

**DIMMERMASTER 406 DIGITAL
SHOEBOX DIMMER**
OWNER'S MANUAL
DM406



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RECEIVING YOUR EQUIPMENT

As soon as you have received your equipment, open the boxes and examine the contents. If the equipment in the carton does not agree with your order or the packing slip, contact the factory immediately and we will be happy to help you. If any damage is noted, contact the carrier immediately to file a claim for damages. You can be sure that when the equipment left the factory it was in good condition, thoroughly tested, and properly packed.

FEATURES

The DM-406D "shoebox" dimmer is a compact unit with four 1kW dimmers, not to exceed 1.8kW total. It may be pipe or tree mounted and is perfect for tight spaces where conventional rackmount dimmer packs are too bulky. Drawing no more than 15 amps, it may be powered from a single u-ground outlet.

The unit is controlled by a DMX-512 control signal (0 to +10VDC control is available as a factory option). The starting channel is set on a thumbwheel switch, which also provides load testing and local control. A status LED indicates the presence of a DMX control signal. With both male and female XLR connectors, the control signal may be daisy-chained from pack to pack. The DMX signal may be terminated at the last pack by means of a DIP switch. Other switches set individual outputs for non-dim operation or force all outputs to full.

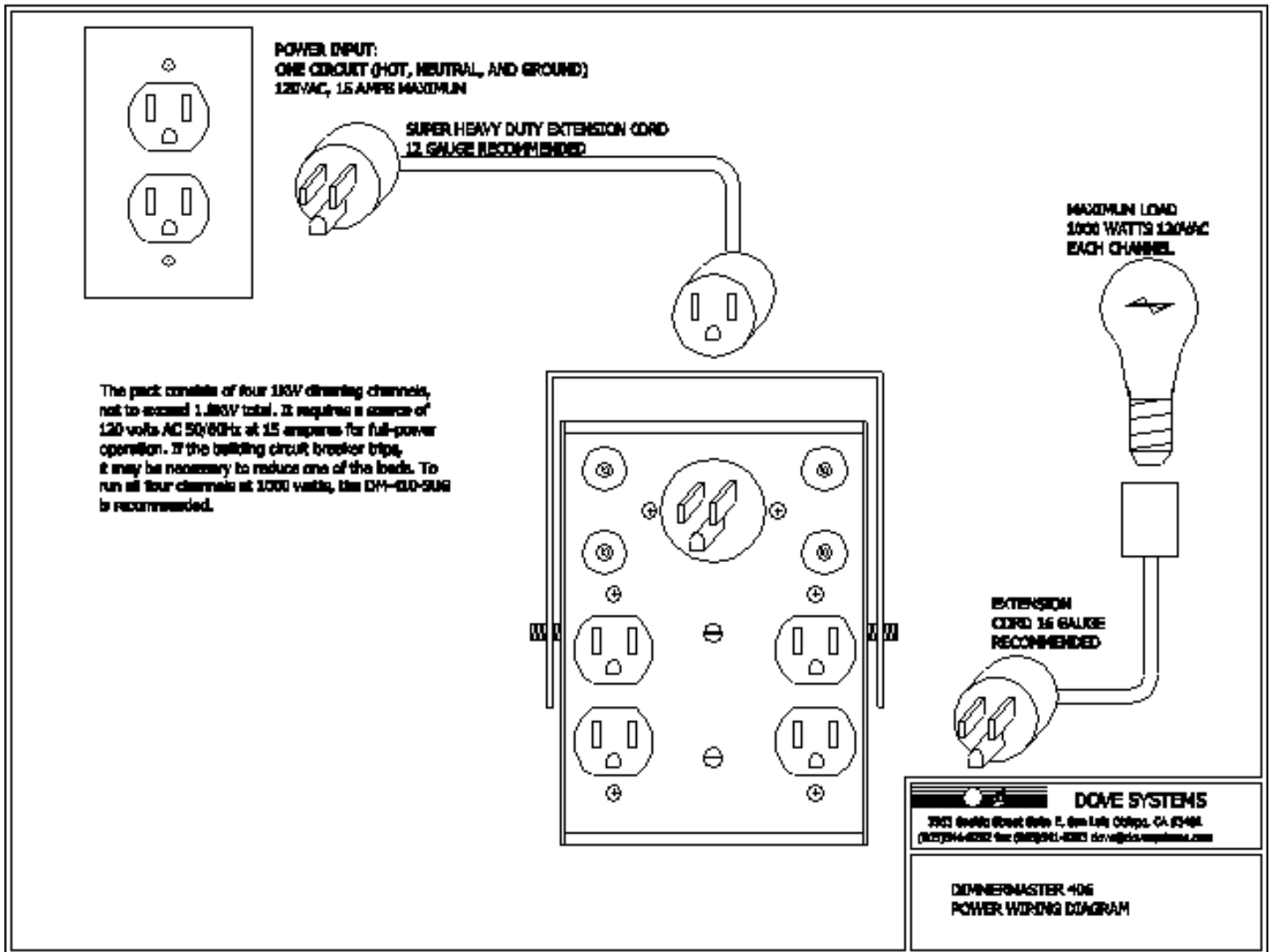
INSTALLATION

A Mechanical Installation

For pipe mount use, a C-clamp and safety cable may be added to the mounting bracket. It may be top or bottom hung by reversing the yoke. For portable use, set the Dimmermaster on a smooth, cool surface, preferably in an area which remains fairly cool. Maximum air temperature must not exceed 40 degrees Centigrade (105 degrees Fahrenheit). Make certain that the vent holes all have at least 6 inches of free air around them. Do not block any vent holes. It is essential that this unit have adequate cooling for safe, reliable performance.

B Electrical Installation

The pack consists of **four 1kW** dimming channels, not to exceed 1.8kW total. It requires a source of **120 volts AC 50/60Hz at 15 amperes** for full-power operation. This is usually available from a standard parallel blade (also called "U-ground" or "Edison") wall outlet. The actual amount of power consumed is determined by the total wattage of the connected loads used; the dimmer itself consumes negligible power. It is recommended that no other equipment be connected to the circuit which is used for the pack, including that on other outlets on same fuse or circuit breaker. If the building circuit breaker trips, it may be necessary to reduce one of the loads.



Power input to the pack is via a flush-mount male connector on the back panel. Any standard heavy-gauge extension cord will work for this purpose. Always use 3-wire, grounded cables. 12AWG cable is recommended.

When power is connected, the status LED will light up in red (60Hz line), yellow (50Hz line), and turn green when a DMX signal is present.

Warnings: This device is required to be connected to a building electrical circuit with over current protection corresponding to the input current on the equipment label.

C Grounding

The term "grounding" refers to a separate wire, usually with green insulation, which is connected from the equipment case to earth ground. This is not the same as the neutral, or "common" and must not be confused with it; the neutral is a separate, load-carrying conductor. When the pack is connected to the power source by a flexible cable, this ground connection is made through a third wire in the cable and the ground prong on the plug. For maximum safety, and to comply with electrical codes, this connection must be made. Do not use an adapter (or "cheater") plug.

D Load Connections

The pack will dim any load from 1 watt through 1kW per channel with total not to exceed 1.8kW per pack. This includes conventional incandescent and quartz incandescent loads. Fluorescent loads can be controlled by the pack with no damage to the dimmer, but the nature of these loads requires specialized circuitry to get full range dimming. Consult the factory if you need to dim such loads.

Merely plug the load or an extension cord to the load into the outlet which corresponds to the circuit you wish to use. Always use grounded cords. Loads may be single fixtures or combinations of lights **not exceeding 1kW** per channel. Total wattage of unit not to exceed 1.8kW.

Each output channel is protected by a 10 amp circuit breaker. If the circuit breaker trips, it is due to an overload or short in the output load.

CONTROL CONNECTIONS

DMX-512 control signals are input through the **male** five pin XLR connector on the case of the unit. The connector is wired as follows:

Pins 4 and 5 are not used but are passed through to other equipment.

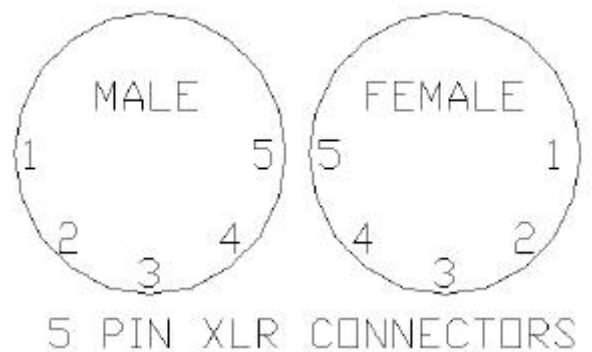
The dimmer packs are wired in series along the control cable: the cable is daisy-chained from pack to pack. Do not split the cable. Use one of the specialty interface boxes for this purpose.

A Starting Channel

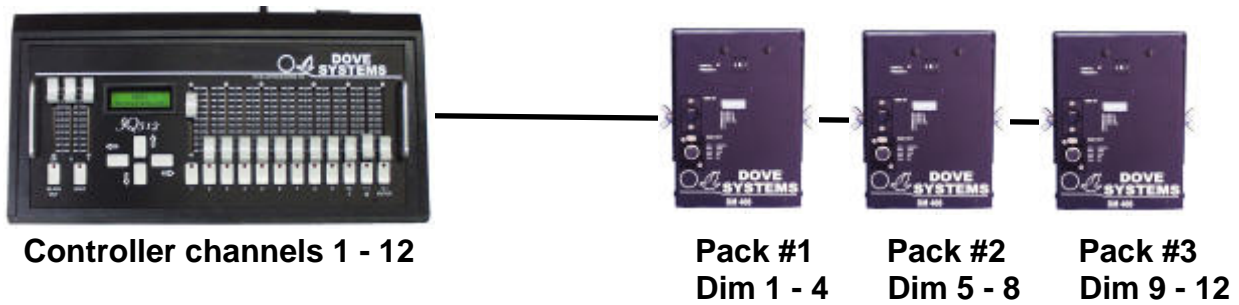
The **starting channel** is set on a thumbwheel switch. When the switch reads 001, the dimmer pack runs on channels 1 through 4. Setting 005 runs on channels 5 through 8, setting 009 runs on channels 9 through 12, and so on. Valid addresses range from 001 to 509. The starting dimmer may be any channel, and dimmers on different packs can overlap some channels, though it is usually preferable to run them one dimmer per channel. Dimmer channels should not overlap channels for other DMX equipment, including strobe lights, moving lights, and fog machines. It is not necessary to set the starting channels in sequence (i.e. 1-4, 5-8, 9-12).

B DMX Termination

DMX **termination** may be made on the DIP switch on the case. It is necessary to terminate the end of a DMX-512 cable to avoid signal reflections. Signal reflections can cause corruption of the DMX-512 data, typically causing flickering or flashing of lights in the system. Only the last pack in the chain should have termination enabled.



PIN	FUNCTION
1	COMMON
2	DATA
3	DATA
4	N/C
5	N/C



C Load Test, Local Control, Non-dim, and Emergency On Functions

The thumbwheel switch enables the load testing / local control function. The load test is useful for determining which load is plugged in, finding a burnt-out lamp, and putting light on stage when the controller is not plugged in. Set the first digit to 6. Set the second digit to the dimming channel (from 1 to 4). Set the third digit to the dimming level, from 0 (off) to 9 (full on). Levels thus set remain in effect until the power is disconnected. Here is an example:

Set the thumbwheel switch to 600. Leave the first digit at 6. Set the second digit to 1. Set the third digit to 5. The switch reads 615. The first load is at half power. Set the switch to 625. The second load is at half power, and the first remains at half. Set the switch to 639. The third load is at full power, and the first two remain at half. To return to DMX operation set the thumbwheel switch to the DMX start channel, (1-512), of your choice.

In addition to DMX termination, the DIP switch sets individual channels for non-dim (full on or off) function or forces the output of all channels to full. In non-dim mode, the dimmer forces the load to full when it receives a DMX value of 128 or more (about halfway to full on the slider) and forces the load off when it receives a DMX value of 127 or less (about halfway or less on the slider). The emergency on function forces all outputs to full regardless of the level of control.

D Crossfade Chase Function

Set the thumbwheel switch to 701 through 799 and the unit will perform a crossfading chase from 1 second (701) to 99 seconds (799).

Example: Thumbwheel switch is set at 710. The unit will crossfade from channel 1 to channel 2 in 10 seconds. Then the unit will cross fade from channel 2 to channel 3 in 10 seconds, from 3 to 4 in 10 seconds, and then 4 back to channel 1. This will repeat until you change the thumbwheel setting or power down the unit.

IN CASE OF TROUBLE

A Troubleshooting

A review of the following paragraphs may save you a long distance phone call, a trip to the service center, or the cost of shipping and/or repair. Even if something is still wrong, this process will help you explain the malfunction to the service technician.

Read the operating instructions carefully. Be sure you know how to operate the equipment. Do not expect this equipment to operate exactly like others. Many apparent failures result from not being familiar with the operating characteristics of the unit.

There are two forms of malfunctions common to solid state dimmers: "failed off", in which the lights do not come on, and "failed on", in which the lights cannot be turned off.

If a load has "failed off", check that the instrument is plugged in and that the lamp has not burned out. Verify that the dimmer pack is on (the LED will glow). Use the load test feature (see previous page) to see if the load can be controlled at the pack. Reset the circuit breakers as necessary. Insure that there are no short circuits in the loads or load wiring before reconnecting to the shoebox to prevent damage to the shoebox. Check that the control cable runs all the way back to the controller and that the signal has not been terminated at a pack somewhere up the chain. Check the controller, paying particular attention to the softpatch feature if so equipped.

If a load has "failed on", especially after resetting a circuit breaker, it is due to a shorted triac. The triac fails when a short in the output overloads it. The short can be in the cable, in the connectors, in the light fixture, or in the lamp itself. Although the breaker will trip, it is often not fast enough to save the triac, and the triac will need to be replaced. Please check the load by plugging it into a known good wall outlet before plugging it into other dimming channels.

Flickering lamps may be caused by a problem with the control cable. If DMX termination has not already been set at the last pack, set it. Try an opto isolator to eliminate any potential control cable ground loop problems. Swap control cables. Route them away from motors or other sources of noise. Do not use splitters.

Service technicians are generally available between 8am and 5pm, Pacific time, on Monday through Friday at (805)541-8292. It is helpful to have a complete description of the problem from those who saw it and to be in the theatre or otherwise have access to the equipment when placing a service call.

It is recommended that all equipment be repaired at the factory. If the unit is under warranty, it **MUST** be repaired at the factory. Replacement parts are available, but because the DM-406D is a microcontroller based product running proprietary software, schematics can not be released.

B Obtaining Service

To have equipment repaired, please call the factory at (805)541-8292 for a Return Materials Authorization (RMA) number. Pack the unit securely in a sturdy box with plenty of padding material. Include a note with the unit describing the problems experienced, the return address, the date the unit is needed back, and a daytime phone number. This will help the technician identify the cause of the problem more quickly.

Pack the unit securely, and ship it to:

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LIMITED WARRANTY

The manufacturer agrees that its products shall be free from defects in material or workmanship over a period of one year from date of shipment from the factory. Said warranty will not apply if equipment is used under conditions of service for which it is not specifically intended. The manufacturer is not responsible for damage to its apparatus through improper installation, physical damage, or poor operating practice.

If any device is found unsatisfactory under the warranty, the buyer should notify the manufacturer, and after receipt of shipping advice, buyer may return it directly to Dove Systems, San Luis Obispo, CA, shipping prepaid. Such equipment will be replaced or put in proper operating condition, free of all charges except transportation. The correction of any defects by repair or replacement by the manufacturer shall constitute fulfillment of all obligations to the purchaser. Manufacturer does not assume responsibility for unauthorized repairs to its apparatus, even though defective.

Manufacturer shall not be liable for any consequential damage in case of any failure to meet the conditions of any warranty of shipping schedule, nor will claims for labor, loss of profits, repairs, or other expenses incidental to replacement be allowed.

No other representation, guarantees or warranties, expressed or implied, are made by the manufacturer in connections with the manufacture and sale of its equipment. This warranty is non-transferable and applies to the original buyer only.

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