




## Application Note

# 1606-XLP100F with DC 48...56V/100W




- Mounted and connected in record time, no tools required
- World-wide approvals (    ) for industry
- Tiny: WxHxD = 73 x 75 x 103mm
- Adjustable output voltage up to DC 56V
- 115/230V Auto Select Input
- Exceptional Overload Design (no switch off at overload but up to 1.9 times nominal current)
- Selectable single/parallel operation (jumper)

• Input	
Input voltage	AC 100...120/220...240V (Auto Select), 47...63 Hz (AC 85...132V / AC 184...264V, DC 220...375V)
Input current	<2.1A (@ AC 100V <sub>in</sub> , 100W P <sub>out</sub> ) <1A (@ AC 220V <sub>in</sub> , 100W 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/ 1.3 ms), over entire load range
Hold-up time (see diagram below)	>40 ms @ AC 230V, 48V / 2.1A >20 ms @ AC 196V, 48V / 2.1A >20 ms @ AC 100V, 48V / 2.1A

• Efficiency, Reliability	
Efficiency	typ. 91% (AC 230V, 48V / 2.1A) (see also diagram below)
Losses	typ. 10W (AC 230V, 48V / 2.1A)
MTBF (Reliability)	appr. 500.000 h acc. to Siemensnorm SN 29500 48V / 2.1A, 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:

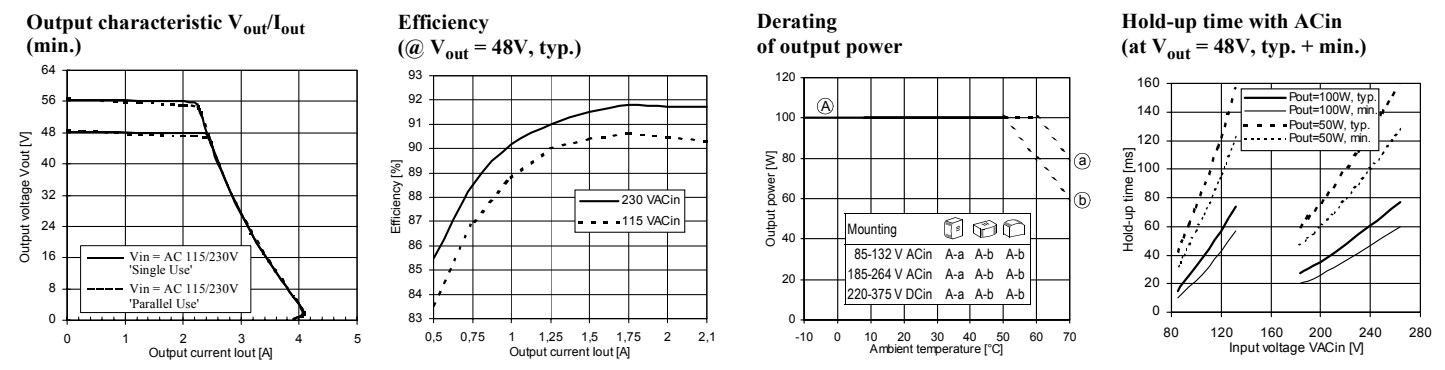
- Run-in/ burn-in (Full load, T<sub>amb</sub> = +60°C, on/off cycle)
- Functional test (100 %)

• 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	73 mm x 75 mm x 103 mm (+ DIN rail) Depth incl. terminals: 98 mm (+ DIN rail)
• Weight	360 g
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: 2 terminals per output
• Wire strip length	6 mm (0.24 in) 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.	

• Output	
Output voltage • preset	DC 48...56V (adj. by front panel potentiometer) 48V ± 0.5% @ 2.1A
Voltage regulation	static <1% $V_{out}$ (Jumper in pos. 'Single Use') static <3% $V_{out}$ (Jumper in pos. 'Parallel Use'), dynamic ±1.5% $V_{out}$ over all
Ripple/Noise	<50mV <sub>pp</sub> (20 MHz bandwidth, 50 Ω measurement)
Oversvoltage prot. (OVP)	<60V
Output noise suppression	Radiated EMI values below EN50081-1, even when using long (>2m), unscreened output cables
Rated continuous loading	up to 2.1A @ 48V / 1.8A @ 56V (convection cooling), depending on built-in orientation, $V_{in}$ and $T_{amb}$ For details see derating diagram below
Overload behavior	No switch-off at overload/short-circuit, instead: up to 1.9 · $I_{rated}$ . So you need no oversizing to start awkward loads.
Protection	Unit is protected against (also permanent) short-circuit, overload and open-circuit.
Derating	depending on built-in orientation; see diagram below
Parallel operation	yes (selectable by front panel jumper)
Power back immunity	63V
Operating indicator	Green LED

• 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 EN 61000-3-2 (PFC)
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 1 (EN 60950) / IP20 (EN 60529)
Under preparation: 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



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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