TouchBolt™ Switches ELCML-1 and ELCML-2

1. General Description:

• The ELCML-1 and ELCML-2 touch controllers are electronic modules designed to provide on-off control of one or two independent lighting circuits by means of a touch-sensitive input. In addition to the touch-control input, two low-voltage override control inputs are provided. These can be used to give Force-on and Force-off control of the lighting circuits.
• The ELCML-1 is for circuits rated 120VAC; the ELCML-2 is for circuits rated at 277VAC.
• The touch controller uses relays to provide fully isolated control of two lighting circuits and to offer maximum immunity to false triggering which might otherwise occur as a result of electrical noise from electronic lighting ballasts and other non-linear loads. Two Form-C (SPDT) contacts are provided for each circuit to give the installer maximum connection flexibility.
•The module includes a 3-pole DIP switch, which is used to program the controller for one or two loads and up to four levels of sequential control, or to enable a "time-off" feature which automatically forces both lighting circuits off after an optional interval (.5 sec, 1 sec, 5 sec, and 15 sec). The touch controller is activated by a signal from a stainless-steel bolt. These Touchbolt™ Assemblies can be ordered in various lengths and configurations to support fixture-mount or wall-mount control.
• The touch input can be one bolt for two-way or two bolts for three-way operation.
• Stranded copper wire, #16 AWG or larger is recommend for active touch-sense.
• Maximum total distances between the touch controller and the TouchBolt™ Assembly is 20 feet. Touch-sense must be run in non-metallic conduit. Through-wall penetrations must be run in PVC conduit. Touch lead cannot be run with power leads.
• Both TouchBolt™ modules comply with Underwriters Laboratories Inc. safety standard UL244A for solid-state controls for appliances.

2. Mechanical:

2.1 Nominal Dimension
See picture below.
2.2 Terminal Assignment
See picture below
2.3 Wiring Considerations

• All screw terminals provided are rated for use with wire sizes in the range of #12-22 AWG only. Use only solid or stranded copper wire for all terminal connections. Select actual wire size in accordance with applicable code.

Ordering Information:

For ELCML-1 and ELCML-2. All other inquires, please consult the factory.

Model No. **ELCML** - ☐

VOLTAGE:	STOCK NUMBER:
1 = 120 VAC, 50/60 Hz	**500376** = ELCML-1
2 = 277 VAC, 50/60 Hz	**500377** = ELCML-2

2.4 Operations

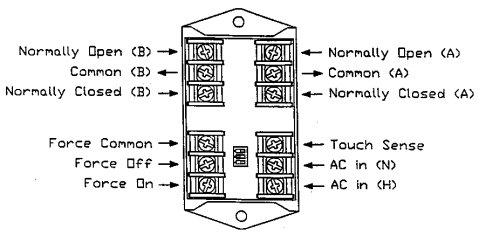
• Number of operations under rated electrical load is 200,000 minimum.

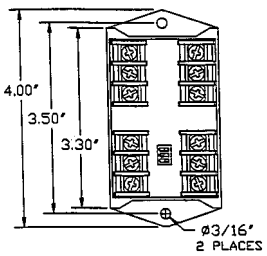
3. Electrical

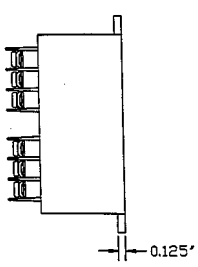
3.1 AC Power Input

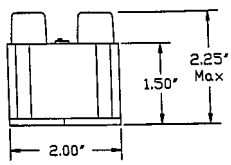
• The AC(N) and AC(H) terminals are used to provide power to operate the touch controller. AC power must be applied at all times for proper controller operation. Connect AC(N) to line neutral and AC(H) to line hot. Reversing these connections may result in poor noise immunity on the TouchBolt™ input and will increase suscep-

Sample:
ELCML-1 and ELCML-2

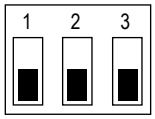
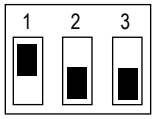
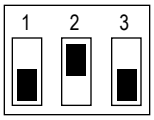
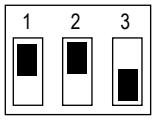
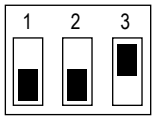
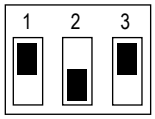
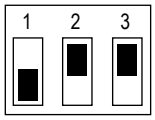
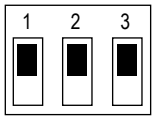








Sequence of Operation Chart

VIEW	SW1	SW2	SW3	TOUCH 1	TOUCH 2	TOUCH 3	TOUCH 4	TOUCH 5	TIME-OUT PERIOD
	off	off	off	A=on B=off	A=off B=on	A=on B=on	A=off B=off	Repeat	None
	on	off	off	A=on B=off	A=on B=on	A=off B=off	Repeat		None
	off	on	off	A=on B=off	A=off B=on	A=off B=off	Repeat		None
	on	on	off	A=on B=on	A=off B=off	Repeat			None
	off	off	on	A=on B=on	A=off B=off	Repeat			0.5 sec
	on	off	on	A=on B=on	A=off B=off	Repeat			1 sec
	off	on	on	A=on B=on	A=off B=off	Repeat			5 sec
	on	on	on	A=on B=on	A=off B=off	Repeat			15 sec

tibility to false triggering.

3.2 Relay Contacts

• The touch controller provides two independent sets of Form-C (SPDT) relay contacts for control of up to two lighting circuits. Each set of relay contacts is electrically isolated from the other, from all control inputs, and from the AC power input.
• When AC power is first applied to the controller, both relays are reset to the default state in which C-to-NC contacts are closed and C-to-NO contacts are open. Activation of the touch-sense control input initiates change to the subsequent state of each relay. The DIP switch settings are used to establish the desired on/off sequences of the relays. See sequence of operations chart.
• Removal of AC input power does NOT automatically reset the relays to the default state in which C-to-NC contacts are closed and C-to-NO contacts are open. **AC power must be applied at all times for proper controller operation.**

• Electrical Load Ratings:

125VAC, 60hZ, 8.3 A Tungsten - 1000 W
277VAC, 60hZ, 2.7 A Tungsten - 750 W
125VAC, 60hZ, 8.3 A Ballast - 1000 W
277VAC, 60hZ, 3.6 A Ballast - 1000 W
250VAC, 60hZ, 10 A General Purpose
250VAC, 60hZ, 4 A Tungsten - 1000 W
125VAC, 60hZ, 4 A Tungsten - 500 W
120VAC, 60hZ, 1/8 HP
277VAC, 60hZ, 1/3 HP

3.3 TouchBolt™ Control Input

• Easter-Owens' TouchBolt™ Assemblies were designed to use in conjunction with the ELCML-1 and ELCML-2.
• The touch input is sensitive to rapid changes in capacitance, and has automatic gain control that compensates for long-term variations in capacitive load. Thus, the controller requires no field calibration and is equally suitable for connection to a widely varying range of touch surfaces without degradation of performance. The controller provides high noise immunity while maintaining fast touch response.
• The touch input is internally protected against damage caused by electrostatic discharge (ESD) for air discharge levels up to ± 15KV as specified by IEC 1000-4-2.

3.4 Force-On/Force-Off Control Inputs

• 24VAC or 24VDC. Force-On/Force-Off Control Inputs.

• Force-on and Force-off control inputs are provided to give positive turn-on and turn-off control of both relay circuits. Activation of the Force-on control input overrides the touch-sense control input and places both relays in the "on" state whereby C-to-NO contacts are closed and C-to-NC contacts are open. Activation of the Force-off control input overrides the touch-sense control input and places both relays in the "off" state with C-to-NC contacts closed and C-to-NO contacts open. The controller relays remain in the forced state as long as the appropriate Force input is applied; the controller resumes normal operation upon removal of the Force input signal, returning both relays to the state(s) present prior to Force-on or Force-off activation. If the touch control and either Force-input are activated simultaneously, the Force input is given priority and the controller places both relays in the Force state. A two second delay is required between Force-on or Force-off operation.

• High voltage force-on can be utilized with in-phase power source. Consult factory for assistance.

3.5 Next-Cycle Delay

• When the touch-sense control input is first activated, the controller advances the relays to the next sequence state. The input is then internally disabled for a period of one second. During this delay, subsequent activation of the touch-sense input will have no effect. After the delay period expires, controller operation resumes to normal. This built-in delay is designed to discourage rapid re-activation of the controller and repeatedly changing from one state to the next.

3.6 Four Different Programmable Time-Out Delays

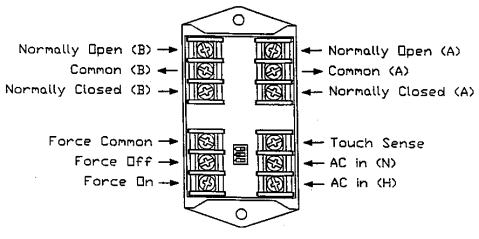
• The touch controller can be set for time-delayed turn-off. In this mode, the controller responds to the touch-sense control input as in normal operation, but will turn both relays (with selected delay time) to the default "off" state after the last touch control activation. The selected delay is enabled via the DIP switch settings.

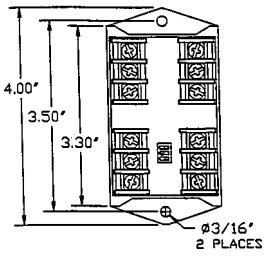
• **TouchBolt™ modules are not limited to lighting applications. Please call factory for further information.**

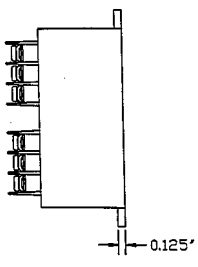
Approvals

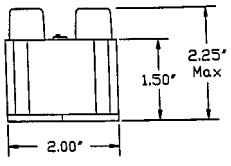
• The ELCML-1 and ELCML-2 are U.L. recognized components complying with U.L. safety standard UL244A for solid-state controls for appliances.

Sample:
ELCML-1 and ELCML-2









TouchBolt™ Switches ELCML-1 and ELCML-2

Wiring Diagram