

**MCS*E Series
Master Power Supply**

**Installation/
Operation Manual**

C655M (6/99)

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CONTENTS

| <u>Section</u> | <u>Page</u> |
|---|-------------|
| IMPORTANT SAFEGUARDS AND WARNINGS | 3 |
| DESCRIPTION | 3 |
| MODELS | 3 |
| APPLICATION EXAMPLES | 4 |
| INSTALLATION | 4 |
| INPUT CONNECTIONS | 4 |
| OUTPUT CONNECTIONS | 5 |
| MAINTENANCE | 7 |
| SPECIFICATIONS | 7 |
| WARRANTY AND RETURN INFORMATION | 8 |

LIST OF ILLUSTRATIONS

| <u>Figure</u> | <u>Page</u> |
|--|-------------|
| 1 MCS*E Series Unit Wiring Connector Diagram | 5 |

LIST OF TABLES

| <u>Table</u> | <u>Page</u> |
|--------------------------------------|-------------|
| A Product Capacity | 4 |
| B Main Fuse Value Table | 4 |
| C Recommended Wiring Distances | 6 |
| D Required Wire Gauge | 6 |

IMPORTANT SAFEGUARDS AND WARNINGS

Observe the following WARNINGS before installing and using this product.

1. Installation and servicing should be done by qualified service personnel only and conform to all local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosure, it is designed for indoor use only and must not be installed where exposed to rain and moisture.
3. Only use replacement parts Pelco recommends.
4. After replacing/repairing this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.

The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

DESCRIPTION

The MCS*E Series consists of multi-output 24 VAC indoor power supplies. These power supplies provide output for 4, 8, or 16 cameras from a single source and come in 2, 5, 10, and 20 amp capacities. The power supplies allow for 120 VAC line input. Higher capacity models can handle pan and tilt and receiver operation, in addition to the camera, for integrated systems such as Spectra® and Esprit™.

All MCS*E Series models come with an individual glass fuse for each output channel.

MODELS

| Model Number | Outputs | Total Output Current (Amps) | Total Output Power (VA) | Max Current Per Output (Amps) | Max Power Per Output (VA) | Input Current (Amps) | Output Voltage (VAC) | Fuses | Surge Protection | On/Off Switch | Power LED |
|--------------|---------|-----------------------------|-------------------------|-------------------------------|---------------------------|----------------------|----------------------|-------|------------------|---------------|-----------|
| MCS4-2E | 4 | 2 | 48 | 1 | 24 | 0.44 | 24 | X | X | X | X |
| MCS8-5E | 8 | 5 | 120 | 3 | 72 | 1.1 | 24 | X | X | X | X |
| MCS16-10E | 16 | 10 | 240 | 3 | 72 | 2.2 | 24 | X | X | X | X |
| MCS16-20E | 16 | 20 | 480 | 3 | 72 | 4.4 | 24 | X | X | X | X |

APPLICATION EXAMPLES

Table A contains examples of products and the number of units that can be powered by each power supply, and is based on the vA rating of each product.

Table A. Product Capacity

| Product | Power Supply Model | | | |
|-----------------------------|--------------------|---------|-----------|-----------|
| | MCS4-2E | MCS8-5E | MCS16-10E | MCS16-20E |
| CCD Camera (12 vA maximum) | 4 | 8 | 16 | 16 |
| DF5/DF5S with camera (3 vA) | 4 | 8 | 16 | 16 |
| DF8A/PDF8 (12 vA maximum) | 4 | 8 | 16 | 16 |
| Indoor Spectra® (30 vA) | 1 | 4 | 8 | 16 |
| Esprit™ (50 vA) | — | 2 | 4 | 8 |

INSTALLATION

The following items are supplied:

- 1 MCS*E Series Power Supply
- 2 Spare fuses
- 2 Wire nuts

To install an MCS Series power supply, perform the following steps:

1. Decide where to install the unit.
2. Open the lid on the unit by removing the 8-32 Phillips screw.
3. Drill holes in the mounting surface. Use the unit as a template.
4. Attach the unit securely with four fasteners (not supplied) of the appropriate length. You can use fasteners up to 5/16-inch (0.80 cm) in diameter.
5. Punch out the necessary knockouts. (There are six knockout holes on the top and two on the bottom.)
6. Install 1/2-inch (1.27 cm) or 3/4-inch (1.91 cm) conduit fittings where necessary (conduit fittings not provided).

INPUT CONNECTIONS

Table B. Main Fuse Value Table

| Fuse Location | MCS4-2E | MCS8-5E | MCS16-10E | MCS16-20E |
|-------------------|---------|---------|-----------|-----------|
| Main | 1 A | 1.6 A | 3 A | 5 A |
| Individual Output | 1 A | 3 A | 3 A | 3 A |



WARNING:
Pelco will not be liable for any damages resulting from incorrect wiring or improper loading of an MCS*E Series power supply.

1. Verify that the on/off switch inside the box is OFF.
2. Remove the high voltage compartment panel inside the box.
3. Attach the 120 input wires to the flying leads in the compartment with the supplied wire nuts (Brown – AC Line; Blue – AC Neutral).
4. Attach the input ground wire to the stud inside the compartment with the supplied washer and nut.
5. Replace the access panel.

OUTPUT CONNECTIONS

Perform the following steps to attach 24 VAC devices to the MCS*E Series power supply:

1. Refer to Tables C and D in this manual or the wiring table on the unit's lid to determine the output connection needed for your devices.
2. Refer to Figure 1 for the proper connector strip connections.
3. For each device, attach one output wire to the common terminal. Attach the second wire to the appropriate 24 VAC terminal.
4. When you finish the wiring connections, double check the installation for safety purposes.
5. Power up the unit with the on/off switch.
6. Use a voltmeter to verify that used outputs are at appropriate voltage levels.
7. Close the lid and secure it using the 8-32 Phillips screw.

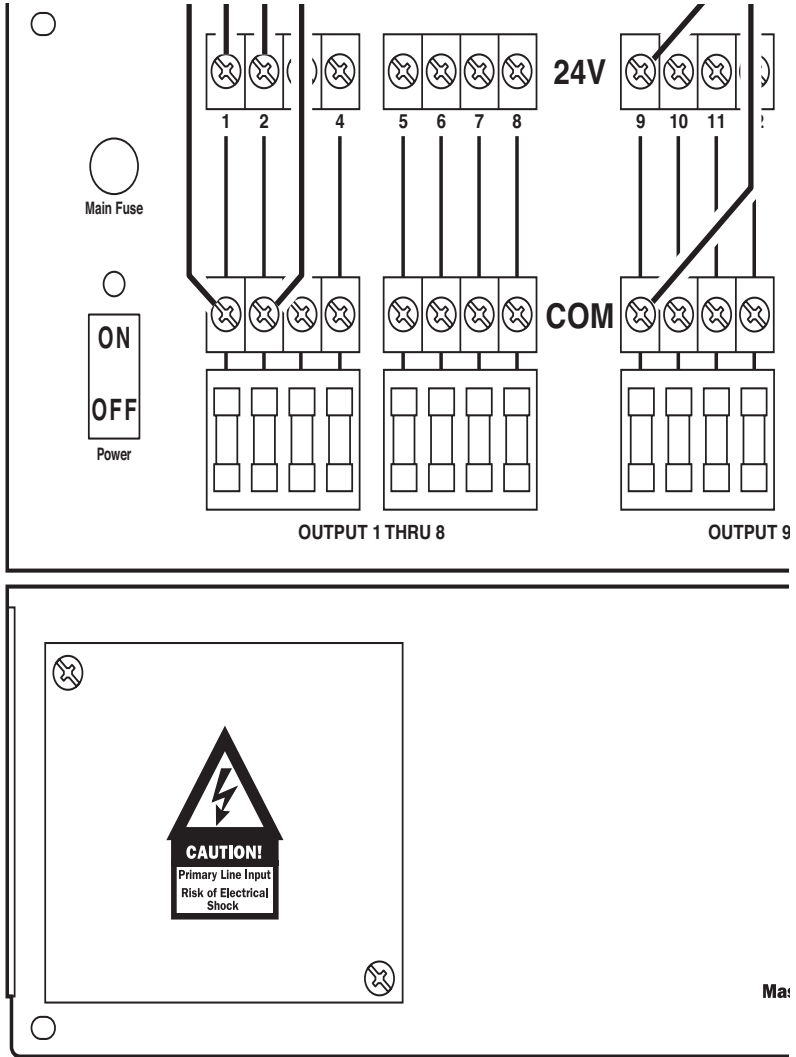


Figure 1. MCS*E Series Unit Wiring Connector Diagram

Table C. Recommended Wiring Distances

The following are the recommended maximum distances (transformer to load) and are calculated with a 10-percent voltage drop. (Ten percent is generally the maximum allowable voltage drop for AC-powered devices.) Distances are calculated in feet; values in parentheses are meters.

| Input Voltage | Total vA Consumed | Wire Gauge | | |
|---------------|-------------------|------------|-----------|-----------|
| | | 20 | 18 | 16 |
| 24 VAC | 10 | 283 (86) | 451 (137) | 716 (218) |
| | 20 | 141 (42) | 225 (68) | 358 (109) |
| | 30 | 94 (28) | 150 (45) | 238 (72) |
| | 50 | 56 (17) | 90 (27) | 143 (43) |

You can use Table D as a guide to determine the necessary wire gauge (AWG) for various cable distances that provide 24 VAC power. Or use it in a reverse fashion to determine the maximum allowable cable distance for a particular wire gauge. Table D applies when using 2-conductor copper wire, with characteristics similar to West Penn 221-227 unshielded cable. Calculations are based on a 10-percent voltage drop (generally the maximum allowable drop for AC-powered devices).

The minimum acceptable voltage is calculated as follows:

$$\begin{aligned}
 &24.0 \text{ VAC} \\
 &- 02.4 \text{ (10\%)} \\
 &21.6 \text{ (Minimum Acceptable Voltage)}
 \end{aligned}$$

The minimum acceptable voltage used to create Table D was 21.6 volts. Therefore, the 24-volt output has an acceptable range from 24 volts down to 21.6 volts.

Table D. Required Wire Gauge

| Recommended Wire Gauge Table (AWG) | | | | | | | | | | | | |
|------------------------------------|------------|----------------|-----------------|----------------|------------------|--------------------|------------------|------------------|-------------------|-------|-------|--|
| WIRE DIST (feet) | CCD Camera | PT480 Pan/Tilt | Indoor Spectra® | PT570 Pan/Tilt | Esprit™ Pan/Tilt | 14-inch Intercept® | CX9000 Receivers | Outdoor Spectra® | ← Equipment Loads | | | |
| | 10VA | 20VA | 30VA | 40VA | 50VA | 60VA | 70VA | 80VA | 90VA | 100VA | 200VA | |
| 1000 | 12-14 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 900 | 12-14 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 800 | 12-14 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 700 | 12-16 | 12 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 600 | 12-16 | 12 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 500 | 12-16 | 12-14 | 12 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | N/A | |
| 400 | 12-18 | 12-14 | 12 | 12 | 12 | 12 | 12 | N/A | N/A | N/A | N/A | |
| 300 | 12-18 | 12-16 | 12-14 | 12 | 12 | 12 | 12 | 12 | 12 | N/A | N/A | |
| 200 | 12-20 | 12-18 | 12-16 | 12-14 | 12-14 | 12 | 12 | 12 | 12 | 12 | N/A | |
| 100 | 12-22 | 12-20 | 12-18 | 12-18 | 12-16 | 12-16 | 12-16 | 12-14 | 12-14 | 12-14 | 12 | |

XX-XX

↑

Recommended Wire Gauge (AWG) Using 24 VAC
N/A – Distance and Load **Not** Recommended For Any Wire Size Between 12-22 (AWG)

MAINTENANCE

There are no user-serviceable parts except for the fuses. If the transformer in the unit does not work properly, the entire power supply needs to be returned to the factory for repair. Refer to the *Warranty and Return Information* section of this manual for instructions on returning the power supply for repair.

Clean the outer surface of the power supply with a nonabrasive cleaning cloth and anti-static cleaner. Do not use kerosene or similar substances that may damage the surface.

SPECIFICATIONS

MECHANICAL

Cable Entry: Knockouts for either 1/2-inch (1.27 cm) or 3/4-inch (1.91 cm) conduit

Fuse Size: All fuses are 5 x 20 mm

ELECTRICAL

Input Voltage: 120 VAC, 60 Hz

Output Voltage: 24 VAC

Required Input Current: See *Models* section

Output Fuse Ratings

MCS4-2E: 1 A

MCS8-5E: 3 A

MCS16-10E: 3 A

MCS16-20E: 3 A

Input Connectors: Wire nut

Output Connectors: Screw-type barrier strips

Input Wire Size: 12-16 gauge solid wire

Output Wire Size: 12-22 gauge solid or stranded wire

Recommended Wiring Distances: See Table C

GENERAL

Construction: Steel

Finish: Black polyester powder coat

Environment: Indoor

Dimensions: 16.13 in. H x 10.86 in. W x 4.37 in. D (40.97 x 27.58 x 11.10 cm)

Unit Weight

MCS4-2E: 13.45 lb (6.10 kg)

MCS8-5E: 14.70 lb (6.67 kg)

MCS16-10E: 16.60 lb (7.53 kg)

MCS16-20E: 19.70 lb (8.94 kg)

Ratings: NEMA 1

(Design and product specifications subject to change without notice.)

PRODUCT WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years on FT/FR8000 Series fiber optic products.
- Three years on Genex® Series products (multiplexers, server, and keyboard).
- Three years on Camclosure® and fixed camera models, except the CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models, which have a five-year warranty.
- Two years on standard motorized or fixed focal length lenses.
- Two years on Legacy®, CM6700/CM6800/CM9700 Series matrix, and DF5/DF8 Series fixed dome products.
- Two years on Spectra®, Esprit®, ExSite™, and PS20 scanners, including when used in continuous motion applications.
- Two years on Esprit® and WW5700 Series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders, NVR300 Series network video recorders, and Endura™ Series distributed network-based video products.
- One year (except video heads) on video cassette recorders (VCRs). Video heads will be covered for a period of six months.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair).

All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid. Ship to the appropriate address below.

If you are located within the continental U.S., Alaska, Hawaii or Puerto Rico, send goods to:

Service Department
Pelco
3500 Pelco Way
Clovis, CA 93612-5699

If you are located outside the continental U.S., Alaska, Hawaii or Puerto Rico and are instructed to return goods to the USA, you may do one of the following:

If the goods are to be sent by a COURIER SERVICE, send the goods to:

Pelco
3500 Pelco Way
Clovis, CA 93612-5699 USA

If the goods are to be sent by a FREIGHT FORWARDER, send the goods to:

Pelco c/o Expeditors
473 Eccles Avenue
South San Francisco, CA 94080 USA
Phone: 650-737-1700
Fax: 650-737-0933

REVISION HISTORY

| Manual # | Date | Comments |
|----------|------|-------------------|
| C655M | 6/99 | Original version. |

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