

# LDP200-120

## 200W Programmable Power Supply

LDP200-120 is the first user programmable unit on the market that can supply any voltage between 24 and 120 VDC, offering unmatched flexibility for many applications.

Its compact size, high efficiency, excellent reliability together with easy installation makes it ideal for various industrial applications.

LDP200-120 is Class I isolation device suitable for SELV and PELV circuitry and is designed to be mounted on DIN rail and installed inside a protective enclosure.



### Key Features & Benefits

- High efficiency and compact size
- Active PFC
- Digital Control
- Wide input voltage range 170 – 550 VAC
- Wide output voltage range 24 – 120 VDC, user settable
- User settable current limitation threshold
- Remote ON/OFF or other remote control functions
- MODBUS over RS-485 interface
- Multiple protections
- 2 user programmable voltage steps with settable duration
- Can be used as battery charger (lead acid, nickel, lithium)
- Can be used for LED lighting
- Parallelable for power or redundancy (with external ORing Module)
- Up to 50°C operating temperature with no derating

### Applications

- Industrial Control
- Communication
- Instrumentation Equipment
- Renewable Energy Systems

## 1. MODEL SELECTION

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT
LDP200-120	250 - 500 VAC / 250 – 725 VDC	24 - 120 VDC	4 A max *

\* 4.0 A @ 24 VDC, 3 A @ 48 VDC, or  $V_{out} \times I_{out} = 200 \text{ W}$  Max. for  $V_{out} > 48 \text{ VDC}$

## 2. INPUT SPECIFICATIONS

Technical parameters are typical, measured in laboratory environment at 25°C and 400 VAC / 50 Hz, at nominal values, after minimum 5 minutes of operation.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input AC Voltage Range	Single or two phases Operating	200 - 500 VAC 170 - 550 VAC
Input DC Voltage Range		250 – 725 VDC
Input Frequency		47 - 63 Hz
Input AC Current	$V_{in} = 200 \text{ VAC}$ $V_{in} = 500 \text{ VAC}$	1.4 A 0.5 A
Input DC Current	$V_{in} = 250 \text{ VDC}$ $V_{in} = 725 \text{ VDC}$	1 A 0.4 A
Inrush Peak Current		$\leq 50 \text{ A}$
Standby Power		$< 4 \text{ W}$
Power Factor Correction	Active	$> 0.9$
Touch (Leakage) Current		$\leq 0.4 \text{ mA}$
Internal Protection Fuse	None, external fuse must be provided	
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	MCB 10 A, C curve

## 3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power		200 W
Rated Voltage	1 V resolution programmable	24 –120 VDC
Continuous Current	or $V_{out} \times I_{out} = \text{max. } 200 \text{ W}$ for $V_{out} > 48 \text{ V}$	4.0 A @ 24 VDC / 3.0 A @ 48 VDC,
Overload Limit	$V_{out}$ dependant	4.4 A to 1.9 A
Short Circuit Peak Current	$V_{out}$ dependant	4.9 A to 2.2 A
Load Regulation		$\leq 1\%$
Ripple & Noise <sup>1</sup>		$\leq 200 \text{ mVpp}$
Hold up Time		$\geq 25 \text{ ms}$
Battery Charger Function	C.C. / C.V. (setup via front panel or POWERMASTER application)	
Battery Chemistries		
Protections	Overload and short circuit protection Thermal protection Input undervoltage lockout (UVLO) Input overvoltage protection (VDR) 7 segment, 3 digits display 3 programming keys	
Status Signals	ENABLE - isolated remote ON/OFF input, active for 5 – 30 VDC DC OK - dry contact (NO, 24 VDC / 1A) MODBUS over RS-485 interface, to be used with POWERMASTER or other applications	

Parallel Connection	Possible for power and redundancy (with external ORing module)	
Efficiency	Vout dependant	> 82% to > 90%
Dissipated Power		< 21 W

<sup>1</sup> Ripple and Noise are measured with 20 MHz bandwidth, probe terminated with a 0.1µF MKP parallel capacitor.

#### 4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature	Overtemperature protection Start-up type tested: - 40°C <sup>2</sup>	- 40° to + 70°C
Storage Temperature		- 40° to + 80°C
Temperature derating <sup>3</sup>	Over 60 VDC: Under 60 VDC:	- 1.5 W/°C over 50°C - 3.0 W/°C over 50°C
Humidity	Non-condensing	5 – 95% RH
Life time Expectancy	At 25°C ambient full load	71'686 h (8.1 years)
Overvoltage Category		III (EN50178)
Pollution Degree		2 (IEC60664-1)
Isolation Voltage	Input to output Input to ground Output to ground	4.2 kVDC 2.2 kVDC 0.75 kVDC
Safety Standards & Approvals	UL508 (reference) EN60950 (reference) EN50178 (reference)	
EMC Standards	Immunity:	EN61000-4-2 Level 3
		EN61000-4-3 Level 3
		EN61000-4-4 Level 3
		EN61000-4-5 Level 4
	Emission:	EN61000-4-11 Level 2
		EN55011 (CISPR11) Class A EN55022 (CISPR22) Class A EN61000-3-2 Class A
Protection Degree	EN60529	IP20
Vibration Sinusoidal	IEC 60068-2-6	5-17.8 Hz: ±1.6mm; 17.8-500 Hz: 2 g 2 Hours / axis (X,Y,Z)
Shock	IEC 60068-2-27	30 g 6 ms, 20 g 11ms; 3 bumps / direction, 18 bumps total

<sup>2</sup> Possible at nominal voltage with load derating.

<sup>3</sup> See Figure 1.

#### 5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		0.75 kg
Dimensions (W x H x D)		80 x 120 x 102 mm
Mounting Rail		IEC 60715/H15/TH35-7.5(-15)
IN/OUT Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm <sup>2</sup>
Auxiliary Connection Terminals	Fast pluggable type (20 AWG)	Up to 0.5 mm <sup>2</sup>
Communication Interface Connector	RS-485 through RJ45 Female	
Case Material	Aluminum	

**NOTES:** Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

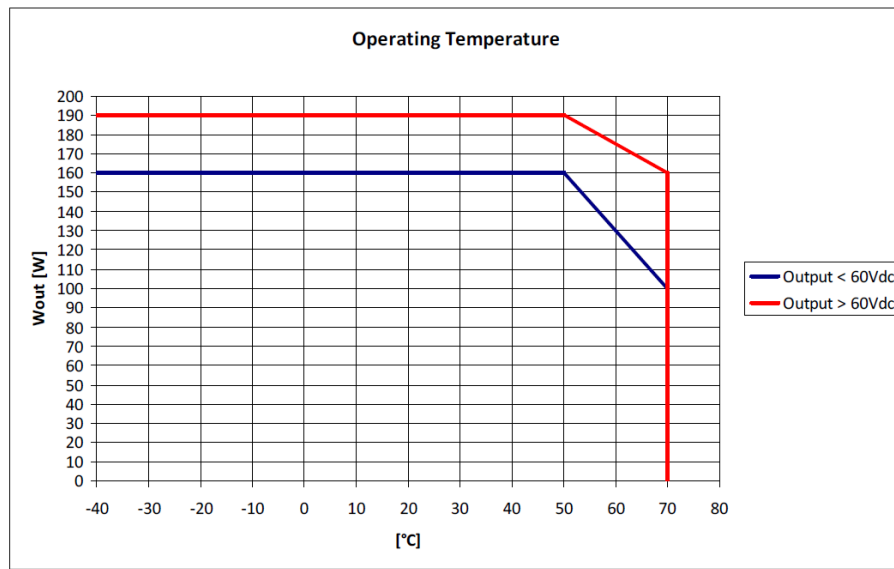


Figure 1. Derating Curves

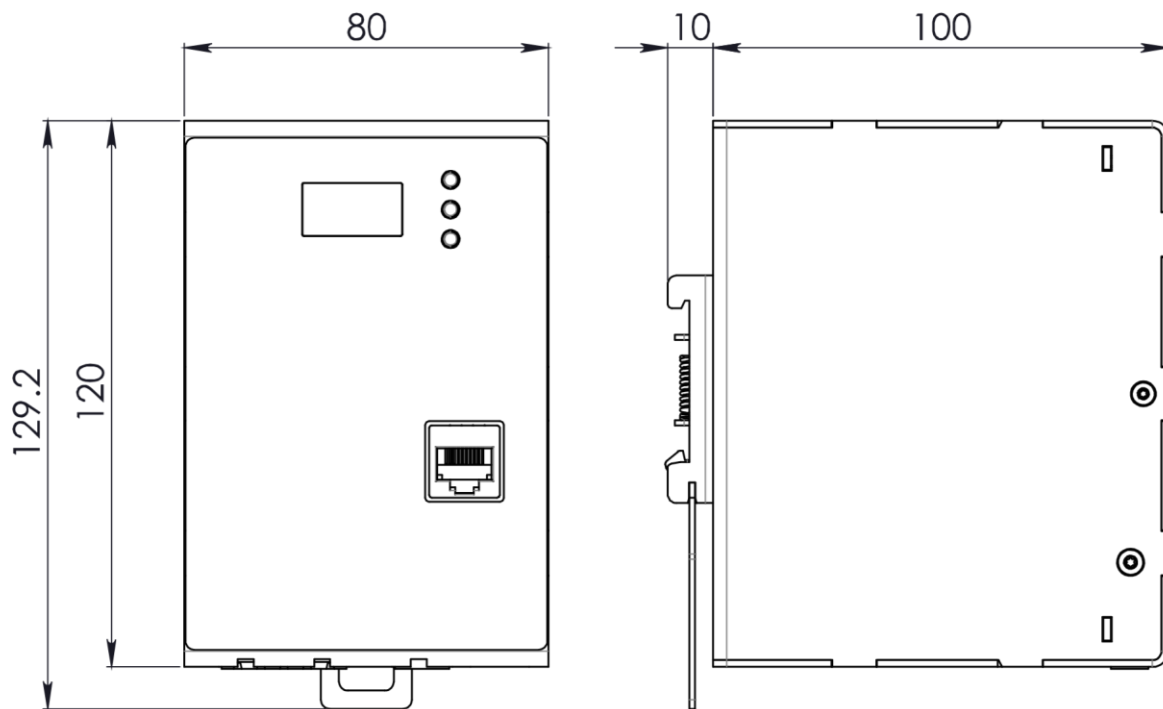
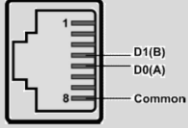


Figure 2. Mechanical Drawing

## 6. PIN LAYOUT & DESCRIPTION



INPUT CONNECTION	OUTPUT CONNECTION	SIGNALING
<b>Single phase:</b> L1 = Line N = Neutral ⊕ = Earth ground	+ = Positive DC - = Negative DC	DC OK: Dry contact 24 VDC / 1A + = NO - = COM
<b>Two phase:</b> L1 = Phase 1 L2 = Phase 2 ⊕ = Earth ground		<b>RS-485</b>  PIN4 = TX/RX D1 PIN5 = TX/RX D0 PIN8 = GND
<b>DC:</b> L1 = + Positive DC L2 = - Negative DC ⊕ = Earth ground		
<b>Enable: (5 – 30 VDC)</b> + = Positive DC - = Negative DC		

PIN	DESCRIPTION
1	AC input
2	Enable input
3	DC OK dry contact
4	DC output (load)
5	SET button menu
6	UP button menu
7	DOWN button menu
8	Display
9	RS-485 Comm. port

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