




## Application Note

# 1606-XLP50B with DC 12...15V/50W




- Mounted and connected in record time, no tools required
- World-wide approvals (    ) for industry
- Tiny: WxHxD = 45 x 75 x 91mm  
DC 15V (with jumper)
- Adjustable output voltage:  
DC 12...15V (without jumper) resp.  
DC 15V (with jumper)
- 100...240V Wide Range Input

• 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	Unit has internal (not accessible) input fuse. No other protection required. In order to meet local requirements, please consult local codes and regulations for proper installation.
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%)

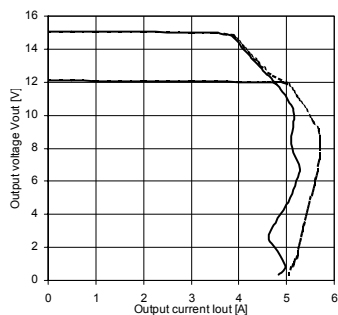
• Construction, Mechanics, Installation	
Robust plastic housing (US Patent No. D442, 923S), fine ventilation grid on three housing sides to keep out small parts (e.g. screws), IP20	
Dimensions and weight	
• W x H x D	45mm x 75mm x 91mm (+ DIN Rail)
• Weight	260g
Mounting orientation	 (cf. 'Output')
Ventilation/Cooling	Normal convection, no fan required
• Free space f. cooling	recommended: 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.
• Wire strip length	6mm (0.24in) recommended
• Wire Size Input/Output	Stranded 28...12 AWG (0.3...2.5 mm <sup>2</sup> ), Solid 28...12 AWG (0.3...4 mm <sup>2</sup> )
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.	
• <b>Mounting and connection do not require any screwdriver</b> → Easy, quick, durable and reliable installation.	
• 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	static <1% @ $V_{out} = 12V$ static < 1.5% @ $V_{out} = 15V$ , dynamic ±3% $V_{out}$ over all
Ripple/Noise	<100mV <sub>pp</sub> (20MHz bandwidth, 50 Ω measurement)
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. $I_{out} = 4.2A$ @ $V_{out} = 12V$ , max. $I_{out} = 3.4A$ @ $V_{out} = 15V$ , details see derating diagram below
• power reserve	max. 10%(depending on $V_{in}$ ); details see diagram 'output characteristic' below
Overload behavior	Straight V/I characteristic (depending on $V_{in}$ ); details see diagram '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)

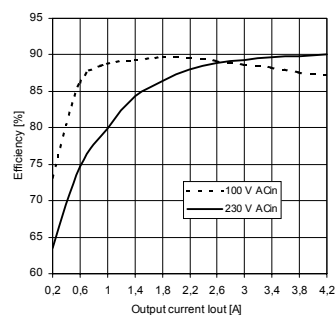
• Environmental Data, EMC, Safety	
Ambient temperature range (measured 25 mm below unit)	
• storage/transport	-25°C ... +85°C
• operation	-10°C ... +70°C (for derating see diagram below)
Humidity	max. 95% (without condensation)
Electromagnetic emissions (EME)	EN 50081-1 (includes EN 50081-2) Class B (EN 55011, EN 55022) incl. Annex A thanks to noise suppression
Electromagnetic immunity (EMI)	EN 61000-6-2 (includes EN 55024)
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 <b>safety approvals</b> 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]).	
<b>Operation on IT networks:</b> The unit is designed to operate on IT networks. The unit may still deliver a hazardous voltage after the fuses are tripped.	

• Diagrams

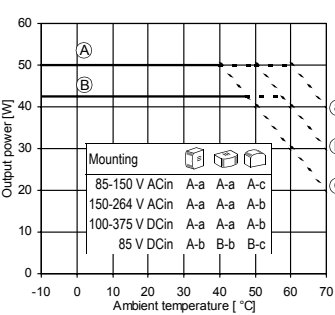
**Output characteristic  $V_{out}/I_{out}$  (typ.)**



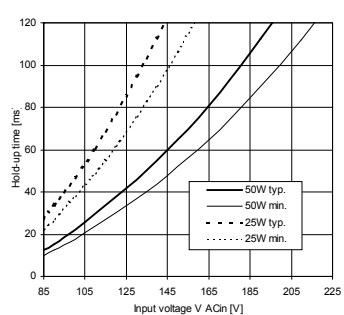
**Efficiency (@  $V_{out} = 12V$ , typ.)**



**Derating of output power**



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



Specifications valid for 230V AC input voltage, +25°C ambient temperature, and 5 min run-in time, unless otherwise stated. They are subject to change without prior notice.

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