

# Technical Data ML50102



CE

CB  
scheme

UL US LISTED



Data Sheet

## 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

# ◆ Technical Data ML50102

## ◆ 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 <sub>out</sub> ) <0.6A (@ AC 196V, 50W P <sub>out</sub> )
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 <sub>amb</sub> = +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<sub>amb</sub> = +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)
- 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 0.3-2.5mm<sup>2</sup> (28-12 AWG)
- solid cable 0.3-4mm<sup>2</sup> (28-12 AWG)
- 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); with jumper: 15V ± 3.5%, without jumper: 12V ± 0.5%
• preset	
Voltage regulation	stat. <1% @ V <sub>out</sub> = 12V stat. <1.5% @ V <sub>out</sub> = 15V, dyn. ±3% V <sub>out</sub> over all
Ripple/Noise	<100mV <sub>pp</sub> (20MHz bandw., 50 Ω measur.)
Overvoltage prot. (OVP)	<20V
Output noise suppression	Radiated EMI values below EN50081-1, even when using long (>2m), unshielded output cables
Rated continuous loading	at convection cooling: max. I <sub>out</sub> = 4.2A @ V <sub>out</sub> = 12V, max. I <sub>out</sub> = 3.4A @ V <sub>out</sub> = 15V, details see derating diagram below
• power reserve	max. 10%(depending on V <sub>in</sub> ); details see diagr. 'output characteristic' below
Overload behaviour	Straight V/I characteristic (depending on V <sub>in</sub> ); 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)

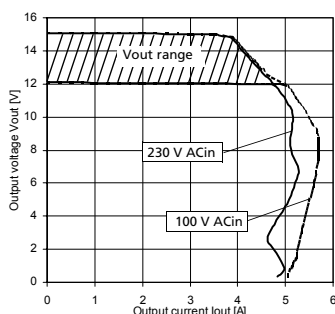
## ◆ Environmental Data, EMC, Safety

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) incl. Annex A thanks to noise suppression
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)

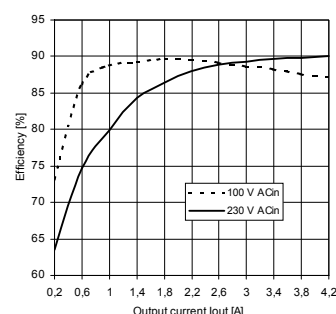
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950).

## ◆ Diagrams

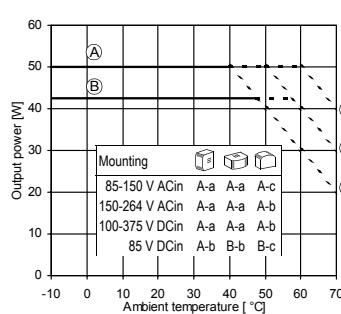
**Output characteristic V<sub>out</sub>/I<sub>out</sub> (typ.)**



**Efficiency (@ V<sub>out</sub> = 12V, typ.)**



**Derating of output power**



**Hold-up time with ACin (at V<sub>out</sub> = 12V, typ. and min.)**

