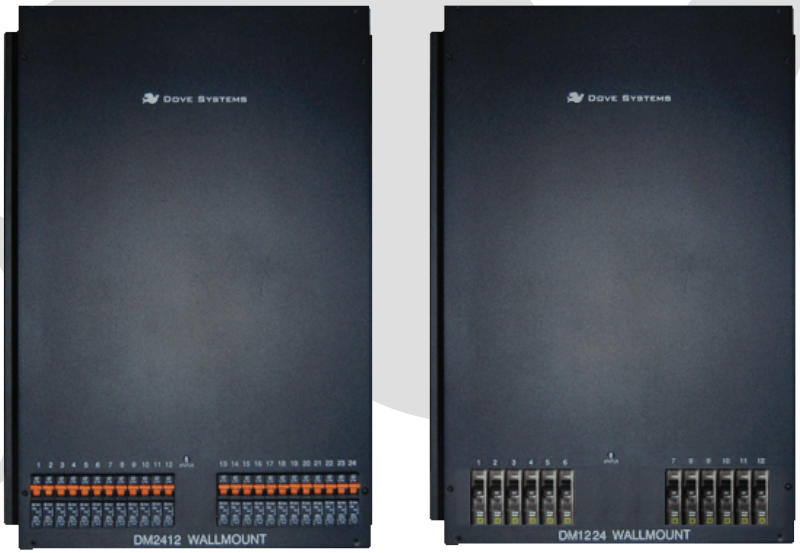
OWNER'S MANUAL

WALLMOUNT

DM-1224, DM-2412

DIGITAL DIMMER



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DOVE LIGHTING SYSTEMS INC.\\3563 SUELDO STREET UNIT E
SAN LUIS OBISPO\\ CA 93401

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:SETUP AND CONNECTION

A// Mechanical Installation

Remove all packing material from the unit. Make certain that all holes are free of obstruction on all sides of the unit. Replace all packing material in the carton and store it for reuse. The backplane mounting holes are spaced 16" on center for convenient wall mounting. Do not block any vent holes. Make certain that the vent holes all have at least 6 inches of free air around them. It is essential that this unit have adequate cooling for safe, reliable performance. Maximum air temperature must not exceed 40 degrees Centigrade (105 degrees Fahrenheit).

B// Electrical Installation

The dimmer must be supplied with an amount of current equal to the combined total current of the lamps it controls. To calculate this current, use the formula amps = watts ÷ volts. For example, if twenty-four 1200-watt, 120 volt lighting units are connected to the dimmer, it would require 28,800÷120, or 240 amps total power when all channels are at full. This is available from a three phase 4 wire 80 amp or a single phase 3 wire 120 amp service. Usually this much power is not required and a 40 - 60 amp service may be used with lower power loads plugged in.

The Dimmermaster accepts either three phase or single phase power input and is factory configured for three phase. Line to neutral voltage is always 120 volts. Line 1 to Line 2 voltage is 208 volts in three phase service and 240 volts in single phase service. It is very important that the input voltages be checked with a meter to insure that they are correct. A mistake can place 208 to 240 volts across a 120 volt lamp. The breakers will protect the unit but may not save the lamps. A double check of voltages before applying power can guard against such disaster. The power input connector is a terminal block. Each leg of the power feed connects to one terminal on the dimmer pack. These are marked "L1", "L2", and "L3". The neutral connection is made on the neutral bar, just to the right of the power block. The ground connection is made on the ground terminal, just below the power block. The pack has circuit breakers to protect each dimmer channel, but the primary circuit protection and disconnect is to be provided by the user. When single phase service is used switch S2, located near the center of the plug-in circuit board, must be moved from the 3 phase position to the 1 phase position. The power input terminal marked "L3" is not used. The two blue wires wrapped with red tape must be moved to the terminalmarked "L1" and the two wrapped with black tape to "L2". The tiny blue wire stays in terminal "L3".

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C// Grounding

The term GROUNDING refers to a separate wire with green insulation which is connected from the equipment case to earth ground (often through a properly grounded conduit system). This is not the same as the neutral or common and must not be confused with them. The neutral is a separate, load-carrying circuit conductor. The ground conductor should not normally carry current. When the Dimmermaster is connected to its power source by conduit, the ground connection can be made via the conduit itself. If flexible conduit is used, a separate bonding conductor will usually be required. Always check your local codes for hook-up before operating this equipment. It is recommended that power connections to the Dimmermaster be made by a qualified electrician.

D// Load Connections

The dimmer pack consists of 12 or 24 dimming channels. The Dimmermaster will dim any load from 1 watt through 1200 watts or 1 watt through 2400 watts at 120 volts for a 2412 and a 1224 respectively. The load may be incandescent, inductive, or resistive. This includes conventional incandescent, quartz incandescent, rain-lights, pin beams, and similar lamp loads. This does not include fluorescent or neon lamps. Fluorescent lamps with dimmable ballasts may be dimmed by other means; consult the factory for help. There is one lug for each output and a neutral bar for all neutrals. Lugs are numbered according to their circuits. There should be a separate neutral returning from each load circuit.

E// Control Connections

The Dimmermaster 1224 and 2412 can take either of two control protocols: USITT DMX-512 or 0 to +10VDC analog. All control connections are made on connectors or terminals inside the pack. Positions are labeled as to function. The optional power supply sends power to passive controllers (those that do not plug into the wall).

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:Control Connections

DMX Connector DB25M Analog

1	Common 1 Channel 1 Control (0 to 10V)
2	- Data 2 Channel 2 Control (0 to 10V)
3	+ Data 3 Channel 3 Control (0 to 10V)
4	Return Data opt 4 Channel 4 Control (0 to 10V)
5	Return Data opt 5 Channel 5 Control (0 to 10V)
6	Channel 6 Control (0 to 10V)
7	Channel 7 Control (0 to 10V)
8	Channel 8 Control (0 to 10V)
9	Channel 9 Control (0 to 10V)
10	Channel 10 Control (0 to 10V)
11	Channel 11 Control (0 to 10V)
12	Channel 12 Control (0 to 10V)
13	Channel 13 Control (0 to 10V)
14	Channel 14 Control (0 to 10V)
15	Channel 15 Control (0 to 10V)
16	Channel 16 Control (0 to 10V)
17	Channel 17 Control (0 to 10V)
18	Channel 18 Control (0 to 10V)
19	Channel 19 Control (0 to 10V)
20	Channel 20 Control (0 to 10V)
21	Channel 21 Control (0 to 10V)
22	Channel 22 Control (0 to 10V)
23	Channel 23 Control (0 to 10V)
24	Channel 24 Control (0 to 10V)
25	Common

When the temperature of the heatsink exceeds 75 degrees Celsius, the control is cut off. This prevents overheating. When the heatsink cools, the loads begin to work again. If this happens, the air circulation around the dimmer should be improved. Check that the internal fan has not failed.

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F// Channel Selection and Testing

The thumbwheel switch inside the pack is the channel selection switch. The number shown is the starting dimmer. Valid starting dimmer numbers range from 1 to 489. The starting dimmer number determines the setting for the entire pack of twenty-four dimmers. If, for example, the starting dimmer number is 25, the pack reads control signals for channels 25 through 48. When the first digit of the thumbwheel switch reads "6", the pack is in load testing mode. The second and third digits show the dimmer being tested, from 1 to 24. The load test forces the output of the dimmer to full. This is helpful for focusing and troubleshooting. (e.g. Which channel is that? Is the lamp burnt out?) A setting of "600" drives all lamps at 20%.

G// Indicators

The status indicator LED is used to check the Dimmermaster for proper control and power connections. The LED shines green when it is receiving power and a valid DMX signal, and red when it is receiving power but a bad signal. The LED shines red when it is receiving an analog signal only. No light at all means that it is not receiving power.

H// Internal Switches

A 9 position internal DIP switch sets various options. These include DMX line termination and nondim operation. DIP switch functions are printed on the circuit board. To terminate the DMX line (this is the last dimmer in the DMX string), turn on DIP switch number 1 (which terminates DMX pins 2 and 3) and 9 (which terminates DMX pins 4 and 5). All outputs at or above a specified number may be set to nondim. When set to nondim, an output is full when fed with 50% (DMX level 128, analog +5V). or higher. Below this threshold, the output is off. The first nondim output is set using binary coding on the DIP switch. For example, if outputs 7 and above are to be nondim, switches 2, 3, and 4 would be set to the on position, since these correspond to nondim 1, nondim 2, and nondim 4. 1+2+4=7, so outputs 7 and above will be nondim.

DIP switch 7 Enables Idle-Current when On. This feature can extend the life of incandescent bulbs but can prevent solid-state lights (LEDs) from turning off.

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:TROUBLESHOOTING CHART

//SYMPTOM: No channels work; no lights at all.

Possible Cause:
*Improper pinout on controller or cable wires reversed
*Control console incorrectly set up
*Defective control card

Actions to take:
*Check pinout. Check cable.
*Reread operating instructions; check setup & protocol on console.
*Replace Control Card Assembly.

//SYMPTOM: One or more channels are out.

Possible Cause:
*No load connected or lamp burned out
*Channel breaker is tripped
*Power wire not connected
*Test switch in load test mode

Actions to take:
*Check instrument in known good outlet
*Check load, reset breaker.
*Check for proper phasing on power wiring
*Select proper starting channel

//SYMPTOM: Channels 9 & 10, 11 & 12, 21& 22, and/or 23 & 24 are stuck on or off or work backwards.

Possible Cause:
*Incorrect power wiring or switch setting

Actions to Take:
*Check power wiring and switch SW1

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//SYMPTOM: Channel breaker keeps tripping.

Possible Cause:
*Shorted cord or fixture
*Channel overload

Actions to take:
*Clear fault and reset breaker.
*Reduce wattage connected and reset breaker.

//SYMPTOM: One or more channels are up full and won't dim.

Possible Cause:
*SCR failure
*Control console incorrectly set up (Unplug control line to verify)
*Slide controls are broken or dirty

Actions to take:
*Recheck all connections.
*Replace SCR module or card
*Have slide control replaced.
*Treat temporarily with WD-40 or Tri-flow

To change an SCR module or SSR:
1. Disconnect power from dimmer.
2. Remove five screws binding front panel to sides, top and bottom.
3. Remove connections from the suspect SCR Module. There are twelve modules with two channels in each.
4. Remove screws binding module to heat sink and replace module.
5. Reassemble in reverse order of disassembly.

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To change the circuit card:
1. Disconnect power from dimmer.
2. Remove front panel (see above).
3. Remove two screws and slide card out. Set jumpers and switches on replacement card to match.
4. Slide replacement card in until it seats into edge connector and screw down.

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Users with further technical questions may call the factory at (805)541-8292. NOTE: DOVE SYSTEMS DIMMER PACKS USE TRADE SECRET AND PROPRIETARY CIRCUITY. FOR THIS REASON, SCHEMATICS CANNOT BE RELEASED FOR THIS PRODUCT.
To obtain service, pack the unit with the original packing materials or crushed newspaper and return it, freight prepaid,

to: **Dove Lighting Systems**
3563 Sueldo Street Unit E
San Luis Obispo, CA 93401

(The repair process is expedited when you include: a note describing the problem; your daytime phone number; and your return UPS shipping address.)

:WARRANTY INFORMATION

The manufacturer agrees that the Dimmermaster 2412 shall be free from defects in material or workmanship from date of shipment over a period of one year. 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 representations, guarantees or warranties, expressed or implied, are made by the manufacturer in connection with the manufacture and sale of its equipment. This warranty is non-transferable and applies to the original buyer only.

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