

## X Series

## 375 and 500 Watt AC-DC Converters



Input range 85...264 V AC with PFC  
1 or 2 isolated, regulated outputs up to 96 V  
3 kV AC I/O electric strength test voltage



- Electrically and mechanically rugged DIN-rail front end
- Outputs individually controlled with 150% output peak power
- Operating ambient temperature range  $-40...60^{\circ}\text{C}$  with convection cooling

### Selection chart for front ends

Output 1		Output 2		Input voltage $U_{i \min} \dots U_{i \max}$	Rated power $T_A = 60^{\circ}\text{C}$ $P_{o \text{ tot}} [\text{W}]$	Type	Options <sup>1</sup>
$U_{o \text{ nom}}$ [V DC]	$I_{o \text{ nom}}$ [A]	$U_{o \text{ nom}}$ [V DC]	$I_{o \text{ nom}}$ [A]				
24.7	15	-	-	85...264 VAC (14...440 Hz) <sup>3</sup> 90...350 VDC	375	LXR 1601-6	R D1...D5
24.7	20	-	-		500	LXN-1601-6	
37	9.9	-	-		375	LXR 1701-6	S M2
37	13.2	-	-		500	LXN 1701-6	
49.4	7.5	-	-		375	LXR-1801-6	F, F1 K2
49.4	10	-	-		500	LXN-1801-6	
24.7	10	24.7	10		500	LXN-2660-6	
49.4	5	49.4	5		500	LXN 2880-6	

### Selection chart for Battery chargers<sup>2</sup>

Output		Input voltage $U_{i \min} \dots U_{i \max}$	Rated power $T_A = 60^{\circ}\text{C}$ $P_{o \text{ tot}} [\text{W}]$	Type	Options <sup>1</sup>
$U_{o \text{ nom}}$ [V DC]	$I_{o \text{ nom}}$ [A]				
25.7...29.3	12.6	85...264 VAC (14...440 Hz) <sup>3</sup>	345	LXR 1240-6 M1	F, F1 K2
25.7...29.3	16.9		460	LXN 1240-6 M1	
51.4...58.6	6.3	90...350 VDC	345	LXR 1740-6 M1	
51.4...58.6	8.4		460	LXN 1740-6 M1	

<sup>1</sup> For lead times and minimum order quantities contact Power-One.

<sup>2</sup> For availability contact Power-One.

<sup>3</sup> Input frequency range certified for 14...440 Hz. For continuous operating frequency <40 Hz and >100 Hz contact factory.

**Input**

Input voltage	world wide mains, single phase	85...264 V AC
	for derating information see application note	90...350 V DC
Input frequency	wide frequency range	16 2/3...440 Hz
Power factor	active PFC	up to 0.99
Inrush current	virtually no inrush current	

**Output**

Efficiency	$U_{i \text{ nom}}, I_{o \text{ nom}}$	up to 89%
Output voltage setting accuracy	$U_{i \text{ nom}}, I_{o \text{ nom}}$	$\pm 1.3\% U_{o \text{ nom}}$
Output voltage noise	IEC/EN 61204	typ. 50 mV
Output voltage ripple	sinusoidal output ripple at twice the line frequency	$\leq 1.2 V_{pp}$
Line and cross regulation	$U_{i \text{ min}} \dots U_{i \text{ max}}$	typ. 50 mV
Load regulation	0...100% $I_{o \text{ nom}}, U_{i \text{ nom}}$	$-1.6\% U_{o \text{ nom}}$
Minimum load	not required	
Current limitation	rectangular U/I characteristic	101...112% $I_{o \text{ nom}}$
Short term peak power	1 s, electronically controlled	150% $I_{o \text{ nom}}$
Operation in parallel	enabled by droop current share	
Hold-up time	$I_{o \text{ nom}}, U_o$ decreases to 80% of $U_{o \text{ nom}}$	typ. 15 ms

**Control**

Status indication	LED output(s) OK
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**Protection**

Input reverse polarity	bridge rectifier	
Input fuse	not user accessible	10 A, fast blow
Input undervoltage lockout		typ. 80% $U_{i \text{ min}}$
Input overvoltage lockout		typ. 105% $U_{i \text{ max}}$
Input transient	voltage depending resistor (VDR)	
Output(s)	no-load, overload and short circuit proof	
Output overvoltage	second control loop, each output, 24/48 V	30/60 V SELV
Overtemperature	reduced output power if thermally overloaded	

**Safety**

Approvals in progress	EN 60950, UL 1950, CSA22.2 No. 950, UL 508 listed	
Electric strength test voltage	class I, I/case	2 kV AC
	class I, I/O	3 kV AC
	class I, O/case	1 kV AC
	class I, O/O	0.35 kV AC
Pollution degree	AC-in / DC-in	3/2
Degree of protection		IP 20

**EMC**

Electrostatic discharge	IEC/EN 61000-4-2, level 4, contact/air (8/15 kV)	criterion A
Electromagnetic field	IEC/EN 61000-4-3, level 3 (10 V/m)	criterion A
Electr. fast transients/bursts	IEC/EN 61000-4-4, level 4, capacitive/direct (4/2 kV)	criterion A
Surge	IEC/EN 61000-4-5, level 3, in and out, line to line (2 kV)	criterion B
	level >3, input, line to case (3.5 kV)	criterion B
	level 2, output, line to case (1 kV)	criterion A
Conducted disturbances	IEC/EN 61000-4-6, level 3 (10 V)	criterion A
Electromagnetic emissions	CISPR 22/EN 55022, conducted	class B

**Environmental**

Operating ambient temperature	$U_{i\ nom}, I_{o\ nom}$ , convection cooled	-40...60°C
Operating case temperature $T_C$	$U_{i\ nom}, I_{o\ nom}$	-40...87°C
Storage temperature	non operational	-40...100°C
Damp heat	IEC/EN 60068-2-3, 93%, 40°C	56 days
Shock and vibration	unit wall mounted with brackets	
Shock	IEC/EN 60068-2-27, 11 ms	50 g <sub>n</sub>
Bump	IEC/EN 60068-2-29, 11 ms	25 g <sub>n</sub>
Vibration, sinusoidal	IEC/EN 60068-2-6, 10...60/60...2000 Hz	0.35 mm/5 g <sub>n</sub>
Vibration, random	IEC/EN 60068-2-64, 20...500 Hz	0.05 g <sup>2</sup> /Hz
MTBF	MIL-HDBK-217E, G <sub>B</sub> , 40°C	400'000 h

**Options**

Input and output undervoltage monitoring		D1...D5
Output voltage adjustment	10 V...110% of $U_{o\ nom}$	R
Remote on/off		S
Multi option choice	(D1...D5, R, S) via Sub-D connector	M1...M2
Built-in second input fuse in the neutral		F
No fuse fitted (for operation from high DC)		F1
System connectors with screw terminals		K2

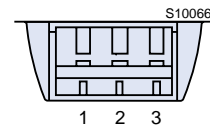


## DIN Rail Mountable

## X Series

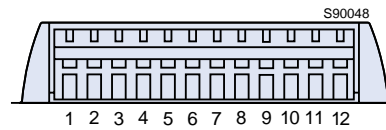
### Terminal allocation input side

Pin	Des.	Determination
1	⊕	Protective earth
2	N~	Input neutral
3	P~	I



### Terminal allocation output side

Pin	Des.	Single output	Double output
1	⊕	Earth to load	Earth to load
2	+	Output pos.	Output 1 pos.
3	+	Output pos.	Output 1 pos.
4	-	Output neg.	Output 1 neg.
5	-	Output neg.	Output 1 neg.
6	+	Output pos.	Output 2 pos.
7	+	Output pos.	Output 2 pos.
8	-	Output neg.	Output 2 neg.
9	-	Output neg.	Output 2 neg.
10	Aux1	Options	Options
11	Aux2	Options	Options
12	⊕	Earth to load	Earth to load



### Accessories

Mounting brackets for vertical chassis/wall mounting  
Protective covers over input and output terminals