



POWER SUPPLY

- NEC Class 2 Compliant
- 2AC 380-480V
- 2 Phase Input
- No Neutral Wire Required
- Input Fuse Included
- Efficiency up to 90.0%
- Full Output Power Between -10°C and +60°C
- Quick-connect Spring-clamp Terminals
- 3 Year Warranty

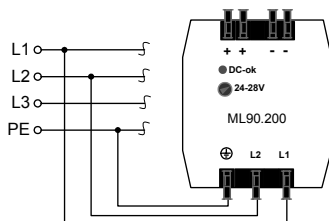
GENERAL DESCRIPTION

The ML90.200 is a simple and cost effective approach to convert the AC voltage of a typical three phase system into a regulated DC voltage. It only requires two phases and thereby saves terminal space, terminal cost, wires, fuses and installation time.

The ML90.200 is very compact, high efficient and easy to use. Furthermore, it fulfills the NEC Class 2 limitations. The input is internally protected, which makes external fuses unnecessary in many cases.

Weighing only 360g, it is a lightweight compared to the 50/60Hz control transformers, which are commonly used for low-power control voltages where a neutral wire is not available.

High immunity to transients and power surges as well as low electromagnetic emission makes usage in nearly every environment possible.



SHORT-FORM DATA

| | | |
|-------------------|---|--------------------|
| Output voltage | DC 24V | |
| Adjustment range | 24-28V | guaranteed |
| Output current | 3.75-3.2A | |
| Output power | 90W | |
| Output ripple | < 50mVpp | 20Hz to 20MHz |
| Input voltage | 2AC 380-480V | ±15% |
| Mains frequency | 50-60Hz | ±6% |
| AC Input current | typ. 0.42 / 0.36A | at 400 / 480Vac |
| Power factor | typ. 0.6 / 0.55 | at 400 / 480Vac |
| AC Inrush current | typ. 36 / 45A | at 400 / 480Vac |
| Hold-up time | typ. 52 / 93ms | at 400 / 480Vac |
| DC Input | consult PULS | |
| Efficiency | 89.5 / 89.0% | at 400 / 480Vac |
| Losses | 10.5 / 11.1W | at 400 / 480Vac |
| Temperature range | -10°C to +70°C | operational |
| | -40°C to +85°C | storage, transport |
| Derating | 2 W/°C | +60 to +70°C |
| Humidity | < 95% r.H. | IEC 60068-2-30 |
| | Do not energize while condensation is present | |
| Vibration | 2g (2 hours/axis) | IEC 60068-2-6 |
| Shock | 30g 6ms, 20g 11ms | IEC 60068-2-27 |
| Dimensions | 72.5x75x103mm | WxHxD |

ORDER NUMBERS

Power Supply **ML90.200** 24-28V Power Supply

MARKINGS



UL 508



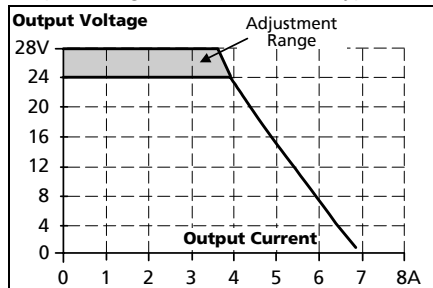
Marine



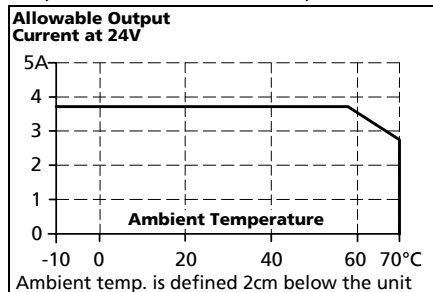
OUTPUT

| | | |
|------------------|-----|---------------------------|
| Output voltage | nom | DC 24V |
| Adjustment range | min | 24V-28V |
| Factory set | typ | 24.5V |
| Output current | nom | 3.75A at 24V, 3.2A at 28V |
| Line regulation | max | 20mV 323...552Vac |
| Load regulation | max | 240mV static regulation |
| Serial use | | not allowed |
| Parallel use | | not allowed |
| Return voltage | max | 35V |
| OVP | typ | 34V |
| | max | 39V |

Output voltage vs. output current, typ.



Output current vs. ambient temperature



SAFETY AND PROTECTION

| | | |
|---------------------------|---------|--------------------------|
| Input / output insulation | SELV | IEC/EN 60950-1 |
| | PELV | EN 60204-1 |
| | 3000Vac | 2s type test |
| Degree of pollution | 2 | EN 50178 |
| Degree of protection | IP 20 | EN/IEC 60529 |
| Class of protection | I | PE required |
| Over-voltage category | III | EN 50178 |
| Internal input fuse | T3A15 | in L1, not accessible |
| Temperature protection | | not included |

The power supply shall only be installed and put into operation by qualified personnel. This power supply is designed for installation in an enclosure and is intended for the general use, such as in industrial control, office, communication, and instrumentation equipment. Do not use this device in aircraft, trains and nuclear equipment, where malfunctioning of the power supply may cause severe personal injury or threaten human life. The information presented in this document is believed to be accurate and reliable and may change without notice.

ML90.200 Rev 1.0-EN / All parameters are specified at 24V, 3.75A, 400Vac and 25°C ambient unless otherwise noted.

TERMINALS AND WIRING

| | |
|------------------|--|
| Type | Bi-stable, quick-connect spring clamp terminals. Shipped in open position. |
| Solid wire | 0.3-2.5mm ² |
| Stranded wire | 0.3-2.5mm ² |
| AWG | AWG 26-12 |
| Stripping length | 6mm / 0.25inch |
| Ferrules | allowed, but not required |

EMC

| | |
|------------------------|---|
| EMC Immunity | EN 61000-6-1, EN 61000-6-2 |
| EMC Emission | EN61000-6-3, EN 61000-6-4 EN 55011, EN 55022, FCC-15 |
| Harmonic input current | EN61000-3-2 (PFC) |
| Flicker | EN61000-3-3 |

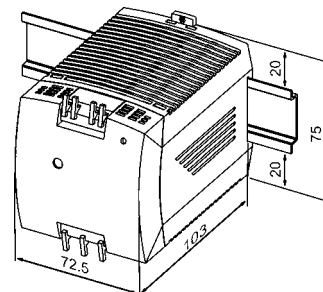
APPROVALS

| | |
|-------------|--|
| UL 508 | Industrial Control Equipment |
| UL 60950-1 | Information Technology Equipment |
| NEC Class 2 | According to NEC (National Electrical Code) Article 725-41 (4). Listed as Limited Power Source (LPS) in the UL 60950-1 UL report. |

FULFILLED STANDARDS

| | |
|----------------|---|
| EN 61558-2-17 | Safety of Power Transformers |
| EN/IEC 60204-1 | Safety of Electrical Equip. of Machines |
| EN/IEC 60950-1 | Information Technology Equipment |
| EN/IEC 61131-2 | Programmable Controllers |
| EN 50178 | Electronic Equip. Power Installations |

DIMENSIONS AND WEIGHT



Use 35mm DIN-rails according to EN 60715 or EN 50022 with a height of 7.5 or 15mm. The DIN-rail height must be added to the depth (103mm) to calculate the total required installation depth.

Weight max 360g 0.79lb