage prot. (OVP)	<60V
Rated continuous loading	up to 2.1A @ 48V / 1.8A @ 56V (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	63V
Operating indicator	Green LED

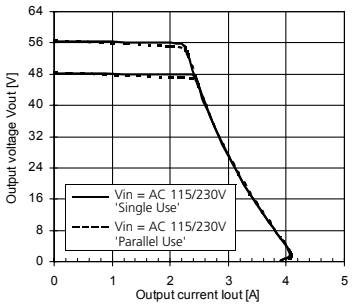
Environmental Data, EMC, Safety

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) EN 61000-3-2 (PFC)
Electromagnetic immunity (EMI)	EN 61000-6-2 (includes EN 61000-6-1)
Safe low voltage: Prot. class/degree:	SELV (EN 60950, VDE0100/T.410), PELV (EN 50178) Class 1 (EN 60950) / IP20 (EN 60529)

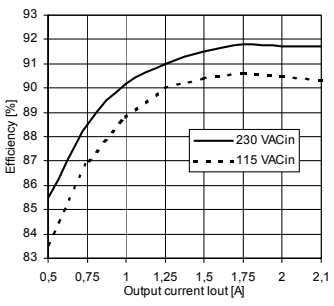
This unit fulfills all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950).

Diagrams

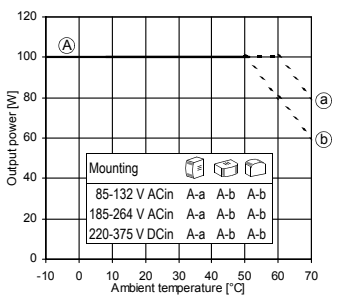
Output characteristic V_{out}/I_{out} (min.)



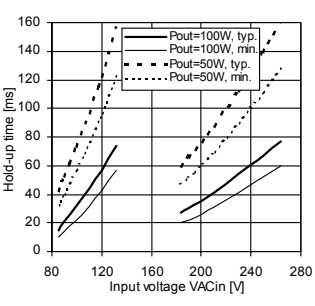
Efficiency (@ V_{out} = 48V, typ.)



Derating of output power



Hold-up time with ACin (at V_{out} = 48V, typ. + min.)



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