



Model SETR-50 and SETR-51 Trim Tab Control



Pictured above is the SETR-50 with black switches on a gray background. The SETR-51 is identical except for the color, wherein it has black switches on a black background. The actual size is about 4" wide, 3 ½" high and ½" deep.

Introduction

Thanks for your interest in the Lectrotab model SETR-50/51, Sealed Electronic Trim and Retract system, with tab position indication. The SETR-50/51 "Oval" is either a stand alone or multi-station, software driven, microprocessor based control, featuring positive click switches with integrated LED position indicators, in a single waterproof unit. The SETR-50/51 "Oval" is unique in that no position feedback device is needed in the actuator. Also unique is the single component design of this control; no other interface box or components are required for operation, and all connections are made directly to the back of the control.

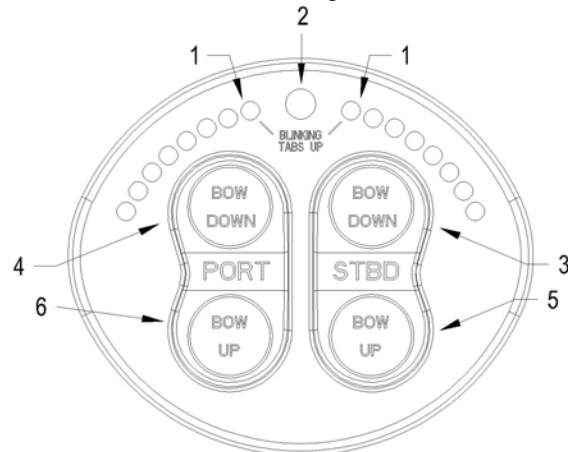
SETR-50/51, "Oval" Features

- Multi station capable, supporting up to 6 Ovals in the same trim tab system wherein each Oval is a full function control with no switchover requirements.
- High current outputs; 20 amps for both Port & Starboard actuators.
- Mirror operation at all Ovals; simultaneous use at different stations is OK.
- Independent control of Starboard and Port actuators.
- Eight LED's, operating sequentially, indicate the position of each tab.
- Automatic dimming for night operation, with each Oval dimming independently.
- Salt water hose down proof and UV protected.
- Ergonomically designed keypad for "Heads Up" operation with tactile feed back switches.
- Any Oval can operate as the master control or as a remote; therefore, only one model is required. Expanding a single station system to multi-station is a simple add-on with no changes to the original control.

- Actuators, auxiliary switch and main power connect directly to only one Oval in a multi-station system.
- Remotes connect to the master via 22 gage, 2 conductor wire, unshielded and splicable.
- To power the position indicator LED's, local D.C. power, at about 10 milliamps, needs to be connected to each remote.
- The SETR-50/51 Oval may be used on 12 or 24 VDC systems.
- Indicators are programmable for use with 4 to 12 second stroke time actuators. Cannot be used with most popular hydraulic trim tab systems.

The “Oval” Description

The SETR-50/51 “Oval” control operates as described below:



- 1 Two tab position indicators display left and right tab positions on two separate sets of LEDs. One Blinking LED at the top indicates the tab on that side is fully retracted as indicated by “Blinking Tabs Up” printed on the face of the control.
- 2 Photocell senses light level to automatically dim the trim indicator LEDs as daylight fades.
- 3 For Starboard Bow Down trim control, push the top of the starboard switch until the click is felt. The port tab will deploy and the port indicator will show the tab position.
- 4 For Port Bow Down trim control, push the top of the port switch until the click is felt. The starboard tab will deploy and the starboard indicator will show the tab position. Pushing both Bow Down buttons simultaneously will deploy both tabs and the indicators will show both tab positions.
- 5 For Starboard Bow Up trim control, push the bottom of the starboard switch until the click is felt. The port tab will retract and the port indicator will show the tab position.
- 6 For Port Bow Up trim control, push the bottom of the port switch until the click is felt. The starboard tab will retract and the starboard indicator will show the tab position.

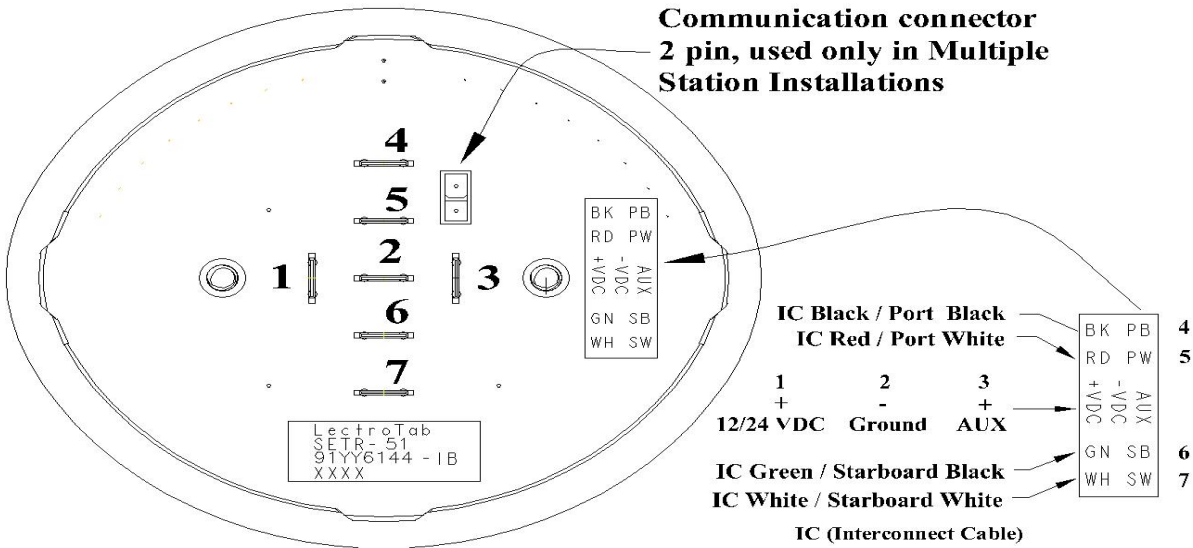
Pushing both buttons simultaneously will retract or deploy both tabs. Also, the tabs may be simultaneously moved in opposite directions if need be. The right indicator will move with the right tab; the left indicator moves with the left tab. However, the left switch moves the right tab and the right switch moves the left tab. See page 5 for different setups.

“Oval” Installation

Tools: Ordinary hand tools, mechanical and electrical, silicone sealer (don not use 3M 5200; use only silicone sealer), a drill motor, and a hole saw between 1-3/4” and 2-1/2”, but 2-1/16” works best. The “Oval” is designed for wet or dry locations. The Oval will need console space of 4” wide by 3-7/16” high. Allow for a minimum of 1” clearance depth behind the OVAL. When the center of location is determined, use a hole saw to make a 1 3/4” to 2 1/2” diameter hole in the console, being careful not to cut any wires behind the console. Use a small amount of silicone sealer around the edge of the Oval control, align to the desired orientation, and place the control in the mounting hole. Use the special bracket and self-locking 8-32 nuts to secure the control to the console using a 11/32” or 9mm socket. Torque lightly. If access to the back of the Oval is not handy after the Oval is in place, route the 7 wires which connect to the Oval through the hole and make the connections before securing the Oval in the hole. If the installation includes remote Oval's, in addition to the seven basic wires, the two conductor communications cable will need to be connected also. In a single station installation, the two conductor communication's cable is not used. The Oval may be installed in wet or dry locations.

Oval Wiring

Wiring the Oval control begins by connecting it to the standard four conductor Lectrotab interconnect cable, OR by connecting directly to the individual actuator wires, if the actuators have been supplied with long wires. With the Oval, no interface module is used. See the mechanical portion of the Lectrotab installation manual through the top of page 7. Instead of wiring to the manual switches as shown, connect directly to the back of the Oval using 1/4" female push-on connectors. Seven connections are made to the seven connection points on the Oval as shown below. One additional connection is the communications cable if multiple stations are used.



Point 1 (+ D.C. Main Power)

From the vessel's D.C. power panel, protected by a 20 amp fuse or circuit breaker, supply this point with 12 or 24 VDC + (positive) power using AWG 14 wire or larger. Confirm that the tab actuators match the input voltage. Actuator Model numbers starting with A or C are 12 VDC; model numbers starting with B or D are 24 VDC.

Point 2 (- D.C. Power)

Connect this point, using AWG 14 wire or larger, to the vessel's - (negative) ground.

Point 3 (Auxiliary or engine gauge or ignition switch. See page 6 for more options.)

While the main D.C. trim tab system power remains on, applying + power to this point will activate the Oval. Denergizing the point will deactivate the Oval, leaving a 6 MA standby current flow. Provide power to this point with a dedicated switch marked "Trim Tabs" or use the engine gauge switch. The reason for controlling the Oval trim tab system from point 3 is as follows: energizing point 3 will "wake up" the Oval control and initiate a pre-trip trim tab retraction, whether the tabs are already up or not, and set the tab position indicators to the retracted indication. This process calibrates, or synchronizes, the tabs with the indicators to maintain indicator accuracy. Denergizing point 3 will initiate the same process, so as to retract and recalibrate the tabs at trip's end. The Oval will then shut down and draw a standby current of 6 MA.

IMPORTANT

Point 3 must be powered for the Oval to operate. Using a jumper will bypass the retract feature and the programming features of the Oval.

Point 4 and 5 (Port Actuator)

Connect the port tab actuator black wire, or the Lectrotab interconnect cable black wire, to point 4. Connect the tab actuator white wire, or the Lectrotab interconnect cable red wire to point 5.

Point 6 and 7 (Starboard Actuator)

Connect the starboard tab actuator black wire, or the Lectrotab interconnect cable green wire, to point 6. Connect the actuator white wire, or the Lectrotab interconnect cable white wire, to point 7.

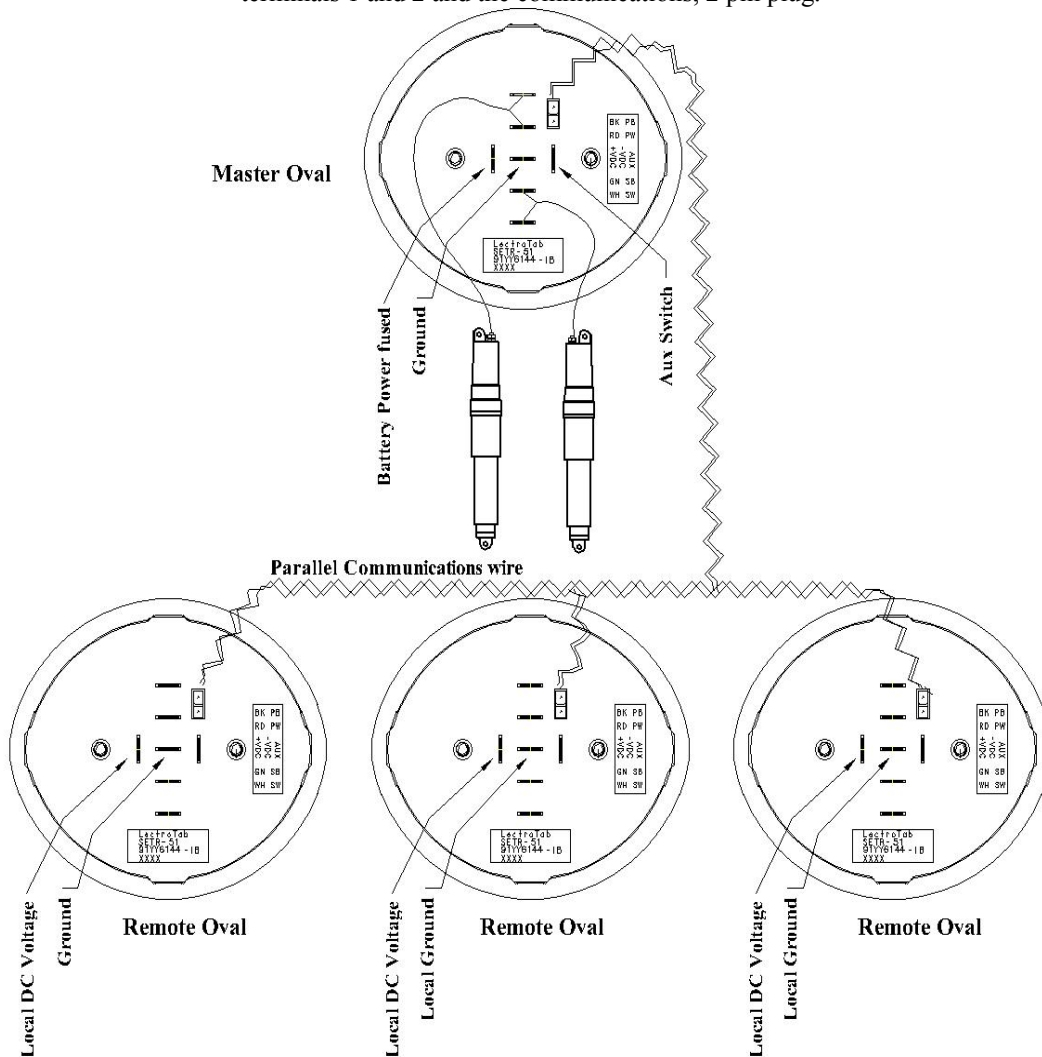
Remote Oval Wiring

After the initial “Oval” has been installed and tested, up to 5 more “Ovals” may be installed as remote stations. For each Oval, one Lectrotab communication wire assembly, part # SR, will be needed. This is an 18” two conductor wire, blue and brown,* with a special plug on one end which plugs into the Oval’s communication port on the back side of the control, to the right of point 5. Wire as noted below, wherein all Ovals in the system, up to a total of 6, including the master, are electrically connected in parallel. Also, on all remote Ovals, 12 or 24 VDC power needs to be connected to each one from any convenient source, to power the tab position indicator LED’s and the internal microprocessor. Operating current, with all at points 1 and 2, LED’s lit, is 10 milliamps. Standby current is about 6 milliamps.

*Early production wires were blue and orange. When mixing the two, treat brown and orange as the same. Always connect blue to blue.

WARNING

Do not make any connection to the # 3 AUX terminal or terminals number 4, 5, 6 or 7, on any remote unit. Only the master has these five terminals connected. All remotes use only terminals 1 and 2 and the communications, 2 pin plug.



Oval Operation

1. Turn on the power at the vessel’s main panel to energize the trim tab system. There will be no response by the Oval control.
2. Turn on whatever switch the boat builder or other installer has provided to energize the Oval control. Typically this will be a dedicated switch marked “Trim Tabs” or the engine gauge or ignition switch. This will “wake up” the Oval and initiate a full

tab retraction, whether the tabs are up or not, and will set the tab position indicators to the “tabs retracted” indication which is one blinking LED at the top of each 8 LED indicator. The tabs are now ready to use.

3. Refer to the “Oval Description” on page 2 for how to use the “Oval” to control the tabs.
4. When a given trip has ended, turn off the switch outlined in item 2 above. Turning the switch off will cause both tabs to fully retract and the indicators to be set at the fully retracted indication of one LED blinking. In this position, the retracted actuator ram is protected from fouling and the retracted tabs are ready for the fork lift.

Alternative Wiring and Operation

Per the industry standard, set by most U.S. trim tab manufacturers some years ago, the Lectrotab control switches are set up to be pushed directly according to what the helmsman needs the boat to do. If the bow is high, push the upper portion of both switches DOWN to make the bow go DOWN. If the bow is high on the left, push only the LEFT switch DOWN to make the LEFT bow go DOWN. Pressing the lower part of the rocker switch causes the bow to come up. This is the way the rocker switches, or buttons, on the “Oval” are marked. Refer to the illustration on page 1 or page 2.

The tab position indicators. It is important to know that to make the left bow go down, the right tab must go down. (Deploying the right tab at the stern causes the right stern to rise and the left bow to lower.) The “Oval” indicators are where the tabs are: left indicator, left tab; right indicator right tab. As a result, when the LEFT or “Port Bow Down” button is pressed, the RIGHT tab goes down and the RIGHT indicator depicts this movement.

But some like it different. If the wire pairs from each tab actuator are interchanged, the left button will actuate the left tab and the right button the right tab, but the indicators will still be opposite the buttons. If the two wires from each actuator are interchanged, the tabs will go down instead of up when the tabs are turned off, so don’t make that change with the “Oval”. But in any case, the position indicators always respond to the opposite buttons and that can’t be changed. In summary, we think it’s best to leave the “Oval” wired as presented in these instructions so that, from a safety standpoint, all Lectrotab boats operate the same, and most popular, way.

Calibration/Programming

Some Background: The “Oval” tab position indicator operates on a time basis. With our mechanical approach, as opposed to the hydraulic approach, the Lectrotab actuator inherently moves the tab at a predictable rate of time so that a simple timer can effectively keep track of tab position. The simplicity of this allows the Lectrotab indicators to operate without a feedback transducer of any sort; no additional device is needed inside, or strapped on the outside, of the actuator. Such devices, needed with all hydraulic type trim tabs, have been notoriously short lived and unreliable. But there will never be a Lectrotab position indicator feedback transducer failure, because there ISN’T one.

Lectrotab now offers actuators with 4, 6, and 8 second stroke times; so the “Oval” is programmable accordingly. For example, when using a 4 second stroke time actuator, the 8 LED’s which make up each indicator must light up at the rate of 2 per second so that all 8 are lit to show the tab fully down in the 4 seconds it takes the 4 second actuator to lower the tab. All “Ovals” are shipped programmed for 8 seconds. To change the timing for other stroke times, proceed as follows:

1. Make sure the trim tab main power is ON (see page 3, point 1).
2. Make sure the trim tab switch is OFF. (see page 3, point 3).
3. Press “Port Bow Down” and hold for at least 2 seconds, and then turn the trim tab switch on (see page 3, item3). Some indicator LED’s will begin to flash. Release the button.
4. The number of LED’s flashing indicates the timing. For example, if 8 LED’s are flashing, the “Oval” is set for 8 seconds for use with 8 second stroke time actuators, etc.
5. To decrease the timing, press “Starboard Bow Up” and one LED will extinguish each time the LED’s blink. To increase the stroke timing, press “Starboard Bow Down” and one additional LED will come on each time the LED’s blink. Make this adjustment until the number of LED’s lit is equal to the trim tab actuator’s stroke time in seconds. Choices are from 4 to 12 seconds in 1 second increments.
6. To exit, press and hold the “Port Bow Up” button for 2 seconds. This will save the setting in permanent memory, and will not be lost if the main power is turned off. Also the “Oval” will execute full retraction of the tabs and the indicators will confirm tabs up with one LED blinking.
7. Turn the tab switch off and confirm a full tab retraction sequence, after which the “Oval” will shut down.

NOTE

After entering the calibration mode, and after the last button push, if the exit procedure, item 6 above, is not done within 90 seconds, the calibration procedure will cease and reset to the last saved setting.

Alternative Aux Switch Options

As noted on page 3, point 3, dennergizing the “Oval’s” point 3 will initiate a full retraction of the tabs and indicators. If point 3 remains dennergized, the “Oval” will remain shut down. Alternatively, if point 3 is dennergized and immediately reenergized, the “Oval” will initiate a full tab retraction but will remain on. This feature will accommodate connecting point 3 through a gearshift switch which is open circuit at neutral. In this case, after the engine is started and put in gear, point 3 would be energized, readying the “Oval” for use. Then, at the end of the trip, when the gearshift is returned to neutral, or even passed through neutral to reverse, the “Oval” would initiate full tab retraction and shut down. This scheme would provide tab retraction upon reaching the docking area instead of waiting for engine shutdown. With some thought, other interesting options for controlling point 3 may come to mind.

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