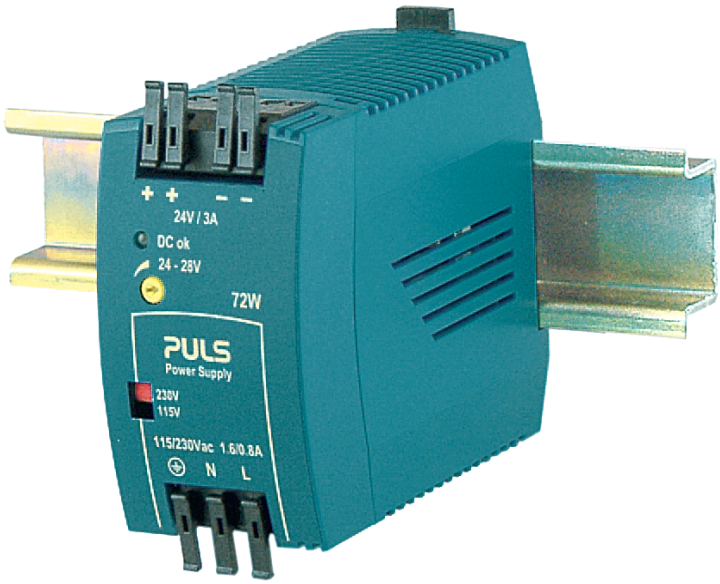
PULS does it again:
practical, versatile and reliable like the SilverLine – yet small like no other.



Data Sheet

MiniLine
with DC 24-28V / 72W

- 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 91 mm
- NEC Class 2 Power Supply
- Adjustable output voltage up to DC 28V
- Input: AC 115/230V switchable (Manual Select Input)
- PULS Overload Design™ (High output overload capability)

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Mini is more.

Technical Data ML70.100

Spring Clamps

Input

Input voltage	AC 100-120/220-240V (switchable), 47...63Hz (AC 85...132V / AC 184...264V, DC 220...375V)
Input current	<1.6A (@ AC 100V, 72W P_{out}) <0.8A (@ AC 220V, 72W 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)	>25ms @ AC 100V, 24V / 3A >27ms @ AC 196V, 24V / 3A >40ms @ AC 230V, 24V / 3A

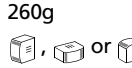
Efficiency, Reliability

Efficiency	typ. 89% (AC 230V, 24V / 3A) (see also diagram below)
Losses	typ. 8.7W (AC 230V, 24V / 3A)
MTBF (Reliability)	appr. 600.000h acc. Siemensnorm SN29500 (24V / 3A, 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) Depth incl. terminals: 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: 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

Output

Output voltage • preset	DC 24-28V adj. by front panel potentiometer; 24.5V ±0.5% at rated load
Voltage regulation	stat. <1% V_{out} dyn. < ±2% V_{out} over all
Ripple/Noise	<50mV_{PP} (20MHz bandw., 50 Ω measurem.)
Overvoltage prot. (OVP)	<40V
Rated continuous loading	up to 3A @ 24V /2.6A @ 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 1.5 · 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
Power back immunity	max. 35V
Operating indicator	Green LED

Environmental Data, EMC, Safety

Ambient temperature range (measured 25mm 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: Prot. class/degree:	SELV (EN 60950, VDE0100/T.410), PELV (EN 50178) Class I (EN 60950) / IP20 (EN 60529)

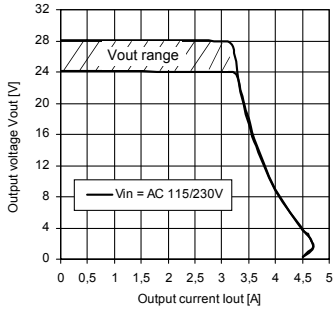
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, UL508 LISTED), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950). NEC Class 2 Power Supply

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**

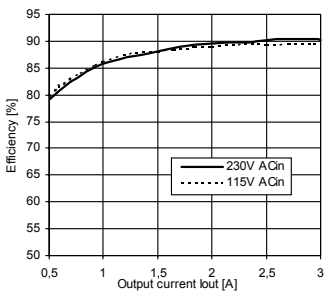
→ Easy, quick, durable and reliable installation

Diagrams

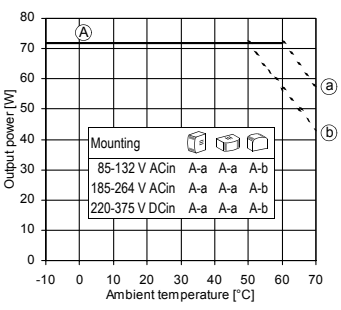
Output characteristic V_{out}/I_{out} (min.)



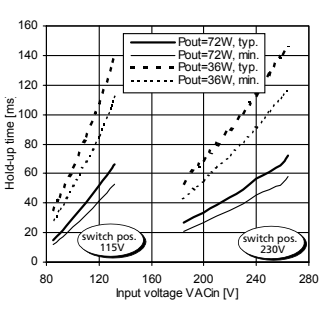
Efficiency (@ V_{out} = 24.5V, typ.)



Derating of output power



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



Product information (ML70e100), Rev: 1. December 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..
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