

Linear Devices Corporation

Lectrotab Electromechanical Trim Tab Systems



Lectrotab Autaset II System

Literature #E052404

- **Product Description**
 - **Installation**
 - **Operation**
 - **Retrofitting**

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INTRODUCTION

Thanks for your interest in the Lectrotab, Autoset II integrated trim tab control and tab position indicator. The Autoset II is a software driven, microprocessor based control, featuring positive click control keys in a rainproof display. The Autoset II is compatible with all 4 or 8 second stroke time Lectrotab actuators and can replace the standard Lectrotab manual rocker switches in new or existing installations.

The Autoset II design is unique in that no position feedback device is needed in the actuator. This means fewer components and added reliability, and the same Lectrotab actuators can be used with either the Lectrotab manual switches or the electronic Autoset II control.

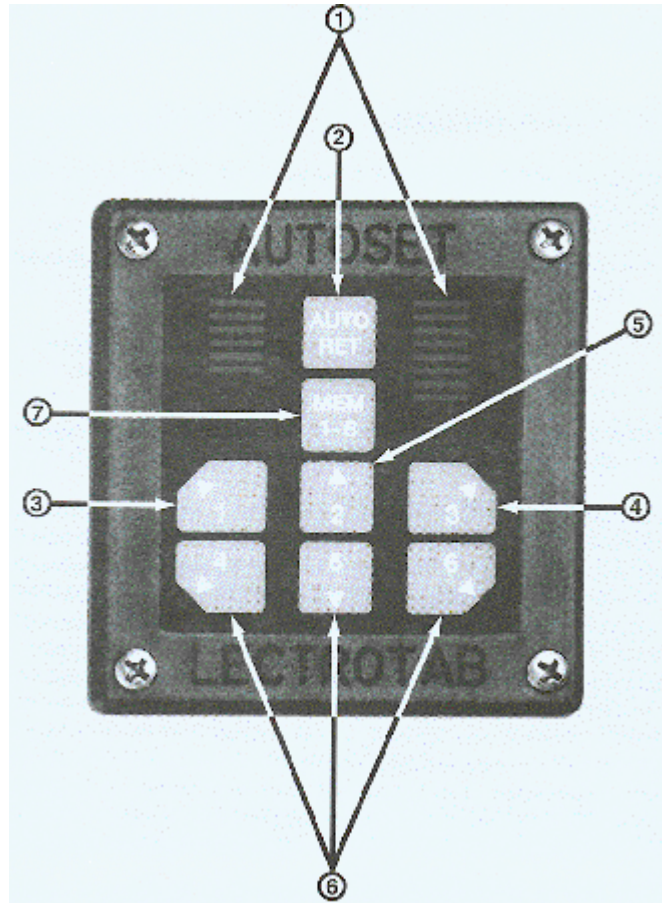
This manual covers the Autoset II which is the second version of the original Autoset which was introduced in September of 1998. The Autoset II is identical to the original Autoset in size and configuration and uses the same keypad helm control and interconnecting wiring. The difference is in the power/logic circuit board and software, accommodating two added features. This board is located in the white metal enclosure, model AS-2. The Autoset II board will directly replace the Autoset board; therefore, production of the original Autoset board has been discontinued. The price is the same.

The Autoset II provides the following two new features:

1. More power will be available to each tab actuator. To accomplish this, the power output transistors have been changed to sealed mechanical relays. The Autoset was restricted to one actuator per tab; the Autoset II will power a maximum of two actuators per tab.
2. The four terminals marked A, B, C and D are used on the Autoset II board to accommodate one or more sets of manual rocker switches which can be installed and used along with the one, or maximum of two, Autoset keypad controls. The rocker switch control assembly for the Autoset II will look just like the current Lectrotab manual rocker switch control but the circuitry will be different. See page 8 for details. **DO NOT USE THE WRONG SWITCHES. READ THIS MANUAL—BE CAREFUL.**

AUTOSET II DESCRIPTION AND OPERATION

The Autoset II control can be used with 12 or 24 Volts D.C. and is a rainproof, software driven, microprocessor based device, using one or two keypad type controls along with any number of optional manual switches. The Autoset II keypad controls operate as outlined below.



1. Two tab position indicators display left and right tab positions on two separate vertical bar graphs. When operating, one flashing LED at the top denotes the tab is fully retracted and 9 LED's lit, denotes that the tab is fully deployed. Tab position indicating LED's can be dimmed in four steps for nighttime operation by pressing and holding the MEM 1-6 key. Release the key at the desired intensity level. At system off, the Autoset will take a few seconds to power down. During this period, the LED intensity will be automatically returned to bright for operation the next day.

2. The upper center key, marked AUTO RET, when manually depressed momentarily, causes a full retraction of both tabs, plus a 2 second overrun to synchronize the tabs and indicators. This can be done at any time. Manually holding this key will sustain the retraction process.
3. For LEFT bow down, push Key # 1. The RIGHT tab will deploy and the right indicator will show tab position with a total of 9 LED's lit at the fully deployed position.

NOTE

Push the control keys until they "click" to activate their respective circuits.

4. For Right bow down, push key #3. The LEFT tab will deploy and the left indicator will show tab position.
5. For Full bow down, push Key #2. Both tabs will deploy and both indicators will show tab position.

NOTE

Pushing keys 1 and 3 simultaneously will not move both tabs; use key #2 to deploy both tabs simultaneously.

6. The three lower keys, 4, 5 and 6, are the bow up, or tab retract keys, but otherwise operate identically to keys 1, 2 and 3.
7. The key marked MEM 1-6 controls deployment or retraction of both tabs to preset positions stored in memory. While running your boat, adjust the tabs for any setting to which you might want to return at a later time, during this or a subsequent trip. With the tabs in this desired position, **SIMULTANEOUSLY**, and **MOMENTARILY**, push the MEM 1-6 key along with any one of the (6) keys marked 1 through 6. For example, if you choose to store a tab configuration in memory 1, push MEM 1-6 simultaneously with key 1, the position of each tab will be recorded in memory #1 and will remain recorded even after gage switch off or even battery removal, until another position is recorded over top of it. Commensurate with this simultaneous keystroke, the lowest LED on each indicator will flash until the 3 second "write to memory" process is completed. The Autoset will store up to six tab configurations for recall at any time. To recall any of the 6 stored tab positions, numbers 1 through 6, push the MEM 1-6 key **FOLLOWED** by pushing the key where you stored the tab position you now want. Make these memory recall keystrokes deliberately – do not rush the process.
8. The AUTO RET key, if pressed simultaneously with the #4 key, will change the Autoset software to operate with Lectrotab 4 second actuators models C and D. The left LED display will show (4) LED's lit to confirm this setting. Press AUTO RET simultaneously with the #6 key to accommodate 8 second actuators models A and B. The left LED display will show (8) LED's lit to confirm this setting. All Autoset II controls are shipped set for 8 second actuators. Be sure and change this setting if 4 second actuators are used.

9. When the Autoset system activation power switch is turned off, the Autoset II will fully retract the tabs, return the LED intensity to bright, if it has been dimmed, and automatically store all newly programmed tab positions in permanent memory. Autoset II shutdown will automatically occur 5 seconds after the power switch is turned off.

INSTALLATION

TOOLS: Ordinary hand tools, mechanical and electrical, marine sealant, drill bits and a saber saw.

CONTROL PANEL: The Autoset II control keypad model ACK-1, is the very same control as used on the original Autoset and the control bezel is embossed "AUTOSSET". The control has the same overall height and width as the manual rocker switch control, 3 1/4" high x 3 1/8" wide, but the cutout is larger, measuring 2 1/2" high by 2 5/16" wide. Use the Autoset control for a template. The control is rainproof from the top but open underneath so must be installed in a panel or console where the underneath is protected. Use a small amount of sealer around the bezel to seal it to the panel. The ACK-1 control panel is shipped with an attached 36" interconnect cable which connects to the power logic module. This cable may be lengthened.

POWER LOGIC MODULE: The power logic module measures 6" x 5 1/8" x 2 1/4" high, and may be installed on a horizontal or a vertical surface, but only in an area suitable for the installation of non-water resistant electronic components. Wires enter on the left and right ends of the module. For a complete wiring overview, see the diagrams on page 8.

Wiring of the Autoset II system begins with the interconnect cable which leads forward from the actuator interconnect terminal strip. See the Lectrotab installation manual and follow it through the top of page 7. Instead of connecting the interconnect cable to the manual switch as shown, connect its 4 wires, red, black, green, and white, to the upper right hand side of the power logic module as shown on page 8 as follows:

Red wire to port actuator white
Black wire to port actuator black

White wire to starboard actuator white
Green wire to starboard actuator black

Connect the Autoset control cable, which may be lengthened if needed, to 1, 2, 3 and 4 on the power logic module at the lower left hand side. Red to 1, black to 2, white to 3, and green to 4. One or two keypad controls may be connected in parallel to serve one or two locations. Do not connect more than two keypad controls because the LED's on more than two keypad controls will overload the Autoset II LED power supply. See page 8.

Using #14 AWG wire, connect either 12 or 24 VDC power, to the point marked "- power +", observe polarity. Wire directly to the boat's D.C. electrical distribution panel through a 15 AMP fuse or circuit breaker. Reverse polarity will do no harm but the system will not come on. This is the trim tab system main power supply and is intended to be left on whenever the boat's main switches are on and the D.C. electrical distribution panel is energized.

To the point marked “pwr”, connect an AWG #18 wire from a switch, which will be the Autoset “system activation power” switch, and which is convenient to turn off after docking the boat. When this switch is turned on, the system will turn on, make sure the tabs and indicators are synchronized in the tabs up position, and be ready for service. When this switch is turned off, the Autoset system will again, make sure the tabs and indicators are synchronized in the tabs up position, and will turn off all LED’s and enter the standby mode which consumes power at only 5 MA.

-IMPORTANT-

MAIN POWER INPUT MUST BE ON AT ALL TIMES EXCEPT WHEN THE BOAT IS POWERED DOWN FOR STORAGE.

The two optional inputs marked “add” and “del” have multiple uses. If system voltage, 12 or 24 volts, is added to the “add” point, the Autoset will retract both tabs. This tab retraction is the same as pressing the AUTO RET key. Deleting this voltage causes no action but reapplying the voltage again causes tab retraction. The “del” input is opposite, wherein the application of voltage causes no action but deleting the applied voltage causes tab retraction. These two inputs can be used to retract both tabs, at any time, from switches sensing neutral, reverse, throttle position or boat speed, or manually from a remote pushbutton or switch.

INSTALLING MANUAL SWITCHES

The Autoset II power/logic circuit board and software will accommodate any type of manual switch to activate the tabs, such as a pair of rocker switches or toggle switches, or four push buttons or a joystick type control. There must be an electrically separate switch for each tab and the switch must be, at minimum, a single pole, double throw, momentary, center off, configuration with a minimum 50 MA current rating.

The standard Lectrotab flat rocker switch assembly or bat handle rocker switch assembly is available, specially configured electrically, to be used with the Autoset II. STANDARD LECTROTAB MANUAL ROCKER SWITCH CONTROLS, MODELS SAF AND SAB, WILL NOT WORK WITH THE AUTOSSET II.

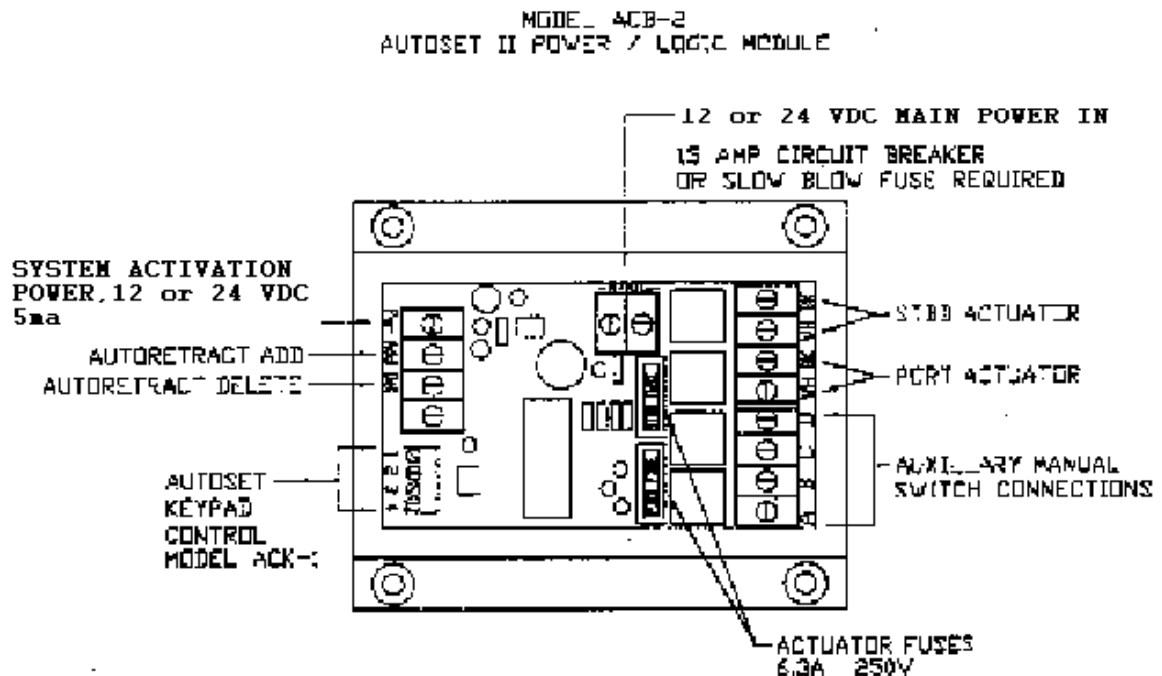
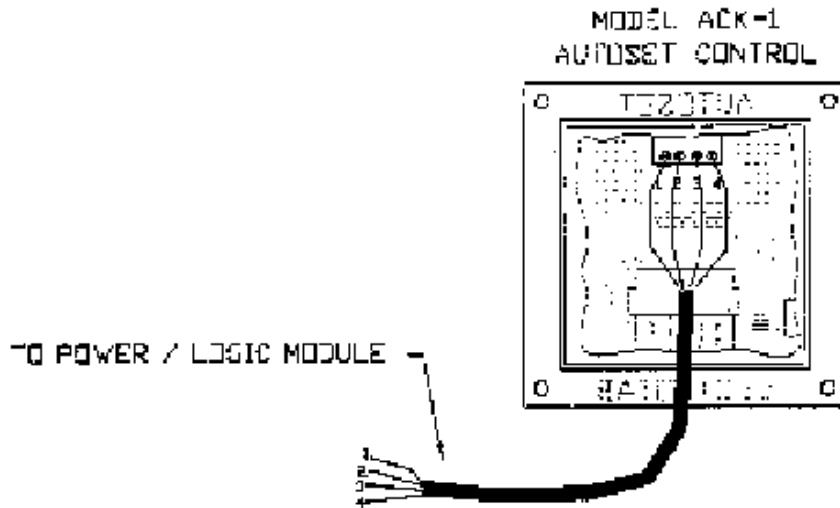
Autoset II manual rocker switch type controls:

<u>MODEL</u>	<u>DESCRIPTION</u>
SAF-U	Flat, dual rocker, switch assembly (2 switches in a panel)
SAB-U	Bat handle, dual rocker, switch assembly (2 switches in a panel)
SF-U	Single flat rocker switch (switch only)
SB-U	Single bat handle rocker switch (switch only)

After completing the installation of the entire Autoset II system and verifying that the keypad control and the tabs operate properly, proceed as follows:

Flat or bat handle control assemblies, model SAF-U or SAB-U, are installed wherever desired per the instructions in the Lectrotab installation manual page 4. Any number of these auxiliary

controls may be connected in parallel. Connect the 4 conductor cable from the control to the AutoSet II power/logic module circuit board, at the lower right side, per the drawing on page 9 of this manual. Single flat or bat handle switches, models SF-U or SB-U, are installed in pairs wherever desired. Any number of pairs may be connected in parallel. See page 9 of this manual. If switches other than those supplied by Lectrotab are used, contact Lectrotab Engineering with switch configuration data for a specific wiring diagram.



MODELS SAF-U, SAB-U
 AUTOSET II MANUAL SWITCH ASSEMBLY

