

**MAXCESS**<sup>®</sup>

**MAGPOWR**

# MAGPOWR Model PS-24

## 24 VDC Power Supply

### Instruction Manual

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MI 850A302 1 D

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## About these operating instructions

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Periodically there will be updates to this manual. The latest version is available at [www.maxcessintl.com](http://www.maxcessintl.com) or by calling 405.755.1600.

## Language

These are the original instructions, written in English.

## Product overview

The MAGPOWR Model PS-24 is a controllable current regulator for 24 VDC magnetic particle clutches and brakes. The PS-24 also provides a small amount of reverse current to maximize the torque range of the clutch / brake.

**The PS-24 may be powered from either 24 VAC or 24 VDC. See Section 3-1.**

The Model PS-24 has three jumper selectable current ranges. Maximum outputs for the individual ranges are 0.5, 1.0 and 2.0 ADC. The appropriate range is determined by the current rating of the clutch or brake to be controlled. For best torque control resolution, the lowest current range providing sufficient current for maximum operating torque should be selected. When using 24 VDC input power the maximum current output will be slightly less than the selected range.

The PS-24 accepts either a remote adjustment potentiometer, or a 0 to 10 VDC analog control signal. An isolation card is required when the PS-24 is connected to an external non-isolated control signal.

Connections are provided for an external 1 mADC current meter. The meter display will indicate output current as a percentage of the output range selected.

The control circuits are not electrically isolated from the power circuits. The control circuit negative is connected to the P.E. connection, that is, control input circuits are not floating.

## Instructions for use

To ensure safe and problem free installation of this product, it must be properly transported and stored, professionally installed, and placed in operation. Proper operation and maintenance will ensure a long service life of the device. Only persons who are acquainted with the installation, commissioning, operation, and maintenance of the system and who possess the necessary qualifications for their activities may work on this product.

Note: The safety information may not be comprehensive.



Please note the following:

- The content of these operating instructions
- Any safety instructions on the device
- The machine manufacturer's specifications
- All national, state, and local requirements for installation, accident prevention and environmental protection

## Safety symbols

### Information about safety instructions

The safety instructions and symbols described in this section are used in these operating instructions. They are used to avoid possible dangers for users and to prevent material damage.



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#### SIGNAL WORD

Source of danger and its results

Avoiding dangers

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The signal word **DANGER** refers to the danger of death or serious bodily injuries.

The signal word **WARNING** refers to the danger of moderate to severe bodily injuries.

The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.

The signal word **NOTICE** refers to the possibility of damage to equipment.

## Symbols used

The following safety identification symbols are used in these operating instructions.



WARNING/CAUTION - General danger or important note  
Reference to general hazards that may result in bodily injuries or damage to device or material.



WARNING/CAUTION - Danger due to voltage, electric shock  
Reference to danger of injury caused by electric shock due to voltage.



WARNING/CAUTION - Danger due to hot surfaces  
Reference to risk of fire.

## Basic safety information

### Proper use

The PS-24 is intended to power MAGPOWR brakes or clutches.  
Indoor operation: see environmental specifications (Section 6-1).

### Improper use

Operation outside the technical specifications  
Operation in an Ex-area or intrinsically safe area  
Operation as a safety component. The PS-24 does not supply current to the clutch or brake if the power fails.  
Outdoor operation  
Any other use than the proper use shall be deemed inappropriate.

### Installation and commissioning

Any PS-24 which is damaged must not be installed or put into operation.  
Only perform installation, maintenance or repair tasks on the PS-24 when the machine has been stopped and is secured from being turned on.  
Only perform installation, maintenance or repair tasks on the PS-24 system when there is no electrical power in the system.  
The PS-24 must be securely mounted before being placed in operation.  
Only replacement parts obtained from Fife may be used.  
No modifications may be made to the PS-24.  
Do not place electrical cables under mechanical strain.



WARNING - Death or injury can result from unexpected movement. Protect against unexpected movement by removing electrical power from PS-24 and the machine into which it is being installed.

### Maintenance and repair



WARNING - Death or injury can result from unexpected movement. Protect against unexpected movement by removing electrical power from the PS-24 system and the machine into which it is installed.

### Decommissioning

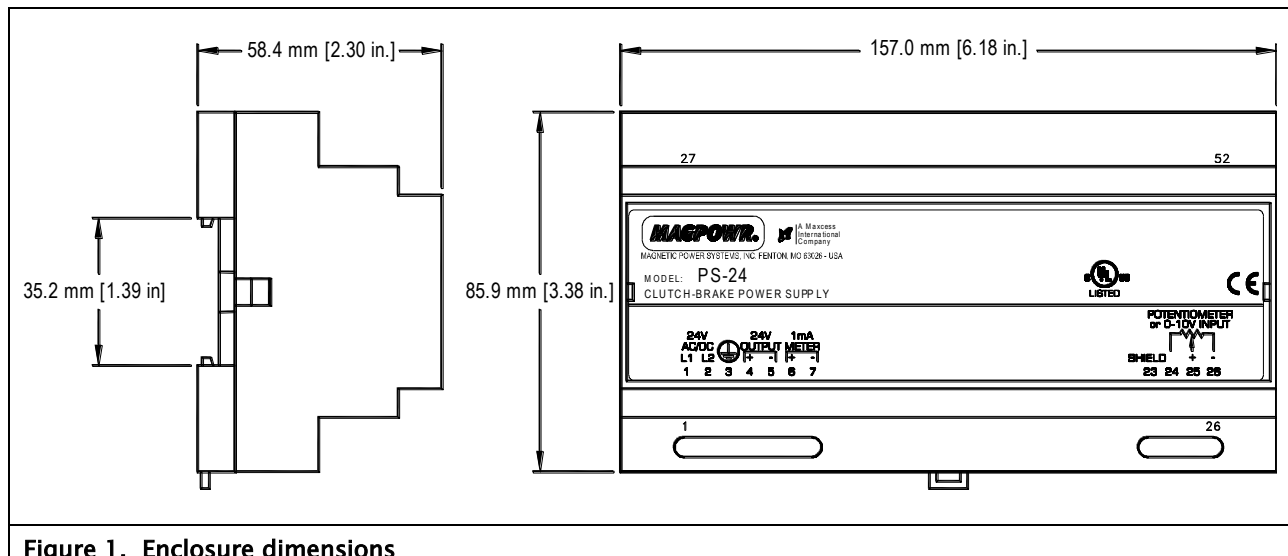
The PS-24 must be disposed of in accordance with all the applicable national, state and local regulations.

## Installation

The PS-24 is intended for installation on a vertical panel with a DIN 35 rail, with the wiring terminals facing down. Figure 1 shows the enclosure dimensions.

Wiring to and from the PS-24 must be done with double or reinforced insulation or protective screening which provides protective separation. All wiring should comply with the essential requirements of the appropriate standard(s) and is the responsibility of the installer.

Route input power away from control signal wiring. Connect shields of shielded cable to the terminals indicated as "SHIELD". Maximum exposed shield length and maximum length of wires outside of the shield is 75 mm [3.0 inches].





Power selections  
and current range  
settings



WARNING - Death or injury can result from unexpected movement. Protect against unexpected movement by removing electrical power from PS-24 and the equipment into which it is installed.

Remove the enclosure top by inserting a flat blade screwdriver under the retaining tabs in the base (Figure 2).

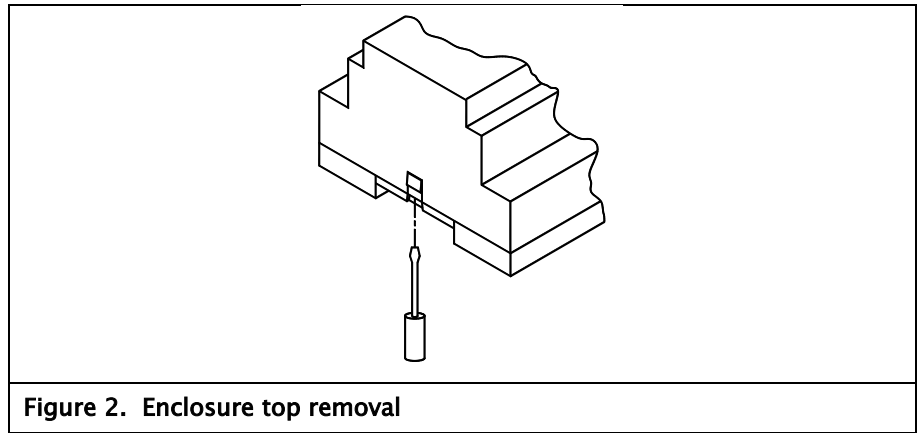


Figure 2. Enclosure top removal

Set the J1 input voltage selection jumper to either AC or DC depending on input voltage type. See Figure 3 for J1 input voltage type setting. Set the current range selection jumpers to the range appropriate for the clutch/brake connected to the PS-24 (See Figure 3 for J2 current range settings). The factory setting is 1/2 amp range. Replace the enclosure top.

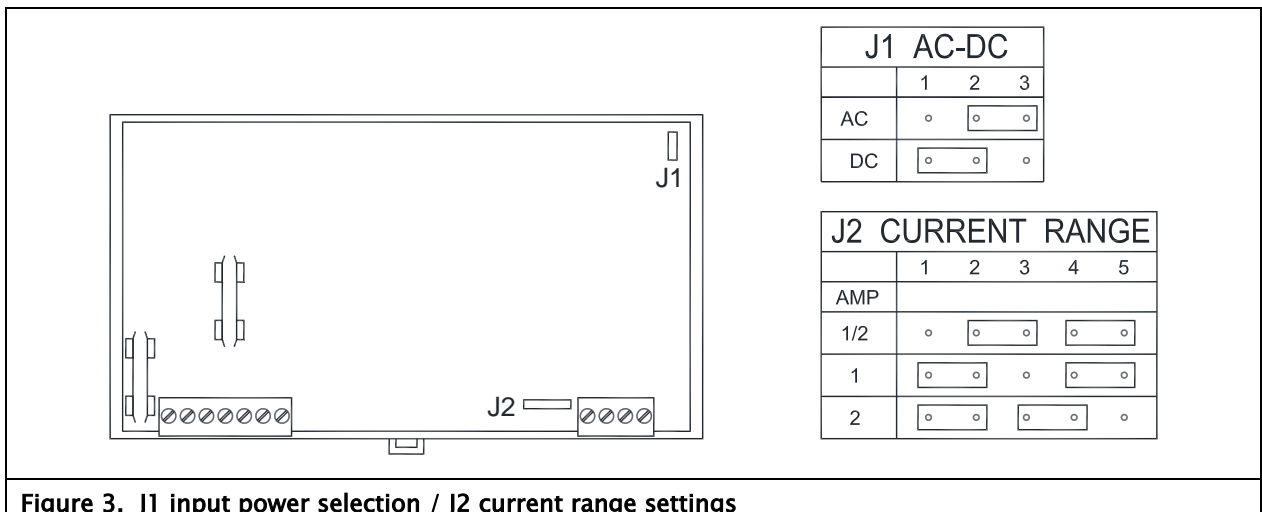


Figure 3. J1 input power selection / J2 current range settings

## Electrical connections



**CAUTION** – Never place electrical cables under mechanical strain. Always provide mechanical support of wiring with either clamps or flexible or rigid conduit.

There are three connections (Figure 4) required for the basic system:

- 24 VAC/VDC power
- 24 VDC output for clutch / brake
- 1 k $\Omega$  to 10 k $\Omega$  potentiometer

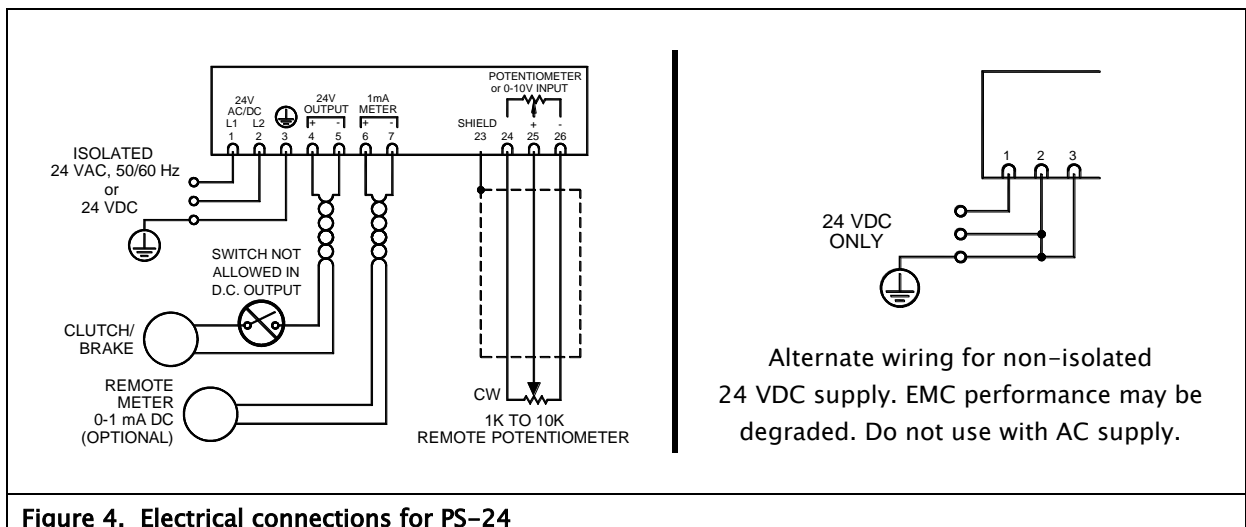
Route input power away from control wiring. The clutch/brake wires and the remote meter wires should be twisted pair. Run the signal input wiring in shielded cable. Connect the shield to the provided terminal marked “SHIELD”. The maximum shield length and maximum length of wires outside of the shield is 75 mm [3.0 inches].

When using a 0 to 10 VDC input instead of a potentiometer, connect the negative of the input to terminal 26 and the positive of the input to terminal 25. The 0 to 10 VDC signal should be isolated from PE. If not isolated from PE, EMC performance may be degraded.

The 0 to 1 mA DC output and the potentiometer input negative lead is ground referenced.

The 24 VDC output must be floating with respect to ground.

When using multiple PS-24 units, each one must have its own power supply.



## Maintenance



To reduce the risk of fire, replace only with the same type fuses as specified in Section 6-1.



WARNING - Death or injury can result from unexpected movement. Protect against unexpected movement by removing electrical power from PS-24 and the equipment into which it is installed.

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The only maintenance that may be required on the PS-24 is fuse replacement. Replacement of the fuse(s) requires first removing input power, and then opening the enclosure.

The enclosure may be opened by inserting a flat blade screwdriver under the retaining tabs in the base (See Figure 2).

The enclosure must be re-installed to maintain the IP rating.

## Troubleshooting

| Symptom                  | Possible Cause   | Solution or Diagnostic   |
|--------------------------|--|--|
| No clutch/brake output   | No input power   | Verify incoming power is correct voltage and frequency.  |
|                          | J1 selection wrong   | Verify that J1 is set to AC or DC to match the type of power input.  |
|                          | Fuses blown  | Clutch/brake wires shorted together or shorted to ground.  |
|                          | Clutch / brake wires open circuit  | Disconnect clutch/brake wires at the PS-24 and check for proper clutch / brake resistance between the wires.   |
|                          | Remote potentiometer or external power supply not wired correctly, or shorted together | <p>Voltage between terminal 24 and 26 should be 10 VDC.</p> <p>Voltage between terminal 25 and 26 should vary from 0 to 10 VDC as the potentiometer or external 0 to 10 VDC power supply is moved through its range of travel.</p> |
| Remote meter not working | Incorrect type of meter  | Meter should be a current meter with 1 mADC full scale and no more than 100 ohm resistance.  |
|                          | Meter wires shorted or open  | Disconnect meter wiring at the PS-24 and check for proper meter resistance between the wires.  |

## Specifications

Supply voltage 24 VDC, 2.1 amp maximum, 49 VA with clutch or brake coil  
24 VAC,  $\pm 10\%$ , 50/60 Hz, 2.1 amp maximum, sinusoidal,  
49 VA with clutch or brake coil

|        |    |         |  |
|--------|----|---------|--|
| Fuses: | F1 | 2.5 amp | Littelfuse Part No. 21602.5 or<br>Wickmann Part No. 19194-058-FS |
|        | F2 | 5.0 amp | Littelfuse Part No. 216005 or<br>Wickmann Part No. 19194-063-FS  |

Enclosure: IP20  
Climatic class: 3K3 (EN60721)  
Temperature range  
    Operating: 0° C to 50° C  
    Storage: -30° C to 80° C  
Relative humidity: 5% to 85%  
Pollution degree: 2 (IEC664-1)  
Altitude: 0 to 2000 m

Compatible residual current device types: A or B (IEC755)

Worst case fault current: 2.5 amp

### Inputs

Signal: Potentiometer: 1 k $\Omega$  to 10 k $\Omega$ , ¼ watt minimum, or  
Voltage: 0 to 10 VDC, 100 kohm input impedance

### Outputs

#### Clutch/brake

Voltage: -1.2 to 24 VDC, duty cycle/phase controlled  
Current: Adjustable in three ranges:  
    -0.016 to 0.5 ADC  
    -0.032 to 1.0 ADC  
    -0.064 to 2.0 ADC  
Regulation: <1% of range  
Current drift: 0.024%

Meter signal: 0 to 1 mADC,  $\pm 3\%$  into 100 ohm maximum  
Potentiometer: 10 VDC  $\pm 3\%$ , 10 mADC maximum

## Service requests and replacement parts

To request service or to get replacement parts, contact  
Maxcess:

### Maxcess Oklahoma

222 West Memorial Rd.

Oklahoma City, OK, 73114, USA

Phone: 1.405.755.1600

Fax: 1.405.755.8425

Web: [www.maxcessintl.com](http://www.maxcessintl.com)



When ordering replacement parts, please indicate, where possible, part number, drawing number and model description.

If it is necessary to return this product for service, care must be taken to properly package the unit to prevent damage during shipment. If possible, use the original shipping containers.



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