DIMMERMASTER 412 DIGITAL WALLMOUNT DIMMER

OWNER'S MANUAL

DM-412-WM

Dove Lighting Systems, Inc.
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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-412-WM dimmer pack is a compact unit with four 1200W dimmers. It may be wall mounted and is perfect for tight spaces where conventional rackmount dimmer packs are too bulky. Drawing no more than 40 amps, it may be powered from a single 120VAC circuit. It maybe configured for 240V input for use with 240V lamps in regions (such as Europe and South America) with 240V systems.

The unit accepts both DMX-512 and 0 to +10VDC control signals. The starting channel is set on a thumbwheel switch, which also provides load testing and local control. A neon lamp indicates that the unit is receiving power. A status LED indicates the presence of a DMX control signal. With screw terminal 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

The dimmer pack is designed to fit Wire Guard 884E, 884GE, Milbank 884-SCI, or equivalent 8" X 8" X 4" screw cover enclosures (not included). The electrical box mounting holes are spaced 6-5/8" X 6". Maximum air temperature must not exceed 40 degrees Centigrade (105 degrees Fahrenheit). It is essential that this unit have adequate cooling for safe, reliable performance.

B Electrical Installation

The pack consists of four 1200 watt dimming channels, not to exceed 4800 watts total. It requires a source of 120 volts AC 50/60Hz at 40 amperes for full-power operation. The actual amount of power consumed is determined by the total wattage of the connected loads used; the dimmer itself consumes negligible power. To calculate this current, use the formula amps = watts / volts. For example, if four 500-watt, 120 volt lighting units are connected to the dimmer, it would require 2000 / 120, or 17 amps total 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 the same fuse or circuit breaker. If the building circuit breaker trips, it may be necessary to reduce one of the loads.

Line to neutral voltage is always 120 volts. It is very important that the input voltage be checked with a meter to insure that it is correct. A mistake can place 208 to 240 volts across a 120 volt lamp. The

breaker will protect the unit but may not save the lamp. A double check of voltages before applying power can guard against such disaster.

The power input connector is a terminal block. The power feed connects to the terminal marked "L". The neutral connection is made on the terminal to its left marked "N". The ground connection is made on the ground terminal, just to its right. The pack has circuit breakers to protect each dimmer channel, but the primary circuit protection and disconnect is to be provided by the user. A single pole 20 to 40 amp circuit breaker is required.

When power is connected, the neon power indication lamp will light up. In addition, 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 (single fixtures or combinations of lights) from 1 watt through 1200 watts per channel. 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.

There is one lug for each output and two output neutral lugs. Lugs are numbered according to their circuits. There should be a separate neutral returning from each load circuit.

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

CONTROL CONNECTIONS

The pack accepts both DMX-512 and analog 0 to +10VDC control signals. All control connections are made on a twelve position terminal strip:

terminal 1	DMX control common	terminal 7	0 to +10VDC channel 1
terminal 2	DMX data -	terminal 8	0 to +10VDC channel 2
terminal 3	DMX data +	terminal 9	0 to +10VDC channel 3
terminal 4	(not used on this equipment)	terminal 10	0 to +10VDC channel 4
terminal 5	(not used on this equipment)	terminal 11	analog control common
terminal 6	+15VDC for passive controllers	terminal 12	forced on

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 first DIP switch. Termination is useful in preventing noise due to signal reflection. Only the last pack in the chain should have termination enabled.

The status LED changes from red to green in the presence of a DMX signal.

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. Disconnect the power and reset the switches.

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.

The forced on terminal may be used with an external switch to provide an external emergency on function. When shorted to ground, the forced on terminal brings all loads to full.

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 wired in and that the lamp has not burned out. Verify that the dimmer pack is powered (the neon lamp will glow). Use the load test feature (see previous page) to see if the load can be controlled at the pack. Verify that the channel output breaker has not tripped. 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 the 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 it will need to be replaced. Please check the load before plugging it into other dimming channels.

Channels which flicker or cut in and out can be victims of an intermittent connection somewhere, usually at the controller. This can occur if dirt, coffee, or some other liquid is spilled into the slide control slot. Curing this problem usually requires the replacement of the control. Cleaning with WD 40 or TRI-FLOW may fix it temporarily.

Sometimes flickering is caused by a problem with the control cable. If DMX termination has not already been set at the last pack, set it. An opto isolator may 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-412-WM is a microcontroller based product running proprietary software, schematics will not be released.

B Obtaining Service

To have equipment repaired quickly, please 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 faster.

Pack the unit securely, and ship it to:

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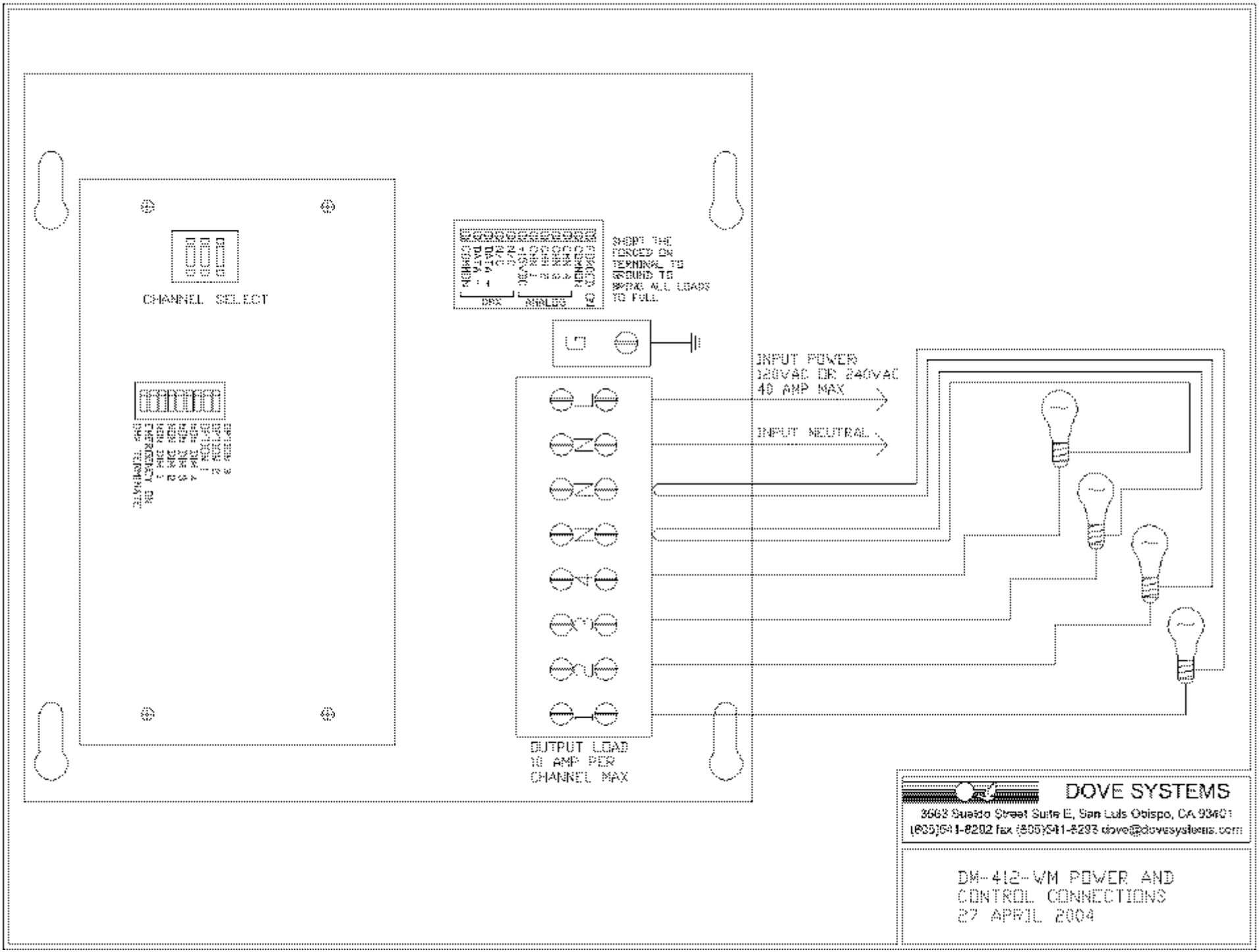
WARRANTY INFORMATION

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.


CHANNEL SELECT
SHORT THE FORCED ON TERMINAL TO GROUND TO MAKE ALL LOADS TO FULL
INPUT POWER 120VAC OR 240VAC 40 AMP MAX
INPUT NEUTRAL
OUTPUT LOAD 10 AMP PER CHANNEL MAX
DOVE SYSTEMS
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DM-412-VM POWER AND CONTROL CONNECTIONS
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