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

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Data sheet

MiniLine with plug-in screw terminals



- 24-28 V DC/50 W output power
- 100-240 V Wide Range Input (85-264 V AC permitted)
- DCok output
- PULS Overload Design™ (does not switch off at overload but delivers up to 1.5 times nominal current)

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- with load sharing for reliable parallel operation
- NEC Class 2 Power Supply

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Mini is more.



Innut

Technical Data ML50.111



Input voltage	AC100-240V (Wide Range), 4763 Hz Admiss. limits: AC 85264V (DC 85375V)
Input current	<1.0A (@ AC 100V _{in} , 50W P _{out}) <0.6A (@ 196 V AC _{in} , 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 @ AC 230V, 24V / 2.1A >97ms @ AC 196V, 24V / 2.1A >17ms @ AC 100V, 24V / 2.1A

Efficiency, Reliability

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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. 600.000 h 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, 923S), fine ventilation grid on three housing sides to keep out small parts (e.g. screws), IP20

Dimensions and weight

W x H x DWeight	45mm x 75mm x 91mm (+ DIN rail) Depth incl. connectors: 98mm (+ DIN rail) 240g	
Mounting orientation 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 plug connectors, 2 terminals/output; mating connectors enclosed	
Connector size range – input:		
flexible/solid cableWire strip length	0.5 - 2.5mm ² (22-12 AWG) Ferrules admissible, 7mm recommended	
Connector size range – output:		
flexible cablesolid cableWire strip length	0.3 - 2.5mm ² (28-12 AWG) 0.3 - 4mm ² (28-12 AWG) Ferrules admissible, 6mm recommended	
Design details – for your advantage:		

Standard plugs, meet various connector families (e.g CombiCon) •

Plugs allow measurement access

	PLUG Connectors
:)	

Output (incl. Logic

Output (incl.	Logic)	
Output voltage • preset	DV 24-28V, adj. by front panel potentiometer 24V ±0.5% @ 2.1A (25V at no load, see 'Parallel operation')	
Voltage regulation	stat. ±2.5% V _{out} (see 'Parallel operation') dyn. ±2% V _{out} overall	
Ripple/Noise	<50mV _{PP} (20MHz bandw., 50 Ω measurem.)	
Overvoltage prot. (OVP)	<40V	
Output noise suppression	nRadiated EMI values below EN 61000-6-3, even when using long (>2m), unscreened output cables	
Rated continuous loading	up to 2.1A @ 24V / up to 1.8A @ 28V depending on built-in orientation, V_{in} and T_{amb} (convection cooling); 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	see diagram below	
Parallel operation	Yes; load sharing by inclined characteristic curve $(\Delta V = -1V \text{ between } I_{out} = 0A \text{ and } I_{out} = I_{rated})$	
Power back immunity	35V	
Operation indicator	Green LED (DC OK), threshold: V _{out} = 20V	
DC OK output	To feed a 24V relay ($R_{coil} > 700\Omega$). Relay operates, if output voltage exceeds threshold value Free-wheeling diode for relay is included in the power supply unit	
Threshold	$V_{out} = 20V \pm 4\%$	
Environment	tal Data, EMC, Safety	
	inge (measured 25mm below unit)	
storage, transportoperation	-25°C +85°C -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: Prot. class/degree:	SELV (EN60950, VDE0100/T.410), PELV (EN50178) 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).		
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Further 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 (below/above) and ٠ have different wire access (90°/270° wiring), so cannot be mixed up

Diagrams



Product information (ML50e111/040506), Rev.: 6. May 2004.

Unless otherwise stated, specifications are valid for AC 230V input voltage, +25°C ambient temperature, and 5 min. run-in time. They are subject to change without prior notice. PULS GmbH, Arabellastraße 15, D-81925 München 🔶 Tel: +49.(0)89.9278-244, Fax: +49.(0)89.9278-199, E-Mail: sales@puls-power.com 🔶 www.puls-power.com