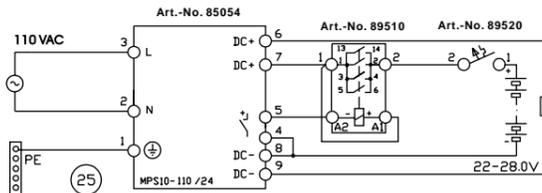
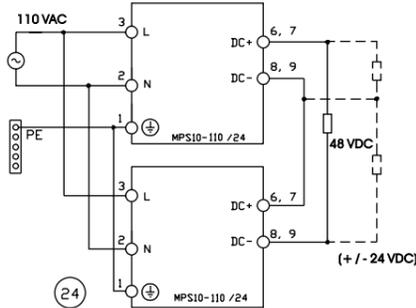
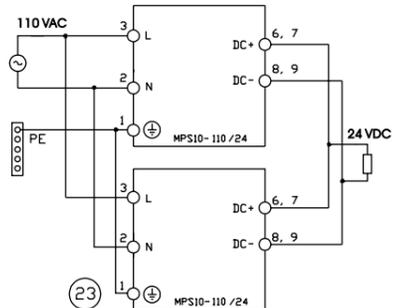
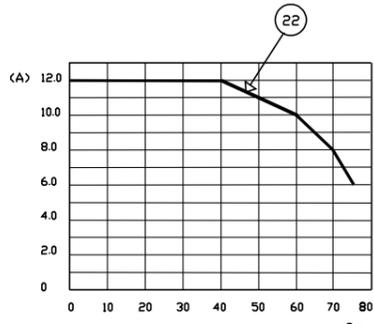
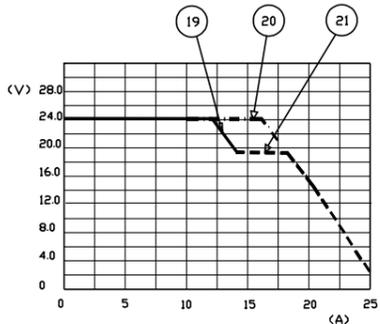
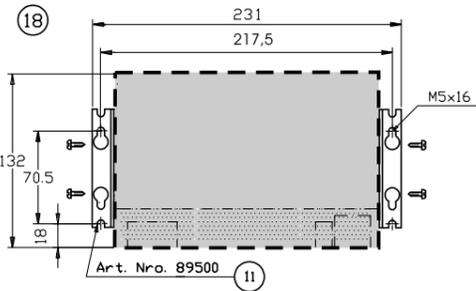
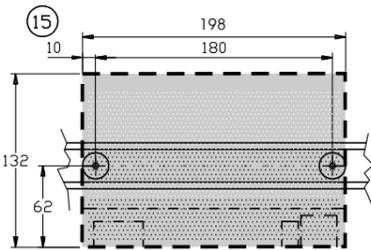
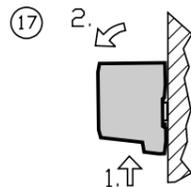
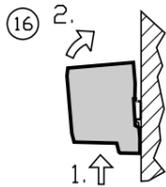
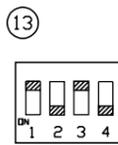
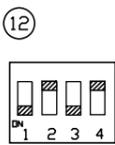
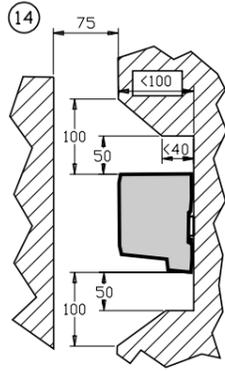
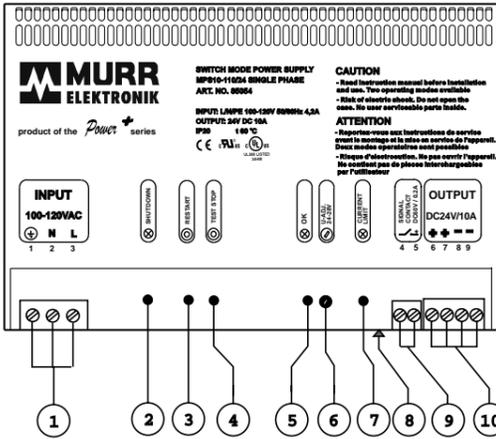


In order to take the best advantage of the features that this power supply has to offer and to ensure long term reliability for your equipment, please read these instructions carefully before installation and use. They should be retained for future reference. This power supply can be adapted to a lead-acid-battery and work with battery



(1) General

This unit employs many novel features previously unavailable in an industrial power supply. It has been designed to withstand the high levels of interference found in heavy industry and has emission levels low enough for it to be used in residential, commercial and light industrial environments.

The MPS10 has a high level of reserve power. This enables loads with significant inrush current to be supported and will also ensure that circuit breakers will trip in the event of a short circuit.

For manual control of the output voltage, two push buttons are provided. Operation of the red "TESTSTOP" button will turn the voltage off. Operation of the green "RESTART" button will turn it on.

WARNING!! the output voltage always comes on when the supply is turned on.

An alarm contact is provided which will open as the unit approaches shut down due to overload or excessive temperature brought about by lack of ventilation. If no action is taken and the temperature continues to rise, the unit will shut down but may be reset after cooling by means of the "RESTART" BUTTON.

When the power supply is connected to the mains, there is no inrush current. The supply will monitor low supply voltage.

The power supply can be configured with DIP switches to work with battery back-up. A lead-acid battery can be held on float charge with the alarm contact operating as low voltage release to prevent deep discharge.

(2) Technical specification, Part -No. 85054

| | | |
|--|------------------------------------|------------------------------|
| Operation | Power Supply | Battery back-up power supply |
| Nominal voltage | 100-120VAC50/60Hz | |
| Input voltage range | 95-132VAC50/60Hz | 100-132VAC50/60Hz |
| Input current, I _{typ} | 4.2A _{max} | |
| Inrush current | none | |
| Efficiency, typ. | 90% | |
| Power factor, typ. | 0.6 | |
| Low voltage shutdown | Yes | |
| External fuse max. | 10A | |
| Safety class | 1 | |
| Output voltage | 24.0VDC (22-28V) | 24-28V |
| Static regulation accuracy | +/-1% | |
| Dynamic regulation accuracy, typ. | 0->100%, 2% 1ms / 100%->5%, 2% 1ms | |
| Output current, continuous +60°C | 10A | |
| Output current, continuous +40°C | 12A | |
| Output current, transient < 50ms | 15A | |
| Output current, short circuit, < 400ms | 25A | |
| Output ripple | < 20mV _{rms} | |
| Over loading/temperature protection | Yes | |
| Over voltage shutdown | 28.5V typ. | |
| Over current shutdown | 13.0A, 400ms | No |
| Under voltage shutdown | 21V typ., (current controlled) | 19V typ. |
| Parallel use U _{in} > 100VAC, 5% minimum load. Max. 3 units | Yes | |
| Alarm contact, normally closed | 0.2A 60V | |
| Relative humidity | 30 - 90 %, no condensing | |
| Operating temperature | 0°C - +60°C (0°C - +50°C UL) | |
| Protection class, EN60529 | IP20 | |
| Dimensions W x H x D , Weight | 198 x 132 x 97 , 1.7kg | |

(3) Features

- [1] Input terminal 3x 2.5mm², removable
- [2] "SHUTDOWN"-failure LED red
- [3] "RESTART"-start push button, green
- [4] "TESTSTOP"-test stop push button, red
- [5] Output "OK"-LED green
- [6] U-ADJ output voltage adjust trimmer
- [7] "CURRENT LIMIT"-current limit LED
- [8] DIP-switch to set operating mode
- [9] Alarm connection contact, removable
- [10] Output terminal 4x 4mm², fixed

(4) Operating modes

Conventional power supply

The factory setting is for conventional power supply operating mode [12] with a no load voltage 24.15 volts. DIP switches 1 and 3 are ON, 2 and 4 are OFF.

Continuous overload, high ambient temperature or a load current greater than 13 amps taken for longer than 400ms, will cause the unit to trip into the RESTART mode. As the unit approaches shutdown, a pre-warning will be given by the alarm contact and the yellow "limit" led

Battery backed power supply

The battery backed power supply [13] can be set by changing the DIP switches 2 and 4 to ON and 1 and 3 to OFF. The load will be energised by the power supply when the mains supply is on and by the battery should the mains supply fail. If, due to overload, the terminal voltage falls below 19 volts, the power supply trips to the RESTART mode. The alarm contact will release the low voltage relay and isolate the battery from the load. If due to mains failure, the battery discharges to below 19 volts, the alarm contact will release the low voltage relay and prevent deep discharge of the battery. When the mains is restored, the power supply will start automatically and the battery will be charged with the residual current available after the load is supplied (I_{bat} = I_{max} - I_{load})

(5) Location

The power supply is cooled by natural convection. It is important to maintain clearance dimensions equal to or greater than the minimum shown on the diagram [14] to ensure best performance and long term reliability. Side clearance to other equipment should be 25mm or >50mm if that equipment is heat generating. The ambient temperature should be measured on the underside of the unit. There will be an increase of 20°C at the top. If natural convection is restricted, forced cooling should be used. Mounting should comply with EN60950 point 4.4, 4.315 and 4.316. Protection class IP20 (EN60529).

(6) Mounting

Rail mounting [15]

The rail should be fixed solidly. The two 20mm diameter washers supplied should be fitted under the screws and will help to prevent distortion of the rail. Mounting instructions [16], / Removing instructions [17].

Screw fixing [18]

A pair of fixing brackets, Part Nr. 89500 must be attached to the power supply with the screws provided. The keyhole brackets will accept four M5 screws. (Screws are included).

(7) Switching on - conventional power supply

Factory set, ready to use. Check 10 and 11 for parallel and series connection..

(8) Switching on - battery backed power supply (lead acid)

Check the recommendations of float charge voltages from the specification of the battery manufacturer. If the values are not available, the float charge voltages can be set with U-ADJ.-adjustment potentiometer as follows:

| Float charge voltages 12 cells | The average long period temperature of the battery | | | | | | | |
|--------------------------------|--|-------|-------|-------|-------|-------|-------|-------|
| | +5°C | 10°C | 15°C | 20°C | 25°C | 30°C | 35°C | 40°C |
| - maintenance free batteries | 28.0V | 27.9V | 27.8V | 27.6V | 27.4V | 27.2V | 27.0V | 26.8V |
| - open lead batteries | 27.2V | 27.1V | 26.9V | 26.7V | 26.5V | 26.3V | 26.1V | 25.9V |

For maximum lifetime, the battery temperature should not exceed 35°C and must never exceed 40°C. NiCd batteries must not be used.

The low voltage release relay and the battery fuse available are .

| System size | Part number | |
|-------------|---------------------------|--------------|
| | Low voltage release relay | Battery fuse |
| 10A | 89510 | 89520 |
| 20A | 89512 | 89522 |
| 20 - 40A | 89512 | 89524 |

Always use the correctly sized fuse or circuit breaker and connect as near to the battery as possible. Ensure that the battery compartment is ventilated. The power supply can be damaged by wrong battery polarity. See connections [25]. When the mains is disconnected, the power supply and the low voltage release relay discharges the battery by 125mA.

(9) Loading capacity

The nominal current is 10 A but due to the nature of industrial loading, the power supply has been designed to support loads with high inrush currents without damage or shutdown. Curve [19] shows the typical voltage / current curve. Curve [20] shows the voltage / current response to a dynamic <50ms load. Curve [21] shows the voltage / current response to a dynamic 400ms load. Curve [22] shows the overload / temperature limit. To ensure correct convection cooling, the unit must always be mounted with the terminals at the bottom.

(10) Parallel connection [23]

Up to 3 units may be connected in parallel. The open circuit voltage of each unit should be set to same value. Accuracy of setting will determine how well the units share the load current. The gauge and length of the cable between each power supply and the common point should be the same. Operation is based on the electronically controlled 0.5% voltage / current slope. Alarm contacts should be connected in series. By redundant use, outputs must be connected through diodes, so that alarm contacts will retain their function, Art. Nr. 89503 or Art. No. 857769. When using a battery back-up, it is advisable to connect each power supply to the battery positive terminal through it's own 16A fuse. Units should only be used in parallel where the supply exceed 100 volts.

(11) Series connection [24]

Up to 2 units may be connected in series to give either 48 V or +/-24V. Alarm contacts should be connected in series.

(12) Setting the output voltage

The open circuit voltage is factory set to 24.15V. Clockwise rotation of the "U-ADJ" potentiometer [6] will increase the voltage. If the setting exceeds 28 V, the overvoltage shutdown protection could operate. If this happens, reduce the setting and press the green "RESTART" button.

(13) Alarm contact [9]

The alarm contact is closed during normal running and opens for supply failure, low supply voltage, output short circuit, overload pre-warning, high output voltage or low output voltage when used in battery back-up mode

Note !! The contacts can only be used on DC. Maximum 60V at 0.2A. The resistance is approximately 3 - 6 ohms..

(14) Using circuit breakers on the power supply output

On short circuit, the power supply will trip, for example, the following ABB-STOTZ circuit breakers.:

- S261-C2A
- S271-Z4A

(15) Standards

| | |
|-------------------|---------------------------------------|
| Electrical safety | EN 60950, SELV |
| EMC | EN 50081-2 (1993), Emissions |
| | EN 50082-2, (1995), Immunity |
| Immunity | EN 61000-4-5 (1995) Surge, 2/4/0.5 kV |
| | EN 61000-4-3 (1996) Rf-field 10 V/m |
| | ENV 50204 (1995) Rf-field 900 MHz |
| | EN 61000-4-6 (1996) Cond. Rf 10 V/m |
| | EN 61000-4-2 (1995) ESD 4/8 kV |
| | EN 61000-4-4 (1995) EFT/B 2,2,1 kV |
| Emissions | EN55011B, RF-emissions |

We reserve the right to change this specification.