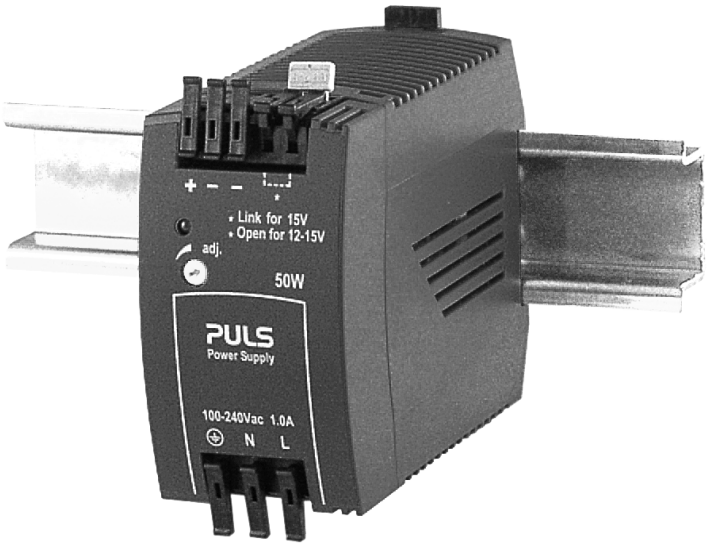
PULS does it again:
practical, versatile and reliable like the SilverLine – yet small like no other.

PULS



Data Sheet

MiniLine ML50.102 with DC 12-15V / 50W

- 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: DC 12-15V(without jumper) resp. DC 15V (with jumper)
- 100-240V Wide Range Input
- NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

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Mini is more.

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Technical Data ML50.102

Spring Clamps

Input

Input voltage	AC 100-240V (Wide Range), 47...63Hz Admiss. limits: AC 85...264V (DC 85...375V)
Input current	<1.0A (@ AC 100V, 50W P_{out}) <0.6A (@ AC 196V, 50W 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)	>170ms @ AC 230V, 12V / 4.2A >97ms @ AC 196V, 12V / 4.2A >17ms @ AC 100V, 12V / 4.2A

Efficiency, Reliability

Efficiency	typ. 90% (AC 230V, 12V / 4.2A) (see also diagram below)
Losses	typ. 6W (AC 230V, 12V / 4.2A)
MTBF (Reliability)	appr. 600.000h acc. to Siemensnorm SN29500 (12V / 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	45mm x 75mm x 91mm (+ DIN Rail))
• Weight	260g
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.
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**
- A jumper (output terminal) serves to adjust the output voltage (12V resp. 15V).

Output

Output voltage	without jumper: DC 12-15V (adj. by front panel potentiometer, adj. range guaranteed);
• preset	with jumper: 15V ± 3.5%, without jumper: 12V ± 0.5%
Voltage regulation	stat. <1% @ V_{out} = 12V stat. < 1.5% @ V_{out} = 15V, dyn. ±3% V_{out} over all
Ripple/Noise	<100mV$_{PP}$ (20MHz bandw., 50 Ω measurem.)
Overvoltage prot. (OVP)	<22V
Rated continuous loading	at convection cooling: max. I_{out} = 4.2A @ V_{out} = 12V, max. I_{out} = 3.4A @ V_{out} = 15V, details see derating diagram below
• power reserve	max. 10%(depending on V_{in}); details see diagr. '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; see diagram below
Power back immunity	22V
Operating indicator	Green LED (DC ON)

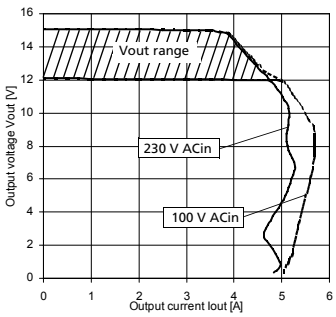
Environmental Data, EMC, Safety

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

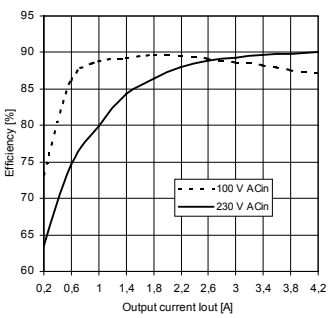
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR],CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply and Hazardous Location Class I Div. 2 (UL 1604)

Diagrams

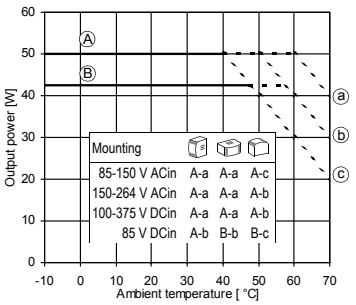
Output characteristic V_{out}/I_{out} (typ.)



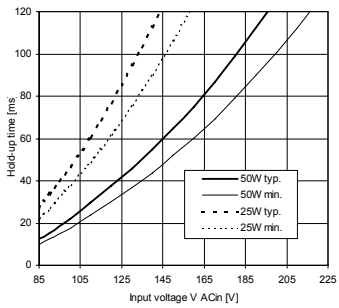
Efficiency (@ V_{out} = 12V, typ.)



Derating of output power



Hold-up time with ACin (at V_{out} = 12V, typ. and min.)



Product information (ML50e102), Rev.: 17. September 2020. 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.
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