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

PULS

CE

c UL us LISTED

CB scheme



Data Sheet

MiniLine (Dual Output)

with DC ±12V / ±15V (36W)

- 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
- NEC Class 2 Power Supply
- Output voltage adjustable to DC ±12V (without jumper) or DC ±15V (with jumper)
- 100-240V Wide Range Input
- PULS Overload Design™ (high output overload capability)

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Mini is more.

ML30e106/040504

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Technical Data ML30.106

Spring Clamps

Input

Input voltage	AC100-240V (Wide Range), 47...63 Hz Admiss. limits: AC 85...264V (DC 85...375V)
Input current	<0.65A (@ AC 100V_{in}, 36W P_{out}) <0.4A (@ AC 196V_{in}, 36W 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):
>180ms @ AC 230V (+12V / 2A, -12V / 1A; +15V / 1,6A, -15V / 0,8A)
>100ms @ AC 196V (+12V / 2A, -12V / 1A; +15V /1,6A, -15V / 0,8A)
>18ms @ AC 100V (+12V / 2A, -12V / 1A; +15V /1,6A, -15V / 0,8A)

Efficiency, Reliability

Efficiency	86% (AC 230V, 36W) (see also diagram below)
Losses	typ. 6W (AC 230V, 36W)
MTBF (Reliability)	600.000 h acc. to Siemensnorm SN29500 (symetric load / 36W, 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: 98 mm (+ DIN rail)
- Weight: 240 g

Mounting orientation:  (cf. 'Output')

Ventilation/Cooling: Normal convection, no fan required
- Free space for 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**

→ Easy, quick, durable and reliable installation

Output

Output voltage	DC ±12V (without jumper) DC ±15V (with jumper);
• preset	±15V ± 0.5% with symetric load and 36W (with jumper)
Output current	0...2.8A (+12V) / 0...1.4A (-12V) 0...2.4A (+15V) / 0...1.4A (-15V) Rated total output power: 36W
Voltage regulation	stat. ±4% V_{out} dyn. ±2% V_{out} over all
• range	0.1...2.8A (+12V) / 0.1...1.4A (-12V) 0.1...2.4A (+15V) / 0.1...1.4A (-15V) Rated total output power: 36W
Ripple/Noise	<50mV_{PP} (20MHz bandw., 50Ω measurem.)
Overvoltage prot. (OVP)	<50V
Rated continuous loading	(see output current above); 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. Thus, 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
Power back immunity	max. ±20V
Operating indicator	Green LED (DC ON)

Environmental Data, EMC, Safety

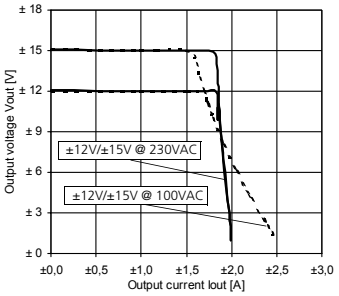
Ambient temperature range (measured 25mm below unit)
- storage/transport: -25°C ... +85°C
- operation: -10°C ... +70°C (for derating see diagram below)

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.:	SELV (EN60950, VDE0100/T.410), PELV (EN50178)
Prot. class/degree:	Class I (EN60950) / IP20 (EN60529)

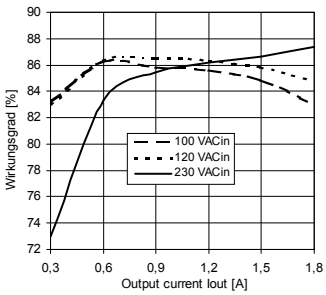
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950).

Diagrams

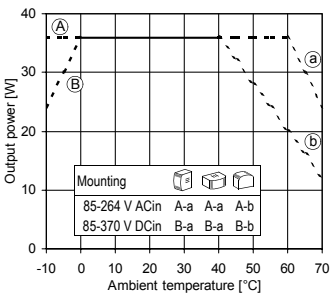
Output characteristic V_{out}/I_{out} (@ V_{out} = ±12V / ±15V, min.)



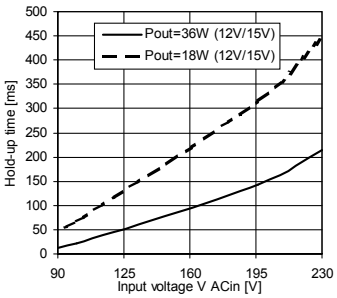
Efficiency (@ V_{out} = ±15V, typ.)



Derating of output power



Hold-up time with ACin (at V_{out} = ±12V / ±15V, typ.)



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