

# LUXTROL®

Incandescent Light Control Equipment

Auditoriums  
Broadcast Studios  
Church Lighting  
Court Houses  
Exhibits & Displays  
Libraries  
Movie Sets  
Movie Theaters  
Museums  
Recording Studios  
Showrooms  
Theatrical Lighting  
Theme Parks



**Superior  
Electric**

WBD Series (Wall Box Dimmer Units) • D2000 & D5000-B Series

LUXTROL Light Controls described in this catalog are extensively used for incandescent lighting in residential, theatrical, institutional, commercial and industrial installations. All dimmers are continuously adjustable transformers that control light intensity by controlling the voltage applied to the lamps. Moving the dimmer control knob or actuating the drive motor moves a brush-contact over a bared portion of the transformer winding producing any desired lighting intensity from complete darkness to full brightness.

## LUXTROL® Light Control Equipment

*Smooth Performance* — The movable brush is always in contact with at least two turns of the winding with uniform contact pressure over the entire dimming range. Performance is smooth and without flicker.

*No Audio or Video Interference* — Because the output of a variable transformer is a faithful and distortion-free image of the input waveform, the dimmer will not cause audio or video interference.

*Flexible Capacity* — Any number of lamps up to the rated capacity of the dimmer can be controlled. If one lamp burns out or is removed from the circuit, the others do not change in brilliance and can be dimmed to blackout.



Type WBD450



## WBD Series

### Wall Box Dimmers for Incandescent Dimming



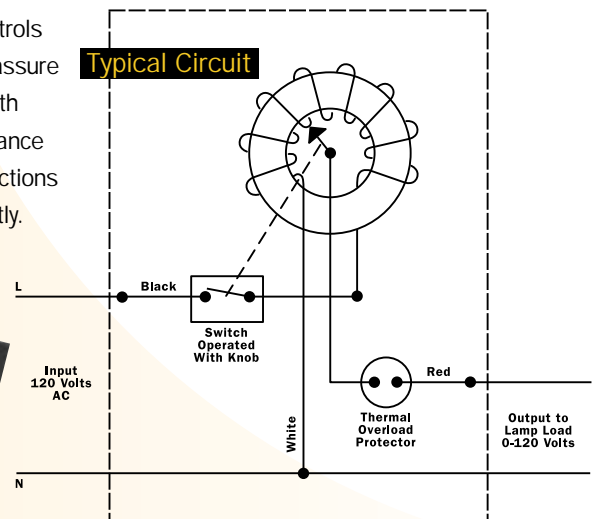
LUXTROL Light Controls in the WBD Series are continuously adjustable transformer dimmers. All are rated for use on 120 V, single phase AC service and are intended for incandescent lighting circuits only. Types WBD450 and WBD800 are rated for 50/60 Hz; Type WBD1800 for 60 Hz only. No annoying lamp filament hum nor radio/television interference is created. WBD Series dimmers control any number of incandescent lamps up to full rated capacity.

All LUXTROL Light Controls in the WBD Series incorporate thermal overload protectors which automatically cycle the lights off and on when the maximum load of the unit is exceeded. This cycling action protects the dimmer from damage, and continues until the overload condition is corrected. A built-in input switch turns off the power to the dimmer when the knob is turned fully counterclockwise.

LUXTROL Light Controls are engineered to assure proper operation with little or no maintenance if installation instructions are followed correctly.

WBD Series available in three sizes.

#### Typical Circuit



WBD450

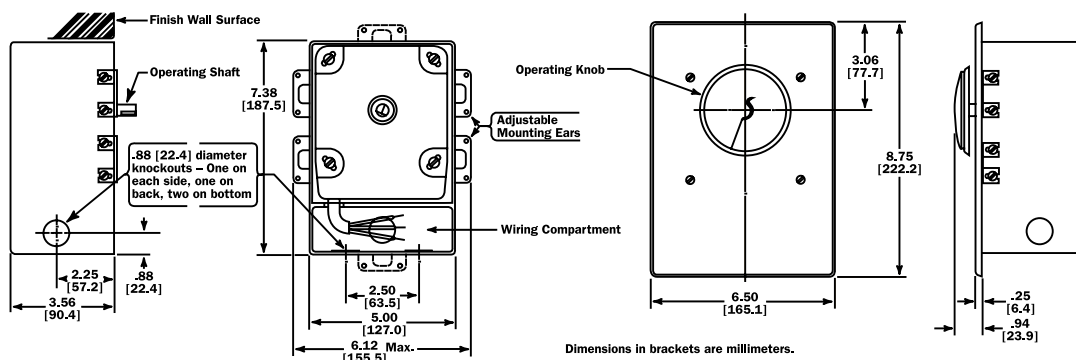
WBD800

WBD1800

## Outline Drawings WBD450, WBD800 and WBD1800

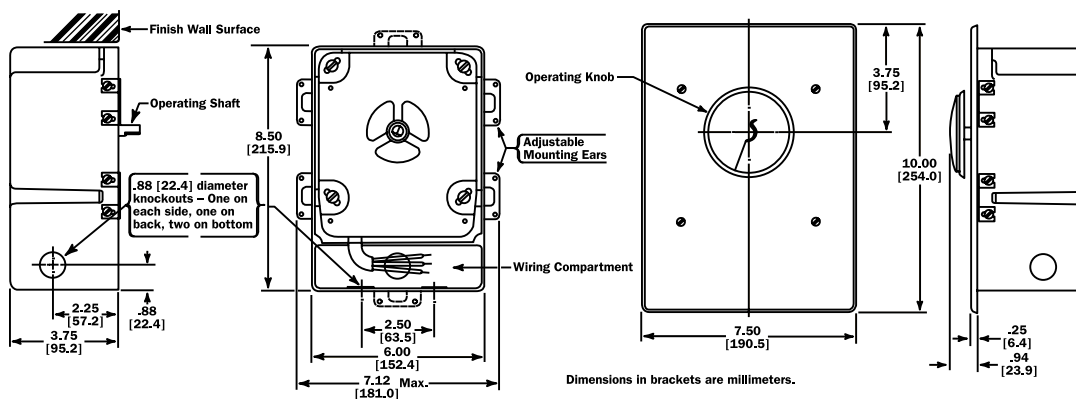
### Type WBD450

Maximum rating: 450 watts incandescent (at 120 volts, 50/60 hertz).



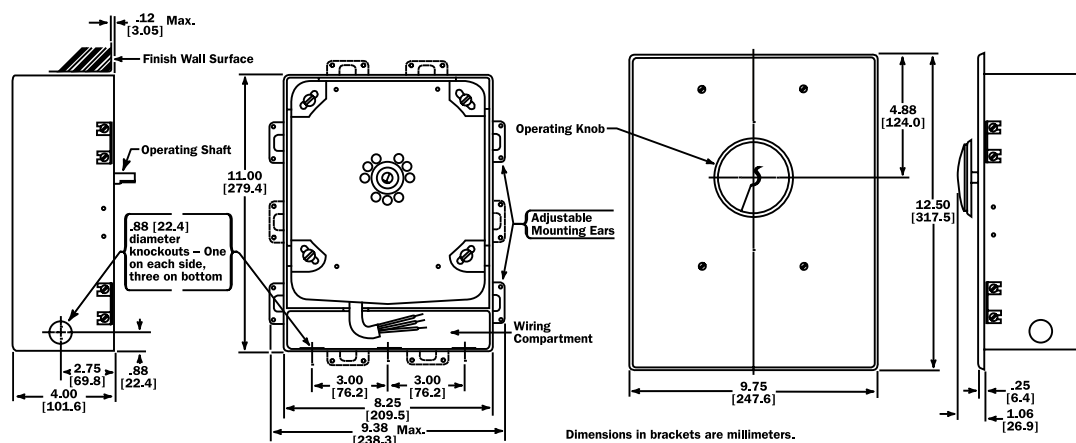
### Type WBD800

Maximum rating: 800 watts incandescent (at 120 volts, 50/60 hertz).



### Type WBD1800

Maximum rating: 1800 watts incandescent (at 120 volts, 60 hertz).



# Manual Series Overview

## D2000 and D5000-B Series for Incandescent Dimming —“E” Connected



D5000-B Series (Manual)

Models in the D2000 and D5000-B Series are offered for manual operation or with motor drives in standard speeds of 5, 15, 30 or 60 seconds for full range travel. All types can be operated in ambient temperatures up to 40°C. As shown in the type number terminology diagram, the basic series designation indicates the maximum wattage that can be controlled by a basic single unit in the series.

Units in the D2000 and D5000-B Series are also available as ganged assemblies consisting of two or more units operating in unison on a common shaft. The individual units in the assembly are usually electrically independent for control of separate lighting loads. Independently connected (“E” type) ganged assemblies are generally used to provide symmetrical connections and to balance loads on single phase 3-wire or three phase 4-wire systems. The ratings given in the charts for “E” connected assemblies are for operation with the units in the assembly equally divided between phases. It is not necessary that the units in an assembly be equally divided between phases or that the loads be balanced between units, but the ratings of the individual units must not be exceeded. Ganged assemblies in the D5000-B Series having the outputs of the individual units connected in parallel are also available for use where capacities greater than 5000 watts per load circuit are required. Do not attempt to parallel the outputs of “E” connected assemblies.

### Underwriters’ Laboratories Recognition

All single units in the D2000 and D5000-B Series are listed by Underwriters’ Laboratories, Inc. Motordrive assemblies in the MD2000 and MD5000-B Series units are also listed. Parallel connected ganged assemblies are not UL listed. They have exposed terminals and a fuse located on the terminal board of each section.



### Canadian Standards Association Listing

All manually operated and motor-driven LUXTRON Light Controls in the D2000 and D5000-B Series are listed by the Canadian Standards Association. However, the CSA listing requires that parallel connected assemblies must be installed in a suitable enclosure.

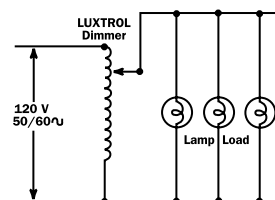


### Application Information

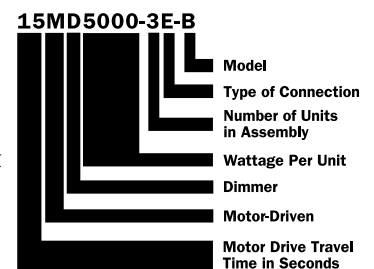
D2000 and D5000-B Series LUXTRON Light Control Equipment can be included in new building plans or may be incorporated into existing lighting systems. No special wiring is needed. The dimmer is connected across the line and the lighting load is connected between the brush and the start of the winding. Note that the neutral must be connected to the dimmer. Control of incandescent lamps is smooth and stepless over the full range from off to full bright.

### Input Disconnect

It is good practice to include a pilot lamp and a switch, circuit breaker or contactor in the input line to the dimmer. This makes it possible to see at a glance if there is power to the unit and permits the dimmer to be de-energized when it is not in use or when changing lamps or investigating circuit faults.



Incandescent Lamp Control



Type Number Terminology

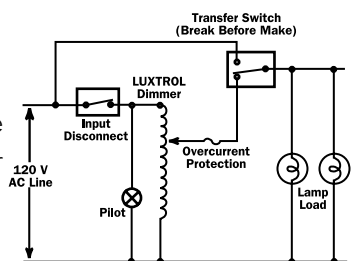
### Overcurrent Protection

At lower lighting intensities, fault conditions in the lighting circuit can cause higher than rated current in the dimmer output while input current remains at or below the rated level.

Therefore, for full protection, a fuse or circuit breaker should be included in the output from the dimmer brush-contact. This will protect both the lighting circuit and the dimmer from overcurrent damage.

### Transfer Switches

A transfer or “panic” switch allows the lighting load to be quickly transferred from the dimmer to the line. A break-before-make switch must be used so that the lamp load is removed from the dimmer before being connected to the line. Tumbler switches and some silent switches are acceptable. Mercury switches are not suitable.



Typical Circuit



# D2000 Series



## Manual D2000 Series for Incandescent Dimming —“E” Connected

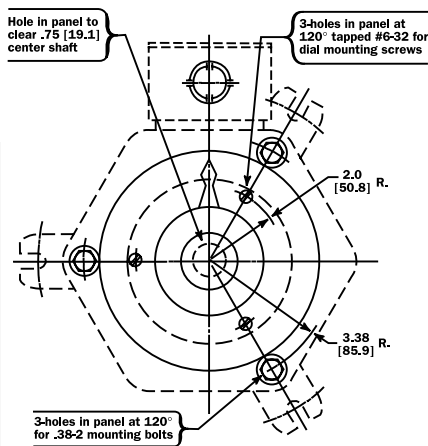
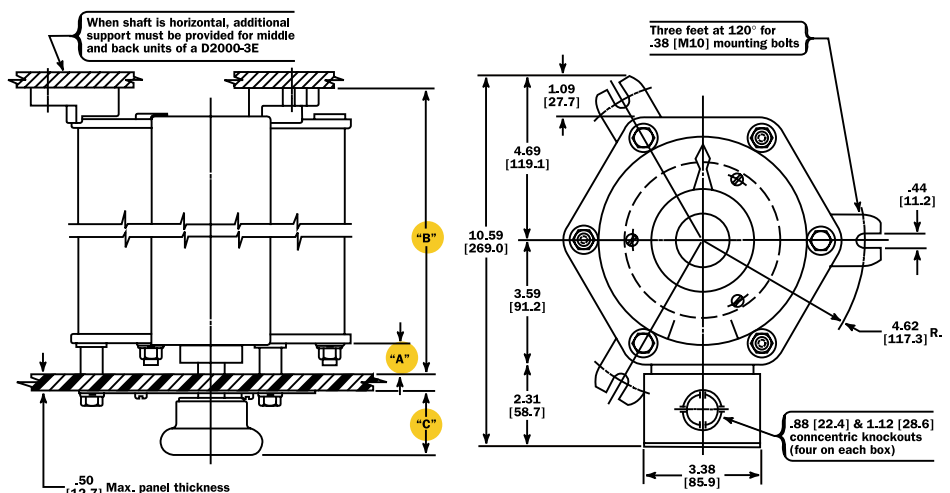
LUXTROL Light Controls in the D2000 Series are available in single units and in 2- and 3-gang assemblies. The individual units in the ganged assemblies are electrically independent and simultaneously control separate lighting circuits. Type D2000 handles loads to 2000 watts; type D2000-2E, two loads to 2000 watts each; type D2000-3E, three loads to 2000 watts each.

### Outline Drawings D2000, D2000-2E and D2000-3E

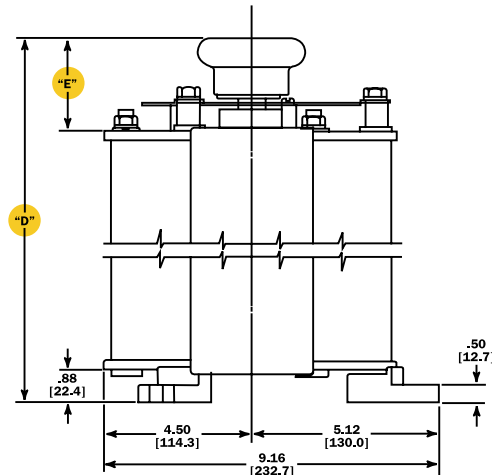


Type D2000 (Manual)

Type D2000-2E (Manual)



Panel Mounting



General Utility Mounting

### Rating

Type	Input (50/60 Hertz)	Number of Circuits	Max. Watts Per Circuit	Total Watts	Wiring Diagram*	Approx. Wt. (lbs.) Net	Shipping	Dimensions in inches [mm. in brackets]				
								“A”	“B” (Max.)	“C”	“D” (Max.)	“E”
D2000	120-volt, 2-wire, 1-phase	1	2000	2000	1	22	29	.75 [19.1]	7.06 [179.3]	1.69 [42.9]	8.88 [225.6]	2.50 [63.5]
D2000-2E	120-volt, 2-wire, 1-phase	2	2000	4000	2	45	52	1.06 [26.9]	13.69 [347.7]	1.69 [42.9]	15.06 [382.5]	2.50 [63.5]
	240/120 volt, 3-wire, 1-phase				3							
D2000-3E	120-volt, 2-wire, 1-phase	3	2000	6000	4	68	87	1.06 [26.9]	19.69 [500.1]	1.69 [42.9]	22.12 [561.8]	2.50 [63.5]
	208/120-volt, 4-wire, 3-phase				5							

\* See page 11 for wiring diagram.

# D5000-B Series

## Manual D5000-B Series for Incandescent Dimming —“E” Connected



LUXTRON Light Controls in the D5000-B Series are the heavy-duty units of the line. Single units in the D5000-B Series can control loads up to 5000 watts. Ganged manually operated assemblies are offered to handle up to three loads of 5000 watts each.

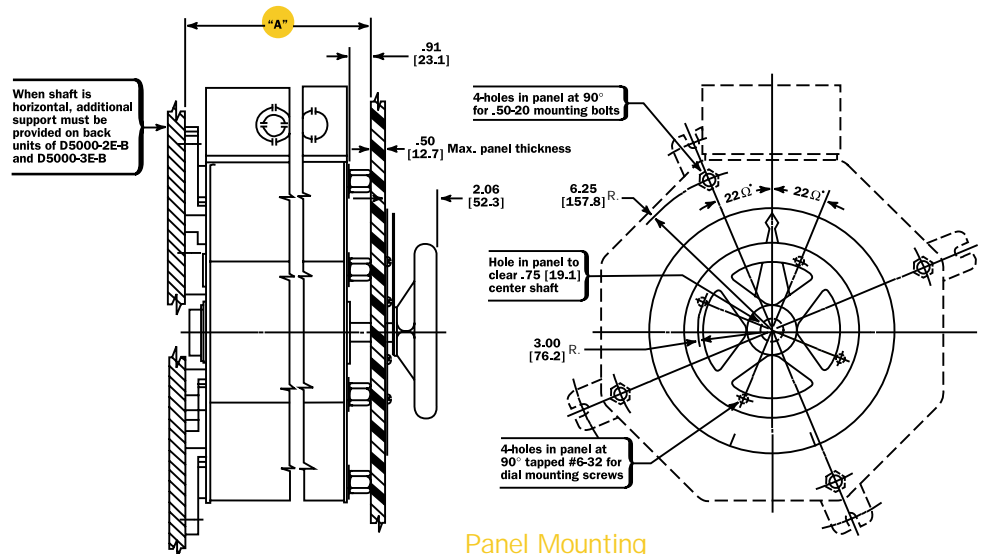
### Outline Drawings D5000-B, D5000-2E-B and D5000-3E-B



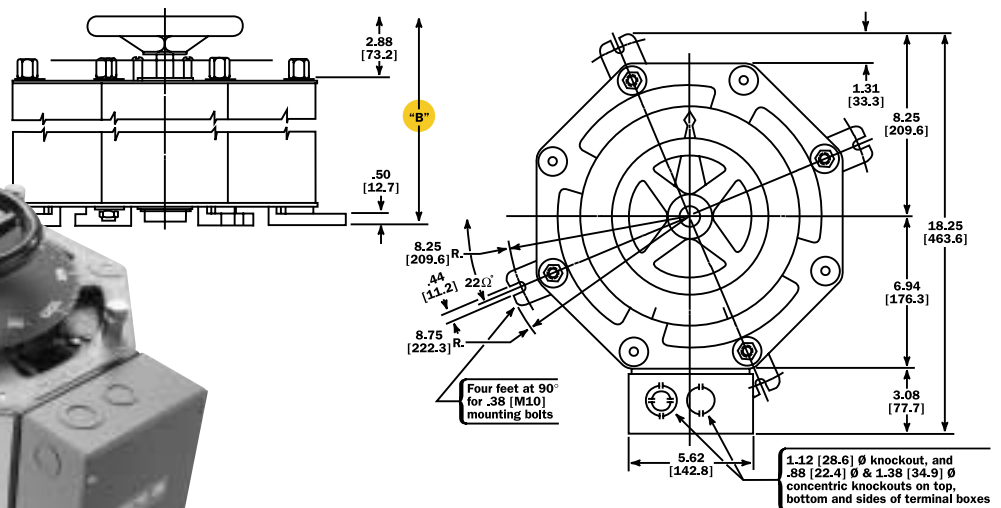
Type D5000-3E-B  
(Manual)



Type D5000-B (Manual)



Panel Mounting



General Utility Mounting

### Rating

Type	Input (50/60 Hertz)	Number of Circuits	Max. Watts Per Circuit	Total Watts	Wiring Diagram*	Approx. Wt. (lbs.) Net	Shipping	"A" (Max.)	"B" (Max.)
D5000-B	120-volt, 2-wire, 1-phase	1	5000	5000	1	76	86	7.62 [193.6]	9.56 [242.9]
D5000-2E-B	120-volt, 2-wire, 1-phase	2	5000	10000	2	170	190	14.25 [361.9]	16.19 [411.2]
	240/120 volt, 3-wire, 1-phase	3			3				
D5000-3E-B	120-volt, 2-wire, 1-phase	3	5000	15000	4	215	285	20.88 [530.4]	22.81 [579.4]
	208/120-volt, 4-wire, 3-phase	5			5				

\* See page 11 for wiring diagram.

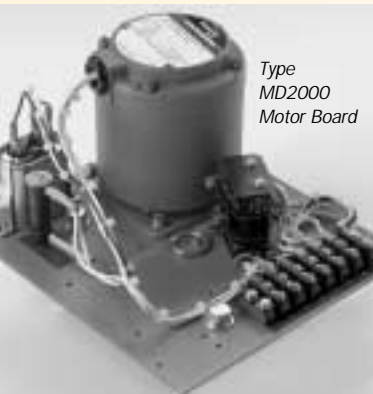
● Dimensions in inches [mm. in brackets]

# Motor Driven Series Overview

## D2000 and D5000-B Series for Incandescent Dimming —“E” Connected



All LUXTROL Light Controls in the D2000 and D5000-B Series are available with motor drives which permit remote control and allow effortless handling of large amounts of power. A motor-driven unit can be installed in an out-of-the-way space and controlled from the most convenient location.



Type  
MD2000  
Motor Board

The integrally mounted motor drive assembly utilizes a special synchronous drive motor having instant starting, stopping and reversing characteristics. The motor operates from a 120 volt, 50/60 hertz, single phase line and has an input requirement of less than 0.5 ampere. Motor-driven models are available in standard speeds of 5, 15, 30 or 60 seconds for travel from black-

out to full brightness at an applied frequency of 60 hertz. Travel times increase by 20% when operated at 50 hertz. When ordering a motor-driven model, the basic type number must be prefixed with the desired motor speed in seconds.

For example: 15MD5000-2E-B.

### Methods of Control

The most common method of controlling a LUXTROL Light Control motor drive is with a momentary contact switch of either the lever-action or the push button type. A lever-action switch, catalog number BHD14096, is recommended for this application. The switch is supplied with a nameplate and mounts in any standard 2" deep switch-box. In most applications, satisfactory control can be provided by a single raise-lower switch as shown in Diagram 1\*. Diagram 2\* shows how two or more raise-lower switches can be used. With this circuit, the dimmer can be controlled from any of the switches installed at different locations. Several dimmers can be operated at once from a master control, with or without separate control switches for the individual units. However, for satisfactory operation the individual control circuits must be isolated. If only a few units are to be mastered, a multiple-pole raise-lower switch may be used as shown in Diagram 3\*. Where many LUXTROL Light Controls are to be mastered, relays are required as in Diagram 4\*.

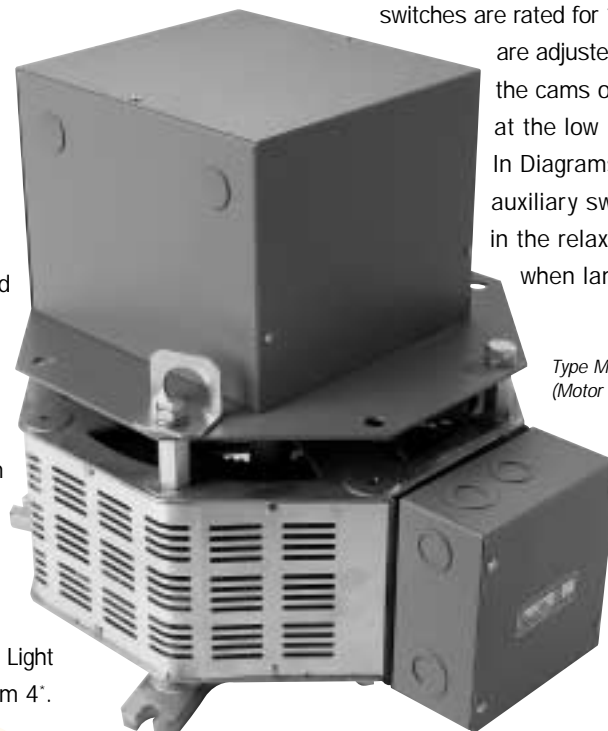
### Auxiliary Switch

All motor-driven LUXTROL Light Controls are equipped with three adjustable switches. Two of these are used to stop the motor at the high and low limits of travel, but they can be adjusted in the field to restrict the maximum and minimum light intensities if necessary. The third adjustable switch can be connected by the user to accomplish a variety of functions. Suggested wiring for the most common uses are given in Diagrams 5\* through 8\*. Other possible uses include starting a second bank of lights, operating a curtain motor and transferring control from one station to another. In addition, light intensity can be made to vary from off to full bright, to off in a single cycle using the auxiliary switch to actuate a relay which controls the direction of motor travel. A timer can be used in place of the relay if it is desired to have the lights remain at a given intensity for a period of time. The auxiliary switch is operated by an adjustable cam which opens the normally closed contacts and closes the normally open contacts. Additional control switches can be provided when required by the application. The auxiliary switches are rated for 15 amperes. They

Momentary  
contact  
lever-action  
switch  
BHD-14096

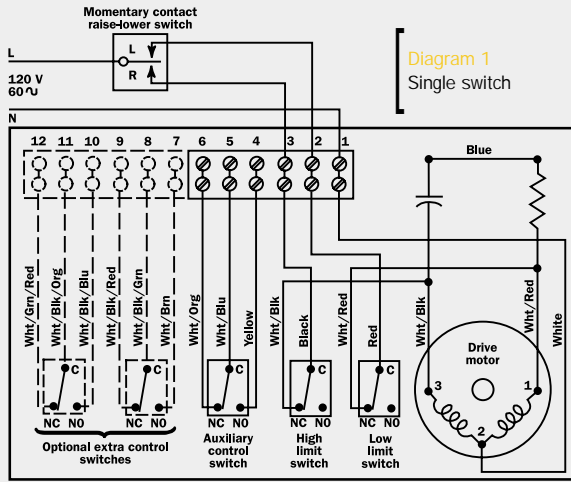


are adjusted at the factory so the cams operate the switches at the low intensity position. In Diagrams 5 through 8, all auxiliary switches are shown in the relaxed position as when lamps are lighted.



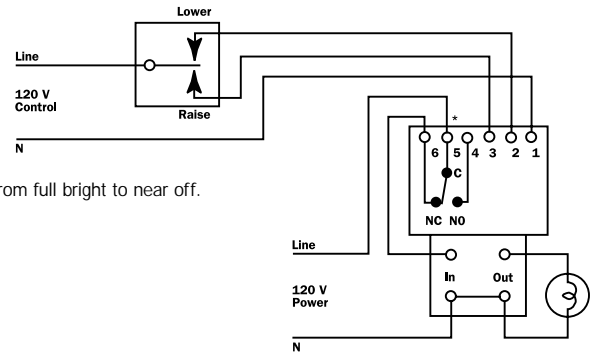
Type MD5000-B  
(Motor Driven)

\* Diagrams on page 8.



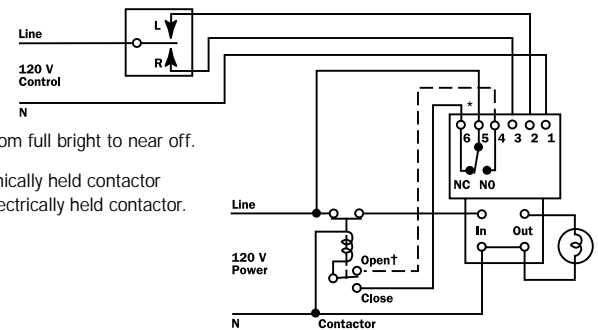
## Motor Drive Control Diagrams

**Diagram 5**  
As a line switch (2000 watts maximum)



\* Switch in NC position from full bright to near off.

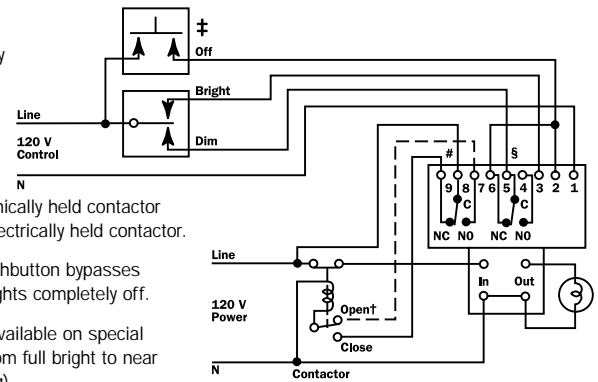
**Diagram 6**  
Controlling a contactor



\* Switch in NC position from full bright to near off.

† "Open" lead for mechanically held contactor only; not required for electrically held contactor.

**Diagram 7**  
Limiting low light intensity with bypass to "off"



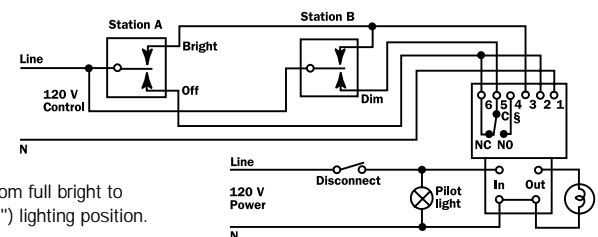
† "Open" lead for mechanically held contactor only; not required for electrically held contactor.

‡ Momentary contact pushbutton bypasses control switch to turn lights completely off.

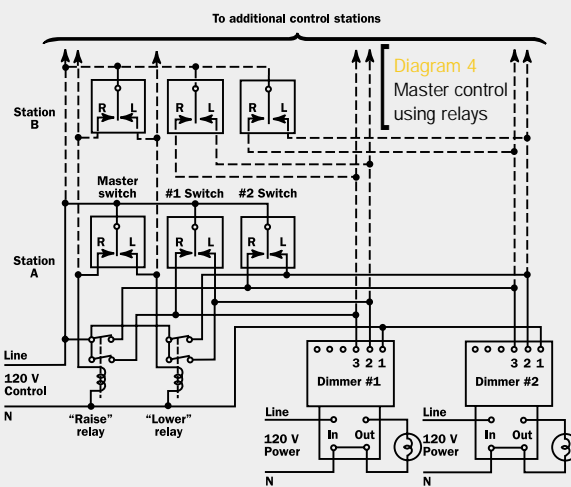
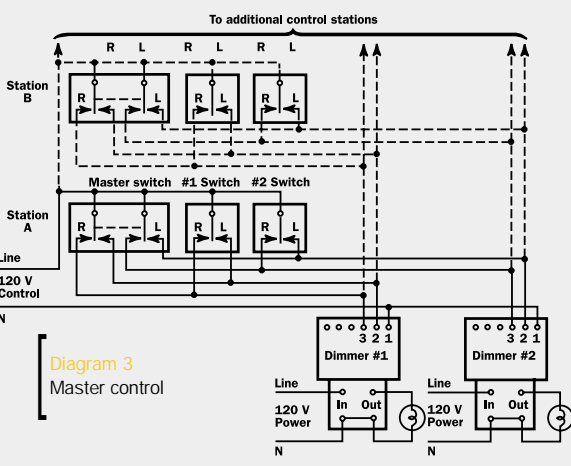
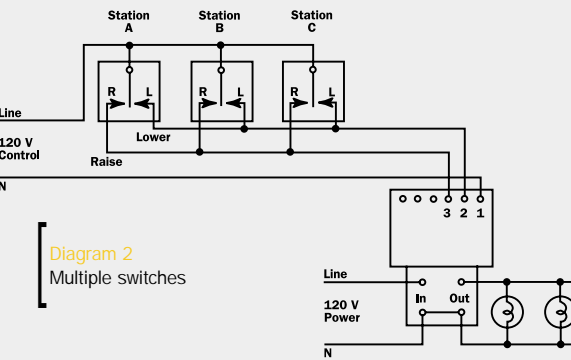
# Extra auxiliary switch (available on special order) in NC position from full bright to near off (below "DIM" setting).

§ Switch in NC position from full bright to desired minimum ("DIM") lighting position.

**Diagram 8**  
Limiting low light intensity at station B



§ Switch in NC position from full bright to desired minimum ("DIM") lighting position.





# MD2000 Series

## Motor Driven MD2000 Series for Incandescent Dimming —“E” Connected

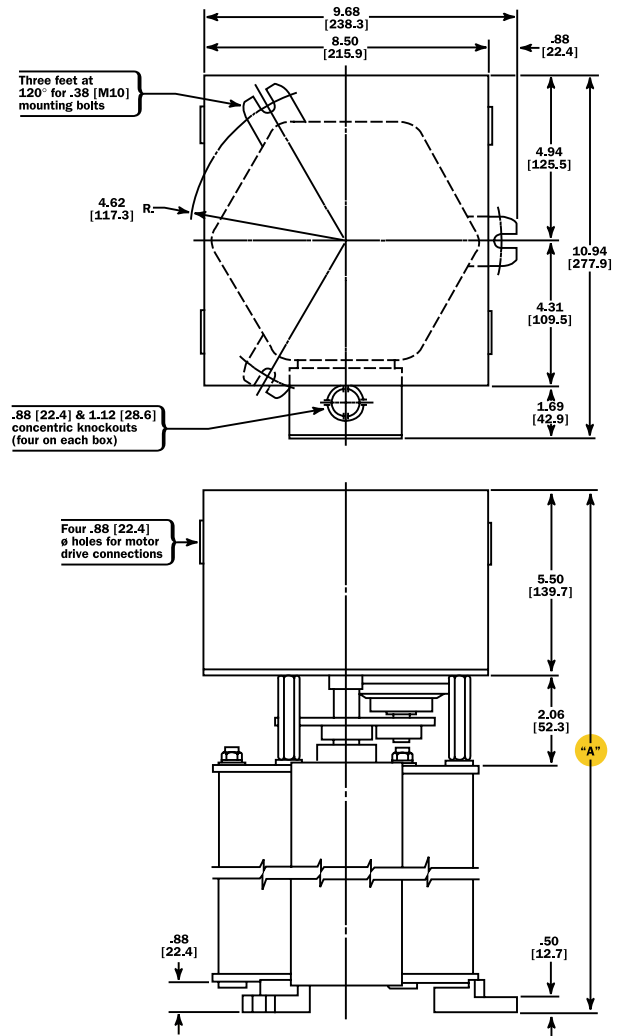


Motor-driven LUXTRON Light Controls in the MD2000 Series are available in single units and independently connected 2- and 3-gang assemblies. The MD2000 will control loads to 2000 watts; the MD2000-2E, two loads to 2000 watts each; and the MD2000-3E, three loads to 2000 watts each.



Type 6MD2000-3E  
(Motor Driven)

### Outline Drawings MD2000, MD2000-2E and MD2000-3E



### Rating

Type	Input (50/60 Hertz)	Number of Circuits	Max. Watts Per Circuit	Total Watts	Wiring Diagram*	Motor Speeds (Seconds)	Approx. Wt. (lbs.) Net	Shipping	"A" (Max.)
MD2000	120-volt, 2-wire, 1-phase	1	2000	2000	1	5, 15, 30, 60	34	42	14.56 [369.8]
MD2000-2E	120-volt, 2-wire, 1-phase	2	2000	4000	2	5, 15, 30, 60	60	67	20.75 [527.0]
	240/120 volt, 3-wire, 1-phase				3				
MD2000-3E	120-volt, 2-wire, 1-phase	3	2000	6000	4	5, 15, 30, 60	90	109	26.94 [684.3]
	208/120-volt, 4-wire, 3-phase				5				

\* See page 11 for wiring diagram.

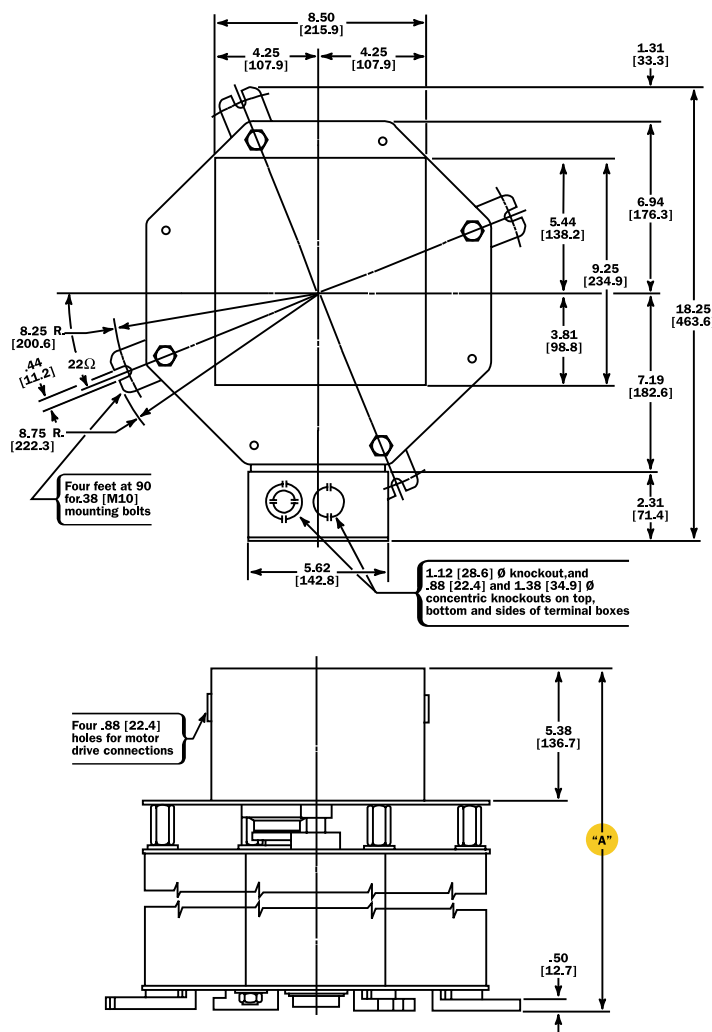
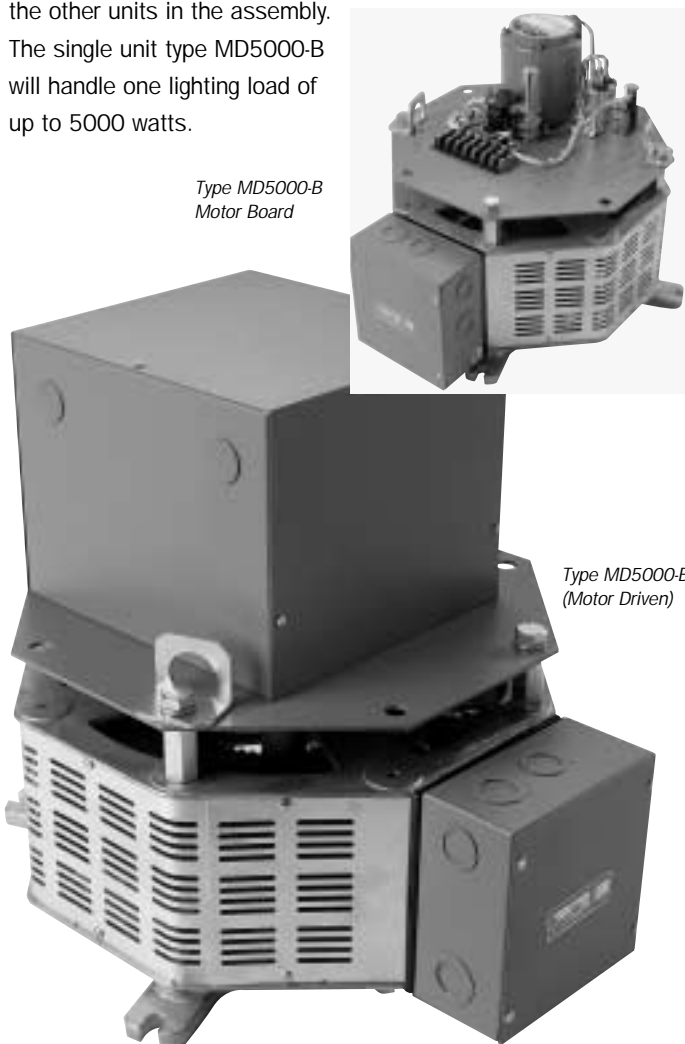
● Dimensions in inches [mm. in brackets]

## Motor Driven MD5000-B Series for Incandescent Dimming —“E” Connected



Motor-driven ganged assemblies in the MD5000-B Series are available to handle up to three lighting loads of 5000 watts each. Each unit in a ganged assembly will control up to 5000 watts and operates in unison with the other units in the assembly. The single unit type MD5000-B will handle one lighting load of up to 5000 watts.

## Outline Drawings MD5000-B, MD5000-2E-B and MD5000-3E-B



## Rating

Type	Input (50/60 Hertz)	Number of Circuits	Max. Watts Per Circuit	Total Watts	Wiring Diagram*	Motor Speeds (Seconds)	Approx. Net	Wt. (lbs.) Shipping	"A" (Max.)
MD5000-B	120-volt, 2-wire, 1-phase	1	5000	5000	1	5, 15, 30, 60	90	105	13.81 [350.8]
MD5000-2E-B	120-volt, 2-wire, 1-phase	2	5000	10000	2	5, 15, 30, 60	185	210	20.44 [519.2]
	240/120 volt, 3-wire, 1-phase				3				
MD5000-3E-B	120-volt, 2-wire, 1-phase	3	5000	15000	4	5, 15, 30, 60	230	305	27.06 [687.3]
	208/120-volt, 4-wire, 3-phase				5				

\* See page 11 for wiring diagram.

Dimensions in inches [mm. in brackets]

"A" (Max.)

# Special Models

For Incandescent Dimming



Although most applications can best be satisfied by standard LUXTROL Light Controls, special models or features can also be supplied when necessary. Ganged assemblies other than those listed can be provided. Units can be furnished for 240 or 277 volt operation or with special motor drive speeds. For full information on these or other modifications, submit requirements.



Type D5000-6E-B  
(Manual)



## Auxiliary Equipment

For Incandescent Dimming

### Specifications

Type	Item	Used With	Approx. Wt.	Dimensions in inches		
				W.	D.	H.
BHD14096	Raise-lower switch	Motor-driven units	6 oz.	1.5	2.125	4.125

### Dimensions in inches

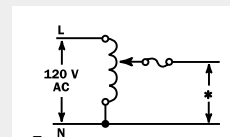


Diagram 1  
D2000, MD2000,  
D5000-B, MD5000-B

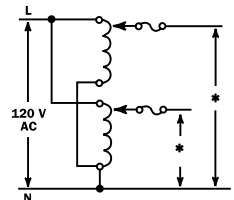


Diagram 2  
D2000-2E, MD2000-2E,  
D5000-2E-B, MD5000-2E-B

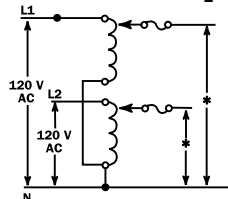


Diagram 3  
D2000-2E, MD2000-2E,  
D5000-2E-B, MD5000-2E-B

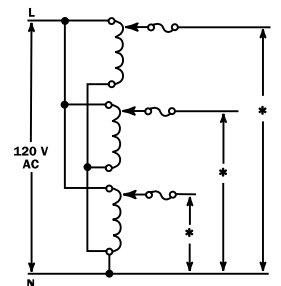


Diagram 4  
D2000-3E, MD2000-3E,  
D5000-3E-B, MD5000-3E-B

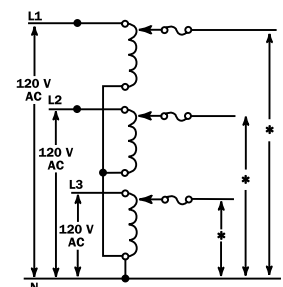


Diagram 5  
D2000-3E, MD2000-3E,  
D5000-3E-B, MD5000-3E-B

## Wiring Diagrams

\*0-2000 watts for D2000 Series, 0-5000 watts for D5000-B Series.

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**LUXTROL®** Lighting Controls

**5-WAY®** Binding Posts

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STABILINE Power Quality Solutions are available worldwide through an extensive Authorized Distributor and Reseller network which offer literature, technical assistance and a select range of models off-the-shelf for fastest possible delivery and service.

In addition, Superior Electric Manufacturer's Representatives are available to provide prompt attention to customer needs. Call or fax for ordering and application information or for the address of the closest Manufacturer's Representative, Authorized Distributor or Reseller.



# **Superior Electric**

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Telephone	860-585-4500
Fax	860-582-3784
Customer Service	860-585-4500, Ext. 4750
Product Application	860-585-4500, Ext. 4755

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