



OWNER'S MANUAL

# DM-824

DIGITAL DIMMER



01



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03



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RECEIVING YOUR EQUIPMENT

AS SOON AS YOU HAVE RECEIVED YOUR EQUIPMENT, OPEN THE BOXES AND EXAMINE THE CONTENTS. 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 AND PROPERLY PACKED. IF YOU FIND THE EQUIPMENT TO BE IN ACCORDANCE WITH YOUR ORDER AND THE PACKING SLIP, AND ALSO IN GOOD PHYSICAL CONDITION YOU MAY READ ON TO THE SECTION COVERING SETUP AND CONNECTION. IF, FOR SOME REASON, 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.



:SETUP AND CONNECTION

A// MECHANICAL INSTALLATION

REMOVE ALL PACKING MATERIAL FROM THE CARTON AND FROM THE UNIT. MAKE CERTAIN THAT ALL COOLING FINS AND HOLES ARE FREE OF OBSTRUCTION ON ALL SIDES OF THE UNIT.

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. UP TO 4 PACKS MAY BE STACKED VERTICALLY. DO NOT REMOVE THE FEET WHEN STACKING. DO NOT BLOCK ANY VENT HOLES. IT IS ESSENTIAL THAT THIS UNIT HAVE ADEQUATE COOLING FOR SAFE, RELIABLE PERFORMANCE.

B// RACK MOUNTING

FOR LARGER SYSTEMS, THE DIMMERMASTER CAN BE RACK MOUNTED IN A STANDARD EIA 19-INCH EQUIPMENT RACK. RACK EARS MAY BE EASILY ATTACHED TO THE HEAT SINK AND FEET MUST BE REMOVED. THE DIMMERMASTER OCCUPIES 3.5 INCHES OF SPACE IN THE RACK. TO INSURE PROPER OPERATION, THE RACK ENCLOSURE MUST BE VENTILATED. AIR SHOULD BE EXHAUSTED FROM THE TOP OF THE CABINET AT A MINIMUM OF 200 CUBIC FEET PER MINUTE. TOP AND BOTTOM PANELS SHOULD BE REMOVED FOR IMPROVED VENTILATION. THE TINY BLUE WIRE STAYS IN TERMINAL "L3".

C// ELECTRICAL INSTALLATION

THE DIMMERMASTER 824D CONSISTS OF EIGHT DIMMING CHANNELS. EACH OF THESE CHANNELS MAY BE OPERATED FROM A VOLTAGE OF 100 TO 240 VOLTS REFERENCED TO THE NEUTRAL TERMINAL. FREQUENCY OF OPERATION IS 50 OR 60 HERTZ. THE 824D WILL ADJUST AUTOMATICALLY TO THE PROPER VOLTAGE AND FREQUENCY. IF THE DIMMER IS OPERATED AT 240V THEN THE LAMPS MUST ALSO BE RATED AT 240V. BECAUSE THE DIMMERMASTER CONTROLS THE FLOW OF ELECTRICITY TO THE LIGHTING INSTRUMENTS, 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 EIGHT 1200-WATT, 120 VOLT LIGHTING UNITS ARE CONNECTED TO THE DIMMER, IT WOULD REQUIRE 9600/120, OR 80 AMPS.

THE POWER INPUT CONNECTORS IS A TERMINAL BLOCK. THIS MODEL HAS CIRCUIT BREAKERS TO PROTECT EACH DIMMER CHANNEL. THE PRIMARY CIRCUIT PROTECTION AND DISCONNECT IS TO BE PROVIDED BY THE USER. NUMBER 4 AWG WIRE IS RECOMMENDED FOR POWER FEED. SEE POWER INPUT CONNECTION CHART.



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IT IS ALSO 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 YOUR LAMPS. A DOUBLE CHECK OF VOLTAGES BEFORE APPLYING POWER CAN GUARD AGAINST SUCH DISASTER.

### 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 DIMMERMASTER 824 WILL DIM ANY LOAD FROM 1 WATT THROUGH 2400 WATTS. THE LOAD MAY BE INCANDESCENT, INDUCTIVE, OR RESISTIVE. THIS INCLUDES CONVENTIONAL INCANDESCENT, QUARTZ INCANDESCENT, RAIN-LIGHTS, PIN BEAMS, AND SIMILAR LAMP LOADS. THE OUTPUT CONNECTOR CAN BE U-GROUND, STAGE PIN, OR TERMINAL BLOCK.

IF YOUR UNIT HAS RECEPTACLES INSTALLED, MERELY PLUG THE LOAD INTO THE OUTLET WHICH CORRESPONDS TO THE CIRCUIT YOU DESIRE TO USE.

FOR TERMINAL-BLOCK-ONLY UNITS, THERE IS ONE LUG FOR EACH OUTPUT AND ONE FOR ALL NEUTRALS. THERE MUST BE A SEPARATE NEUTRAL RETURNING FROM EACH LOAD CIRCUIT. DO NOT COMMON NEUTRALS BETWEEN DIMMER AND LOAD. LUGS ARE NUMBERED ACCORDING TO THEIR CIRCUITS.

### E// CONTROL CONNECTIONS

THE DMB24D CAN TAKE ANY OF THREE CONTROL PROTOCOLS: USITT AMX-192, DMX-512, OR 0 TO +10VDC ANALOG.

THE MULTIPLEX CONTROL PROTOCOL IS FACTORY SET AS PER THE CUSTOMER'S REQUIREMENTS, BUT IT CAN BE CHANGED THROUGH JUMPERS ON THE CIRCUIT BOARD. SEE CONTROL INPUT CONNECTIONS CHART FOR JUMPER LOCATIONS.



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MULTIPLEX CONTROL INPUT CONNECTIONS ARE MADE THROUGH THE FIVE PIN MALE XLR ON THE BACK OF THE UNIT. ANALOG CONTROL INPUT CONNECTIONS ARE MADE THROUGH THE DB-15 MALE CONNECTOR INSIDE THE UNIT. FOR ANALOG USE, THE DIMMERMASTER REQUIRES 8 CONTROL INPUTS, REFERENCED TO A SIGNAL COMMON. THIS COMMON IS ISOLATED FROM THE NEUTRAL AND CHASSIS. SIGNAL VOLTAGE IS 0 TO +10 VOLTS PURE DC. MAXIMUM OUTPUT IS OBTAINED AT +10 VOLTS.

XLR	AMX OR DMX	DB-15	
PIN 1	COMMON	PIN 1 CHANNEL 1	PIN 6 CHANNEL 6
2	-CLOCK (DATA)	2 CHANNEL 2	7 CHANNEL 7
3	+CLOCK (DATA)	3 CHANNEL 3	8 CHANNEL 8
4	ANALOG (AMX)	4 CHANNEL 4	15 COMMON
5	OVERTEMP	5 CHANNEL 5	(9-14 NOT USED)

### F// INDICATORS

THE STATUS INDICATOR LED IS USED TO CHECK THE DIMMERMASTER FOR PROPER CONTROL AND POWER CONNECTIONS. IT SHINES GREEN WHEN IT IS RECEIVING POWER AND IS BEING ADDRESSED PROPERLY BY A MULTIPLEX CONTROLLER, AND BOTH RED AND GREEN (AMBER) WHEN IT IS RECEIVING POWER BUT NOT A PROPER MULTIPLEX SIGNAL OR IS INCORRECTLY SET UP. IT ALSO SHINES BOTH RED AND GREEN WHEN IT IS SET UP FOR AN ANALOG SIGNAL. NO LIGHT AT ALL MEANS THAT IT IS NOT RECEIVING POWER.



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## :TROUBLE SHOOTING

SYMPTOM: NO CHANNELS WORK; NO LIGHTS AT ALL.

POSSIBLE CAUSE:

ACTION TO TAKE:

IMPROPER MULTIPLEX SIGNAL  
(STATUS LED SHINES RED & GREEN)

CHECK ALL SWITCHES AND JUMPERS  
ON 824 CIRCUIT BOARD.

IMPROPER PINDOUT OR CABLE WIRES  
REVERSED PAGE 11.

CHECK PINDOUT. CHECK CABLE. SEE

CONTROL CONSOLE INCORRECTLY SET UP

REREAD OPERATING INSTRUCTIONS;  
CHECK SETUP & PROTOCOL ON CONSOLE.

DEFECTIVE 824 CONTROL CARD

REPLACE CONTROL CARD ASSEMBLY.

SYMPTOM: CHANNELS 1&2, 3&4, 5&6, OR 7&8 (AS PAIRS) ARE OUT.

POSSIBLE CAUSE:

ACTION TO TAKE:

THERMOSTAT HAS OPENED

IMPROVE AIR CIRCULATION OR REDUCE  
LOADS.

SYMPTOM: ONE OR MORE CHANNELS ARE OUT.

POSSIBLE CAUSE:

ACTION TO TAKE:

NO LOAD CONNECTED OR LAMP  
BURNED OUT

CHECK INSTRUMENT IN KNOWN  
GOOD OUTLET.

CHANNEL BREAKER IS TRIPPED

CHECK LOAD, RESET BREAKER.

SYMPTOM: CHANNEL BREAKER KEEPS TRIPPING.

POSSIBLE CAUSE:

ACTION TO TAKE:

SHORTED CORD OR FIXTURE

CLEAR FAULT AND RESET BREAKER.

CHANNEL OVERLOAD

CLEAR OVERLOAD (REDUCE WATTAGE  
CONNECTED) AND RESET BREAKER.

SYMPTOM: ONE OR MORE CHANNELS ARE UP FULL AND WON'T DIM.

POSSIBLE CAUSE:

ACTION TO TAKE:

SCR FAILURE

REPLACE SCR MODULE.

CONTROL CONSOLE INCORRECTLY SET UP  
(UNPLUG CONTROL LINE TO VERIFY)

REREAD THE OPERATING INSTRUCTIONS  
OF CONSOLE

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## :TROUBLE SHOOTING CONT.

SYMPTOM: SOME CHANNELS FLICKER

POSSIBLE CAUSE:

ACTION TO TAKE:

INTERMITTENT CONNECTION IN CONTROL  
OR LOAD LINES

RECHECK ALL CONNECTIONS.

SCR OR CONTROL CIRCUIT FAILURE

REPLACE SCR MODULE OR CONTROL CARD

SLIDE CONTROLS ARE BROKEN OR DIRTY

HAVE SLIDE CONTROL REPLACED.  
TREAT TEMPORARILY WITH WD-40 OR TRI-FLOW.

HOW TO CHANGE AN SCR MODULE:

1. DISCONNECT POWER FROM DIMMER.
2. REMOVE FOUR SCREWS BINDING HEAT SINK TO FRONT PANEL,  
BACK PANEL, AND INTERNAL CHASSIS. LAY HEAT SINK FLAT.
3. REMOVE CONNECTIONS FROM SCR MODULE.
4. REMOVE SCREWS BINDING MODULE TO HEAT SINK AND REPLACE  
MODULE. USE SILICONE THERMAL GREASE TO ENSURE GOOD HEAT  
TRANSFER AND LOCTITE OR STAR WASHERS TO ENSURE GOOD BINDING TO  
HEAT SINK.
5. REASSEMBLE IN REVERSE ORDER OF DISASSEMBLY.

HOW TO CHANGE CIRCUIT CARD:

1. DISCONNECT POWER FROM DIMMER.
2. UNSCREW FOUR CAPTIVE SCREWS HOLDING CIRCUIT BOARD PANEL  
TO FRONT PANEL.
3. SLIDE CARD OUT. SET JUMPERS AND SWITCHES ON REPLACEMENT  
CARD TO MATCH.
4. SLIDE REPLACEMENT CARD IN. 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 CIRCUITRY. 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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