# LDP200-120

## 200 W DIN Rail

## Programmable Power Supply




RoHS Compliant

CE

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 designed to be mounted on DIN rail and installed inside a protective enclosure.

## FEATURES

- Wide AC input voltage range 170 - 550 VAC
  or wide DC input voltage range 250 - 725 VDC
- Wide output voltage range 24 - 120 VDC (user settable)
- Operating temperature up to +50°C with no derating
- User settable current limitation threshold
- High efficiency
- Active PFC
- Digital Power regulation
- Remote ON/OFF or other remote control functions
- MODBUS over RS-485 interface for control and monitoring
- 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)
- Compact size 80 x 120 x 100 mm

## APPLICATIONS

- Industrial control
- Instrumentation equipment
- Communication
- Renewable energy systems

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## 1. MODEL SELECTION

| MODEL | INPUT VOLTAGE RANGE | # OF PHASES | OUTPUT VOLTAGE | MAX OUTPUT CURRENT [1] | EFFICIENCY [2] | MAX OUTPUT POWER |
|---|---|---|---|---|---|---|
| LDP200-120 | 200 - 500 VAC (250 - 725 VDC) | 1 / 2 | 24 - 120 VDC | 4 A | 82 - 90 % | 200 W |

*[1] 4.0 A @ 24 VDC, 3.0 A @ 48 VDC, or Vout x Iout = 200 W Max. for Vout > 48 VDC*
*[2] Vout dependent*

## 2. INPUT SPECIFICATIONS.

| PARAMETER | | DESCRIPTION / CONDITIONS | SPECIFICATION |
|---|---|---|---|
| AC Input Voltage | | Nominal 1 / 2 phases<br>Range | 200 - 500 VAC<br>170 - 550 VAC |
| DC Input Voltage | | Range | 250 - 725 VDC |
| Input Frequency | | | 47 - 63 Hz |
| AC Input Current | Vin = 200 VAC | | 1.4 A |
| | Vin = 500 VAC | | 0.5 A |
| DC Input Current | Vin = 250 VDC | | 1.0 A |
| | Vin = 725 VDC | | 0.4 A |
| Inrush Peak Current<br>$I^2t$ | | Peak Current measured after 0.2 ms from main connection;<br>400 VAC / 50 Hz; Ta = 25°C; Cold Start | ≤ 40 A<br>0.69 $A^2s$ |
| Standby Power | | | < 4 W |
| Power Factor Correction | | Active | > 0.9 |
| Touch (Leakage) Current | | | ≤ 0.4 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 / CONDITIONS | | SPECIFICATION |
|---|---|---|---|
| Output Voltage (Adjustable) | 1 V resolution programmable | | 24 - 120 VDC |
| Output Current (Continuous) | or Vout x Iout = 200 W max. for Vout > 48 VDC | at 24 VDC<br>at 48 VDC | 4 A<br>3 A |
| Load Regulation | | | ≤ 1.0 % |
| Ripple & Noise [3] | | | ≤ 200 mVpp |
| Hold-up Time | | | ≥ 25 ms |
| Battery Charger Function | C.C. / C.V. (setup via front panel) | | |
| Battery Chemistries | Lead Acid<br>Lithium | | |
| Status Signals | 7 segment, 3 digits display<br>3 programming keys<br>ENABLE - isolated remote ON/OFF input, active for 5 – 30 VDC<br>DC OK - dry contact (NO, 24 VDC / 1A)<br>MODBUS over RS-485 interface | | |
| Parallel Connection | Possible for redundancy (with external ORing module) | | |

*[3] Ripple and Noise are measured with 20 MHz bandwidth, probe terminated with a 0.1 µF MKP parallel capacitor.*

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## 4. PROTECTIONS

| PARAMETER | DESCRIPTION / CONDITIONS | SPECIFICATION |
|---|---|---|
| Short Circuit Protection | Short Circuit Peak Current (Vout dependant) | 4.9 - 2.2 A |
| Overload Protection | Overload Limit (Vout dependant) | 4.4 - 1.9 A |
| Thermal Protection | | |
| Input Undervoltage Lockout (UVLO) | | |
| Input Overvoltage Protection (VDR) | | |

## 5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITIONS | SPECIFICATION |
|---|---|---|
| Operating Temperature | Start-up type tested: - 40°C, possible at Vnom with load deration. | -40 to +70 °C |
| Storage Temperature | | -40 to +80 °C |
| Derating | See Derating curve<br>> 60 VDC, over 50°C<br>< 60 VDC, over 50°C | <br>- 1.5 W/°C<br>- 3.0 W/°C |
| Dissipated Power | | < 21 W |
| Humidity | Non-condescending | 5 - 95 % RH |
| Life Time Expectancy | Ta = 25°C, full load | 71 686 (8.1) hrs (years) |
| MTBF | MIL-HDBK-217F at Ta = 25°C, full load | > 500 000 hrs |
| Overvoltage Category | EN 50178 | III |
| Pollution Degree | IEC 60664-1 | 2 |
| Isolation | Input to Output<br>Input to Ground<br>Output to Ground | 4.2 kVDC<br>2.2 kVDC<br>0.75 kVDC |
| Safety Standards & Approvals | UL 508 (reference)<br>IEC/EN 61010-1<br>IEC/EN 61010-2-201<br>IEC/EN 60950 | |
| EMC Emissions | EN 55011 / CISPR 11<br>EN 55022 / CISPR 22<br>EN 61000-3-2 | Class A<br>Class A<br>Class A |
| EMC Immunity | EN 61000-4-2<br>EN 61000-4-3<br>EN 61000-4-4<br>EN 61000-4-5<br>EN 61000-4-11 | Level 3<br>Level 3<br>Level 3<br>Level 4<br>Level 2 |
| Protection Degree | EN 60529 | IP20 |
| Vibration Sinusoidal | IEC 60068-2-6 | 5 - 17.8 Hz: ±1.6 mm; 17.8 - 500 Hz: 2 g 2 hours / axis (X,Y, Z) |
| Shock | IEC 60068-2-27 | 30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total |

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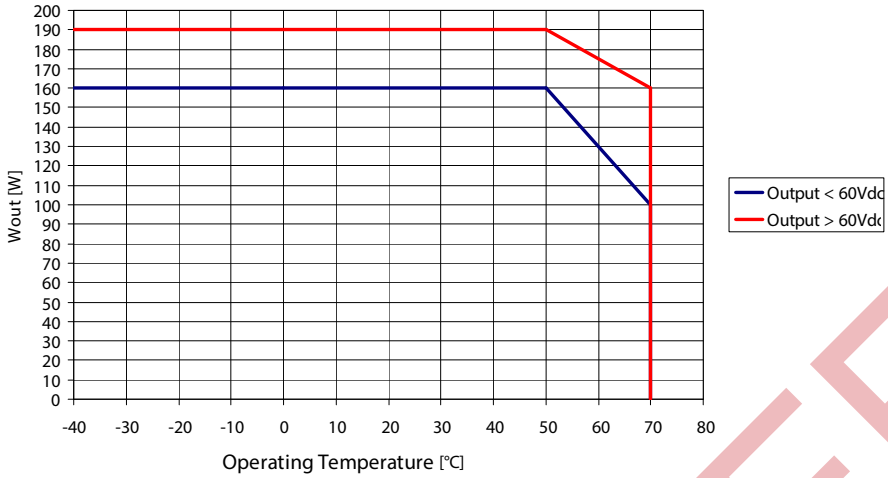


*Figure 1. Derating curve*

## 6. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITIONS | SPECIFICATION |
|---|---|---|
| Dimensions | | 80 x 120 x 100 mm<br>3.15 x 4.72 x 4.94 in |
| Weight | | 750 g |
| Mounting Rail | IEC 60715/H15/TH35-7.5(-15) | |
| I/O Connection Terminals | Screw type pluggable (24 - 12 AWG) | 2.5 mm² |
| Auxiliary Connection Terminals | Fast type pluggable (20 AWG) | up to 0.5 mm² |
| Communication Interface Connector | RS-485 through RJ45 Female | |
| Case Material | Aluminum | |

## 7. MECHANICAL DRAWING

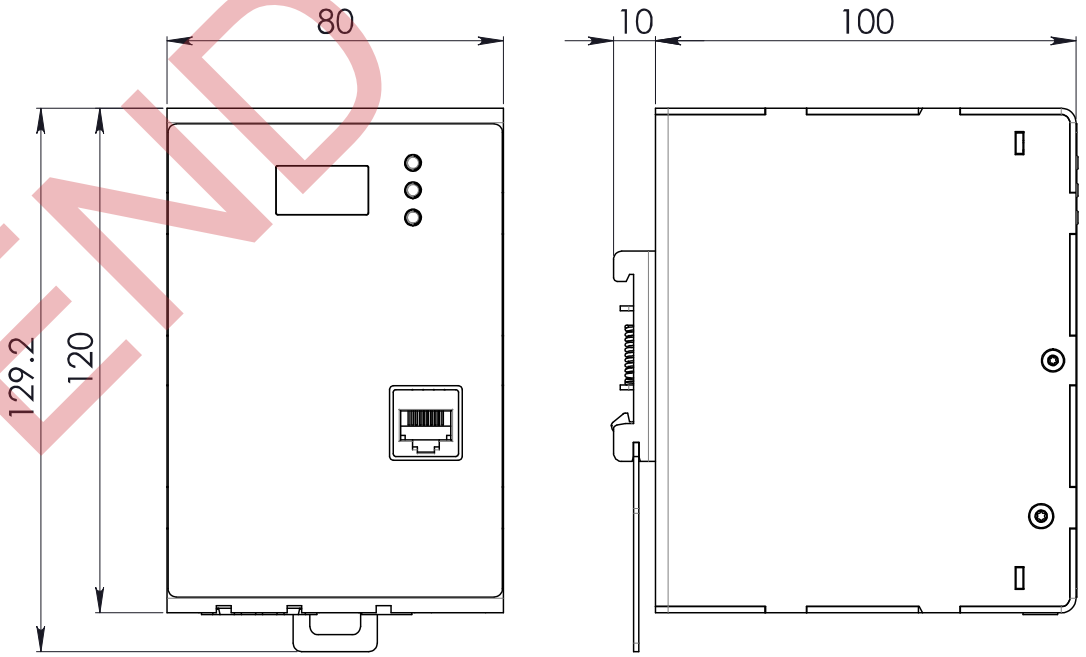


*Figure 2. Mechanical Drawing*

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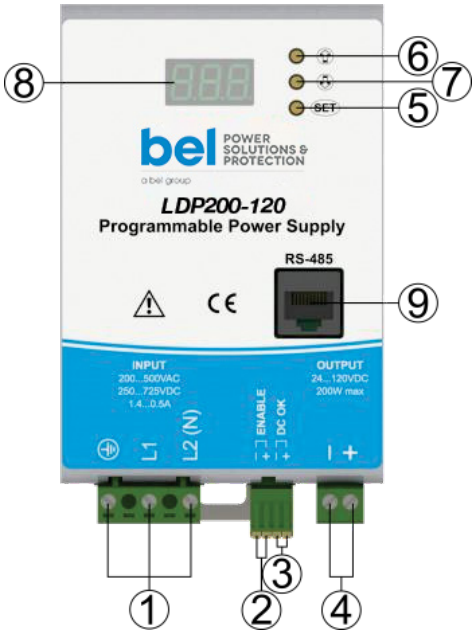
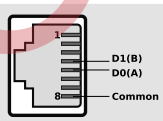
## 8. PIN LAYOUT & DESCRIPTION




| 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 |

| | Single-phase | Two-phase | DC Input | Enable (5 - 30 VDC) |
|---|---|---|---|---|
| **INPUT CONNECTION (1, 2)** | L = Line<br>N = Neutral<br>⏚ = Earth ground | L1 = Phase 1<br>L2 = Phase 2<br>⏚ = Earth ground | L1 = + Positive DC<br>L2 = - Negative DC<br>⏚ = Earth ground | + = Positive DC<br>- = Negative DC |
| **OUTPUT CONNECTION (4)** | + = Positive DC<br>- = Negative DC | | | |
| **SIGNALLING (3)** | DC OK: dry contact<br>• NO<br>• COM | | | |
| **RS-485 (9)** | • PIN4 = TX/RX D1<br>• PIN5 = TX/RX D0<br>• PIN8 = GND |  | | |



***Notes:***

*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. Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details. For more details, performance and descriptions regarding all parameters not indicated in the above table, please refer to the Installation Instruction.*

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**NUCLEAR AND MEDICAL APPLICATIONS** - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

**TECHNICAL REVISIONS** - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



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