



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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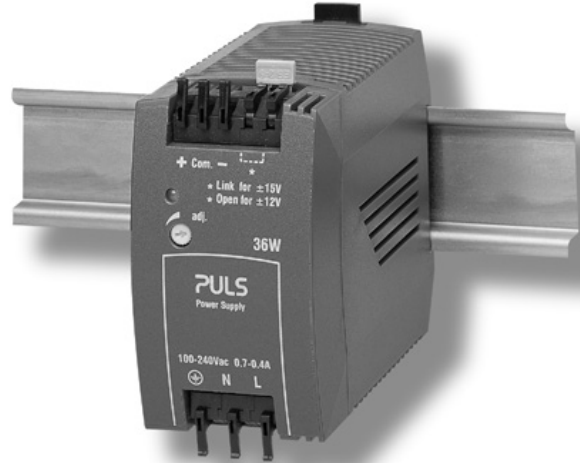
PULS does it again:
practical, versatile and reliable like
the SilverLine – yet small like
no other.

PULS

CE

UL US LISTED

CB
scheme



Data Sheet

MiniLine (Dual Output)

with DC $\pm 12V$ / $\pm 15V$ (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 $\pm 12V$ (without jumper) or DC $\pm 15V$ (with jumper)
- 100-240V Wide Range Input
- PULS Overload Design™ (high output overload capability)

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Mini is more.

◆ Technical Data ML30.106

◆ 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, 9235), 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 coolingrecom'd.: 25mm on sides with ventilation grid

Easy snap-on mounting onto the DIN-Rail (T535/7,5 or T535/15).

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 0.1...2.8A (+12V) / 0.1...1.4A (-12V) • range 0.1...2.4A (+15V) / 0.1...1.4A (-15V) Rated total output power: 36W
Ripple/Noise	<50mV _{pp} (20MHz bandw., 50Ω measur.)
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)

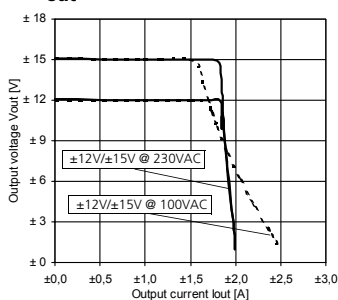
Electromagnetic immunity (EMI) EN 61000-6-2 (includes EN 61000-6-1)

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

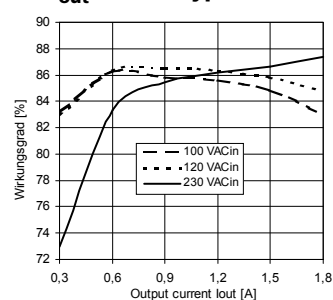
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950).

◆ Diagrams

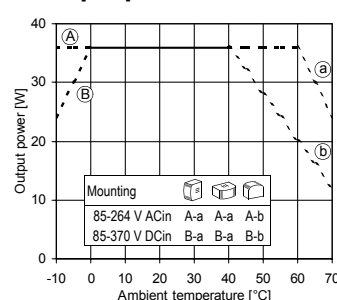
Output characteristic V_{out}/I_{out}
(@ V_{out} = ±12V / ±15V, min.)



Efficiency
(@ V_{out} = ±15V, typ.)



Derating of output power



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

