Film-Tech

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ASH-STEVENSON
INCORPORATED

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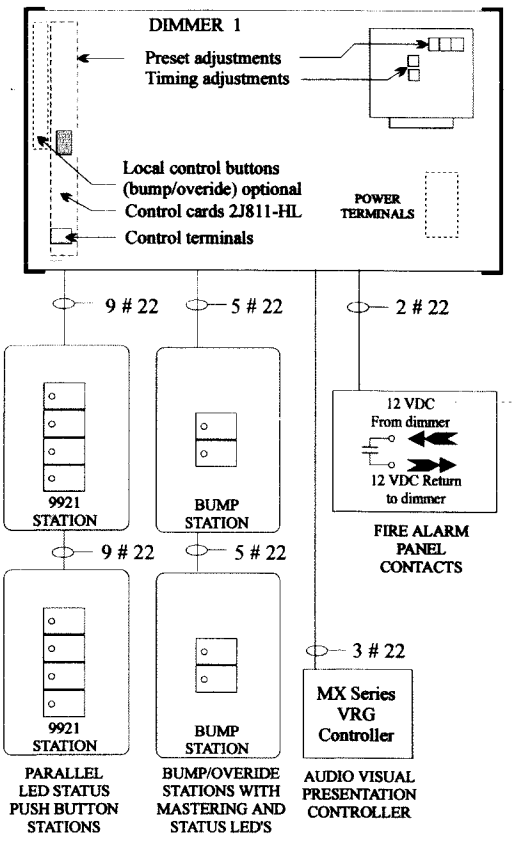
TEC8112 ARCHITECTURAL DIMMER INSTRUCTIONS

GENERAL DESCRIPTION

Architectural series TEC8112 dimmers are single phase, modular remotely controlled dimmers suitable for dimming incandescent lighting loads and low-voltage transformer type loads. For fluorescent loads contact your representative, we have separate dimmers designed specifically for these type of loads. Dimmer models are rated at 15 amp (1440 watts), 20 amp (1920 watts), 30 amp (2880 watts) and 40 amp (3840 watts), 20% de-rating has been applied to power figures. For low-voltage transformer type loads these figures should be de-rated another 20%. Secondary breakers are NOT on the 15 amp model. Other models can have up to four secondary breakers, standard are 15 amp, or 20 amp optional. A universal, plug-in control card allows the dimmers to be operated from a variety of control systems and fire alarm override

Typical controls



CALIBRATION

Dimmers are shipped fully calibrated with UP and DOWN fade time set at about 5 seconds (full time travel), Preset #3 is set 100%, #2 is set at 50% and #1 is set at 20%. If notified in advance, calibration can be tailored to suit at the factory. There are only 5 calibration adjustments that should be touched. (Presets & Timing) The minimum and maximum adjustments should NOT normally be adjusted. Consult the factory before these are touched.

The fastest way of changing presets , is to first set the fade timing to minimum (fully counter clockwise). Presets can be selected at the dimmer by momentarily shorting (COM) to the appropriate terminals (P3, P2, P1 & DN). This saves time by not having to go to the remote control station each time while making adjustments. Dimmers equipped with the (Bump/Override) feature incorporate a control station in the dimmer which is handy when making these adjustments. Once the preset levels have been established, the fade times can be reintroduced The "UP" fade time governs the majority of transitions (fading) between presets. The "DOWN" fade time affects only transitions to the OFF or (DN) state. For all fade times to be similar the down fade time should be set to the same position as the UP fade time.

CONTROL TESTING

Because of the wide variety of remote controls the dimmer can accommodate, it is difficult to describe a single testing procedure. For complex systems a factory trained technician usually performs this function as part of the contract, if specified. For less complex systems the electrician can go through each remote control device to verify that it has the desired effect. Each slider should be should fade dimmers in proportion to the the individual slider settings. With preset type controls, a maximum of 10 stations may be connected in parallel. The LED indicators on all stations will show the active status. If locked in one preset, the control wiring may have a wire shorted to ground (common) or to another wire. Disconnect control wires at the dimmer, one at a time until the problem or remote station is identified. Then examine wiring associated with the problem for shorts.

Optional Bump / Overide card functions and normal / service jumper settings

Optional Bump/Override board jumpers DN, P1, P2 & P3. These jumpers when removed prevent the related preset line from the automation system from cancelling the bump state. At least one of these jumpers must be present. Selecting the same jumpers as the lines used to control the dimmer from the automation will allow the automation to automatically cancel the bump state.

N S Jumper, "N" is for normal mode.
In this mode any preset button or preset line from the automation system can disable the bump state subject to the restrictions set by the programming jumpers noted above.

N S Jumper, "S" is for service mode. (external jumper)
In this mode no preset buttons or preset lines from the automation system will disable the bump mode. This is useful for debugging the automation system while keeping the lights on for other work.

The additional terminals on the bump board are for connecting additional bump stations. Each bump station has 2 buttons (on & off) with LED status indicators.
Remember to return the N S jumper to the "N" normal state after changing it for service condition.

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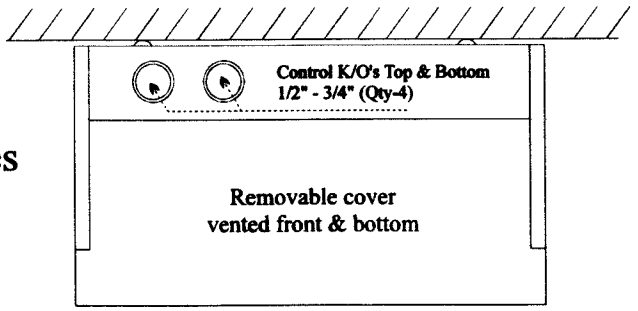
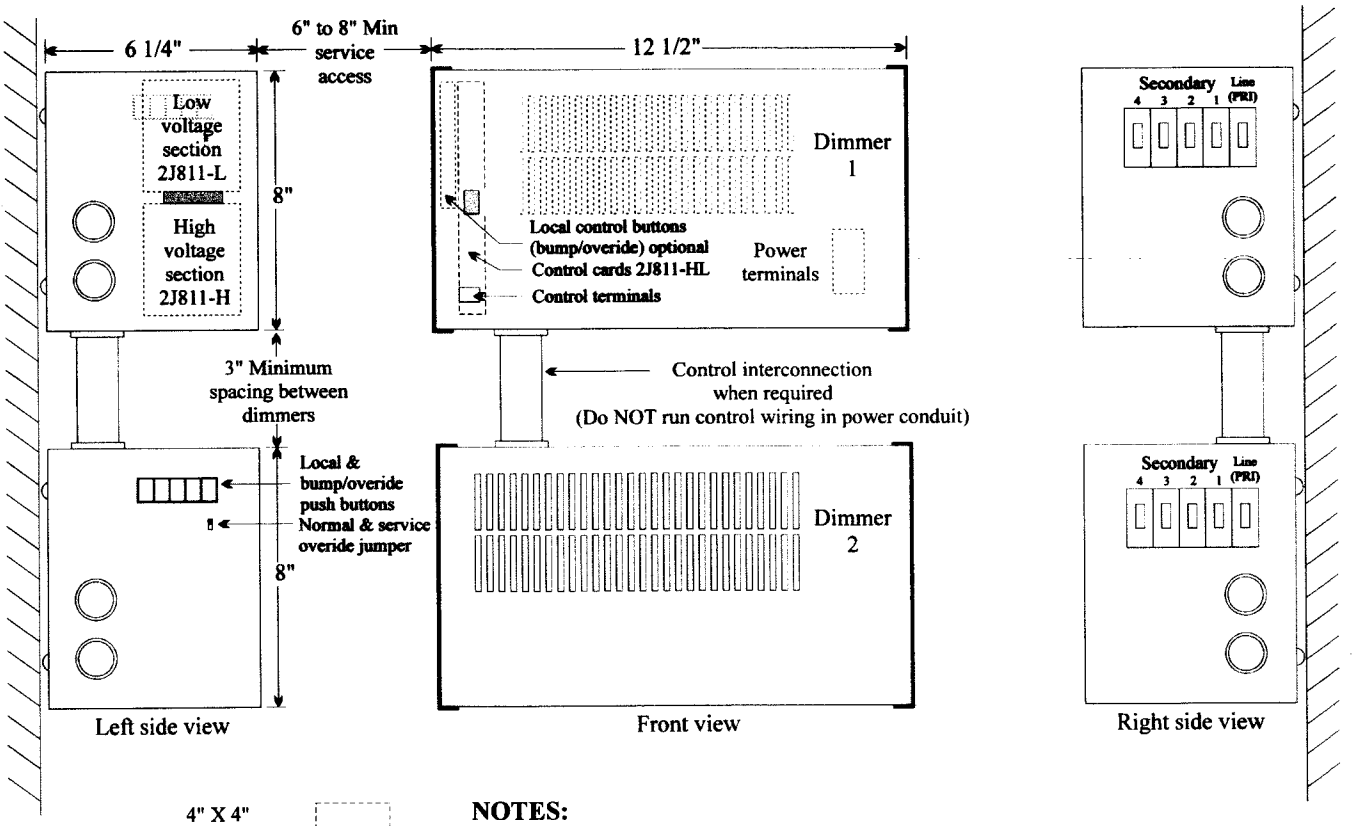
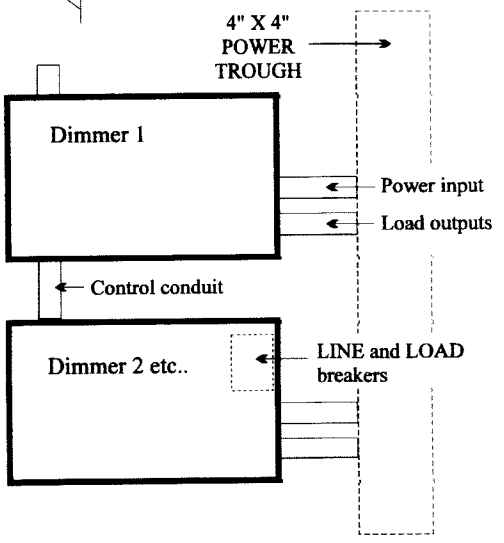
Installation Details
TEC8112 & LAD series
Architectural Dimmers



Top View



Left side view | Front view | Right side view



NOTES:

INSTALLATION - These dimmers are convection cooled and require an adequate flow of room temperature air. Leave at least 3" between the top of one dimmer and the bottom of another dimmer. Should 3.6KW or 4.8KW dimmers be mounted one above the other, the distance between dimmers should be increased to 6" spacing. Always mount the case with the heat sink fins vertically aligned. If mounting in an electrical room/closet ensure that cool air can enter at the bottom of the door and exit near the ceiling.

HEAT - 3% to 5% of the connected load is generated as heat in each dimmer. For example, 10,000 Watt load produces the equivalent of 300 to 500 watts of heat in the dimmers.

AC wiring and control wiring should NOT be run in the same conduit. Connect cabinets using the left upper and lower side knockouts for control wiring. Each dimmer requires a separate LINE & NEUTRAL feed.

These cabinets are NOT designed to be used as a trough for power wires feeding other dimmers. A small amount of audible noise is generated by the filter choke in each cabinet. In most cases this is not noticeable, however, if the dimmers are mounted in occupied areas, this "noise" may be objectionable. The 60Hz "buzz/hum" will be noticed more at lower dimmer settings, also the filament configuration will determine how much noise is generated. Please take this into consideration when locating dimmers in areas other than electrical rooms.

Manufactured and printed in Canada

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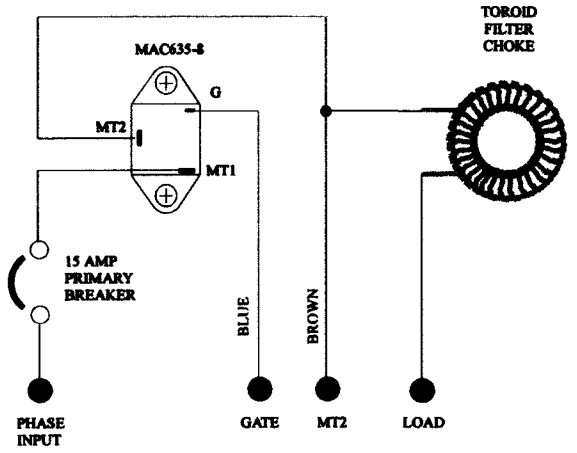
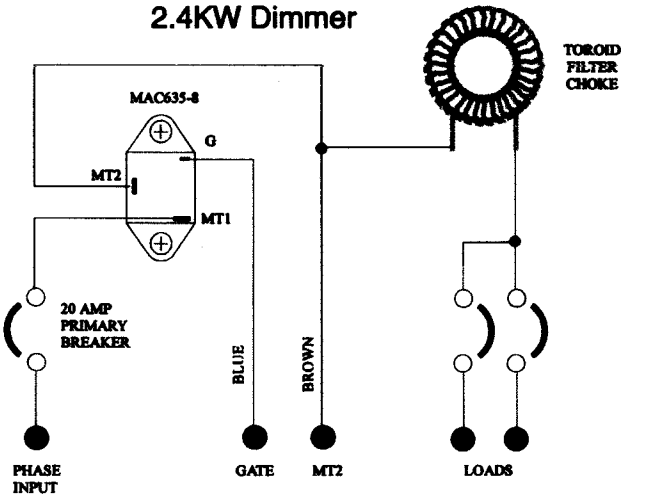
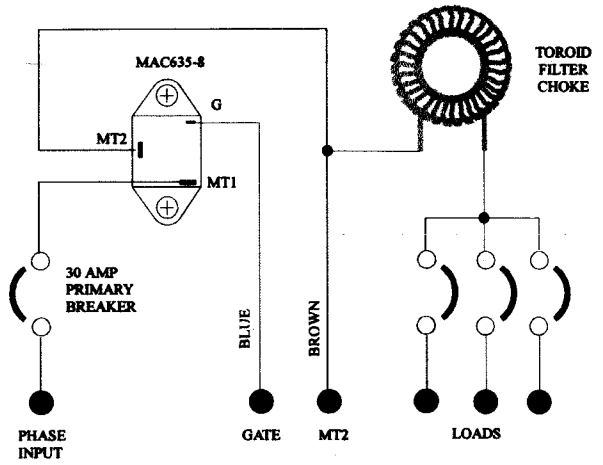
1.8KW Dimmer



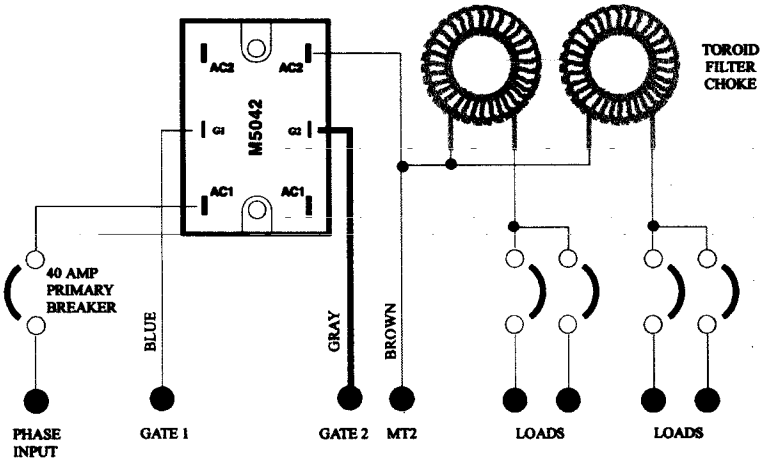
2.4KW Dimmer



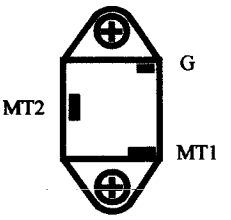
3.6KW Dimmer



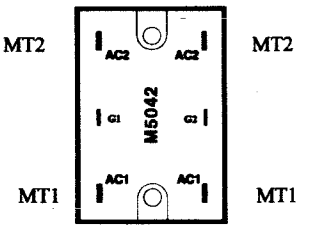
4.8KW Dimmer



Phase - 120 VAC or 240 VAC
Triacs - 400 to 600 volt rated
Breakers - 255 volt rated
Chokes - 20 to 30 amp rated
Triac Gates - 50 ma.



SC160D
BTA40-400
MAC635-6/8



M5042
50 AMP
SSR BLOCK

Phase distribution & Triac types

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TEC8112 series U/D/P dimmer trouble shooting guide.

SYMTOM		PROBABLE CAUSES
1.0 The lights do not go on.	a)	A circuit breaker is turned off, or has been shut off by a short circuit in the load wiring.
	b)	A fuse (i.e. control fuse) has been removed or burned out by a short circuit.
	c)	If one fixture does not work, the bulb may have burned out or the fixture has been incorrectly wired into the circuit.
	d)	A control wire has broken or separated from the control terminal strip. Check that all remote station wiring has been hooked up correctly. The DN (down) wire may be shorted to COM (common) by a remote station or a relay in the automation equipment. The signal wire may have been shorted to common.
	e)	There is NO feed (control voltage) at the control terminal. Check that control voltage at the dimmer 12v line out is hooked up.
	f)	Another control station has control and is inhibiting the signal from other remote control stations.
	g) **	The control card is damaged. Verify this by inserting the control card from a working dimmer. (REMEMBER TO SWITCH OFF THE MAIN BREAKER FIRST)
	**	DO NOT SWAP CONTROL CARDS BETWEEN 4.8KW DIMMERS AND OTHER SIZED UNITS. CHECK MAX RATING ON LABEL BELOW CIRCUIT BREAKERS.
	h)	The gate wire has come off or the gate is open circuited.
	i)	The TRIAC or SSR block is defective or damaged. Replace with the same type of device.
1.1 The lights do not turn off unless the Primary BREAKER is turned OFF.	a)	The TRIAC or SSR block has been short circuited and is fused in the 'ON' state. This can be confirmed by removing the upper section of the control card. (SWITCH DIMMER OFF BEFORE REMOVING CARD) If dimmer still has output (ON) replace TRIAC or SSR block.

SYMTOM		PROBABLE CAUSES
1.1 continued	b)	A remote station is stuck at P3 (full on) If the dimmer is wired into a fire alarm, the fire alarm relay is closed or a fire alarm condition exists. The 12v wiring may be shorted to the SIG (signal) wire.
1.2 The lights do not go all the way off when the DN button is pressed		The MINIMUM adjustment on the trigger card is set too high. (turn counter clockwise till LED on card glows faintly)
1.3 The lights do not turn on fully when P3 has been pushed.		The MAXIMUM adjustment on the trigger card is set too low. (turn clockwise to increase) P3 may be set low on the trigger card. To increase turn clockwise.
1.4 There is little or no difference between P1,P2 or P3 settings.		P1,P2,P3 adjustments are not set to different levels. Adjust as required.
1.5 The lights dim out too quickly.		The DOWN time trimmer is set for too short a time. (turn clockwise too increase time) The MINIMUM adjustment on the trigger card is set too low. (set MINIMUM on the trigger card till the LED glows faintly. Turn clockwise to increase)
1.6 The lights brighten too quickly.		The UP time is set too quickly. (turn the UP time trimmer counter clockwise to decrease time) (see other trimming MINIMUM & MAXIMUM)
1.7 The lights dim only a small amount when slider type controls are run up and down.		The control COMMON wire is open circuited. (does not apply to preset P1,P2 or P3 type control)
1.8 The lights dim half way when the slider is off or the DN button is pushed.		The TRIAC has a short circuit in one direction and is conducting 'half wave'. If output waveform is viewed on a scope, top or bottom of the AC wave form are only seen. Replace TRIAC.
1.9 The lights change preset levels without buttons pushed or signals issued to the dimmer.		Push button response delay jumper should be switched from short to long. External control 'noise' will be reduced from affecting preset states. Faulty equipment or motors can induce spikes on the mains causing 'brown outs' affecting the dimmer
1.10 Lights do not respond to button commands.		One button is stuck in the activated position or the control station is locked out by some other control.
1.11 The lights 'flicker' erratically on low dimmer settings.		Replace control card with another one. If the problem persists. Replace the TRIAC.

Trimming instructions. (equipment required)

1. An AC voltmeter or/and an oscilloscope suitable for reading a 120/240 VAC.
2. A short flat bladed screwdriver (maximum 3/32" wide) with an insulated handle. (known as a trimmer adjustment screwdriver)
3 When trimming the dimmer from full (DN) to full up (P3). (a short length of wire 'clip lead' may be necessary if a push button station is not available.

Procedure

1. Turn off power and remove cover. Note that if the main circuit breaker is used to turn power off, the phase input terminals and the upper terminal of the circuit breaker are still LIVE. Connect an AC voltmeter or oscilloscope between load terminal and neutral. Ensure that the P3 trimmer is fully clockwise. Record the osition of the UP and DN time trimmers then turn both fully counter clockwise. Turn the MAX trimmer fully counter clockwise. Turn the MIN trimmer fully lockwise (any remote sliders should be off)
2. Press the DN (down) push button. If a control station is not close by you can simulate its action by momentarily connecting a wire between COM and the DN terminals. Turn the MIN trimmer counter clockwise until the meter reads 5 VAC (or less if the lights are still glowing too much to tolerate)
3. Press the P3 or UP push button. (or simulate by jumpering P3 & COM momentarily) Turn the MAX trimmer clockwise until the meter (VOM) reads 115 VAC. NOTE - DO NOT OVER ADJUST AND LEAVE IN AN OVER ADJUSTED STATE (Preferably adjust for 90 to 105 volts typically, this extends lamp life)
4. There is a slight interaction between the MIN & MAX trimmers so it will be necessary to repeat steps 2 & 3 until no further adjustment is required.
5. Press P1 and set the P1 trimmer to the desired lighting level. Repeat for P2 and P3.
6. Return the time trimmers to their original positions or re-adjust to suit. Note: The UP time adjusts the fade time from down to any preset AND between presets. The DN time trimmer adjusts the fade time from a preset to DN (fully down) ONLY.
7. Turn off power, remove meter or oscilloscope leads. Replace cover (& screws). Turn on power and test from remote stations or automation.

NOTE: Always return defective parts prepaid to the factory with a description of the problem. Call the factory for a return autorization.
All replacement pars shall be sent out on a COD basis only. Account adjustments for defective materials shall be made later.