



# PT230 PONTOON THRUSTER

(PATENT PENDING)

## INSTALLATION/OPERATION MANUAL

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# INTRODUCTION

Thank you for your purchase of a Sideshift thruster system.

Sideshift thrusters are designed for easy installation by anyone with basic mechanical and electrical skills.

This manual explains everything you need to know about installing your Sideshift thruster.

**We also provide unlimited telephone support at [1.877.325.4787](tel:1.877.325.4787).**

**Also see our website for helpful installation videos at [sideshift.com/choose-sideshift/videos/videos/](https://sideshift.com/choose-sideshift/videos/videos/).**

This manual explains the mounting and operation of the PT230 Pontoon Thruster system. We recommend that you familiarize yourself with the complete manual before starting your installation.



## Safety warnings




- WARNING:** To prevent overheating when operating the Sideshift thruster, run for a maximum of 20-30 seconds at a time, then allow to cool for at least 10 seconds before further operation.
- WARNING:** Ensure thruster main battery switch is turned off when conducting maintenance and repair of the thruster.
- WARNING:** Use extreme caution when swimmers are in the area of the thruster. Turn off ignition and avoid contact with thruster props when boat is stationary.
- WARNING:** When operating out-of-water do not run thruster for longer than 5 seconds to prevent overheating.
- WARNING:** If conducting an in-water installation, use a cordless drill only, as a corded drill can present an electrocution hazard.

## Required Tools

- Heat gun
- $\frac{3}{8}$ " drive cordless driver
- $\frac{3}{8}$ " hex socket
- Wire stripper
- Wire crimper
- SAE wrench set  $\frac{3}{8}$ " to  $\frac{3}{4}$ "
- Pliers
- Drill bits up to  $\frac{1}{2}$ "
- Caulking gun
- 1  $\frac{1}{4}$ " and 2  $\frac{1}{2}$ " hole saw






## Parts List

Item	Photo	Purpose
Single Joystick		Raise, lower and control thruster.
Wireless Control Module		Wireless receiver and control interface between joystick and motor controller.
Motor Control Module		Relays commands from joystick, delivering high current from battery to motor.



Anti-seize		Prevents screw and bolt threads from seizing, facilitating easier assembly and disassembly.
Heat shrink tubes (sufficient for all cables attached to motor controller. Cut to size)		Provides waterproofing for cable at battery terminals.
Terminal protectors		Protects terminals from moisture and prevents shorts.
Compression terminals		Connects cables to motor controller. Select size according to wire gauge used.



Wireless Remote		Controls thruster remotely
Battery Switch		On/Off switch for thruster battery
Fuse/Digital Voltage Indicator		Fuse protection and voltage monitor



# INSTALLATION INSTRUCTIONS

## – PT230 PONTOON THRUSTER

Sideshift thrusters can be installed with the boat in water or on land, although land-based installation is easier.

To get an overview of the installation process you can view the pontoon thruster installation video on-line at [sideshift.com/choose-sideshift/videos/videos/](https://sideshift.com/choose-sideshift/videos/videos/).

### PT230 Thruster Placement

The thruster is designed to be positioned on the underside bow of any dual or tri-pontoon boat. For tri-pontoon boats position the thruster between two pontoons on the helm side of the boat which will facilitate wire-runs. For dual pontoons position the unit centrally between pontoons.

The thruster cables pass through the deck and into storage typically found under the helm or under a hinged bench above deck.



## Step-By-Step Instructions:

### STEP 1: DETERMINE THE DISTANCE BETWEEN MOUNTING CROSS MEMBERS

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The unit has pre-drilled mounting slots to accommodate either 16" or 24" centers. In some installations it will be necessary to drill the thruster mounting plate as seen below, to fit centers other than 16" or 24" using a 1/4" drill bit.



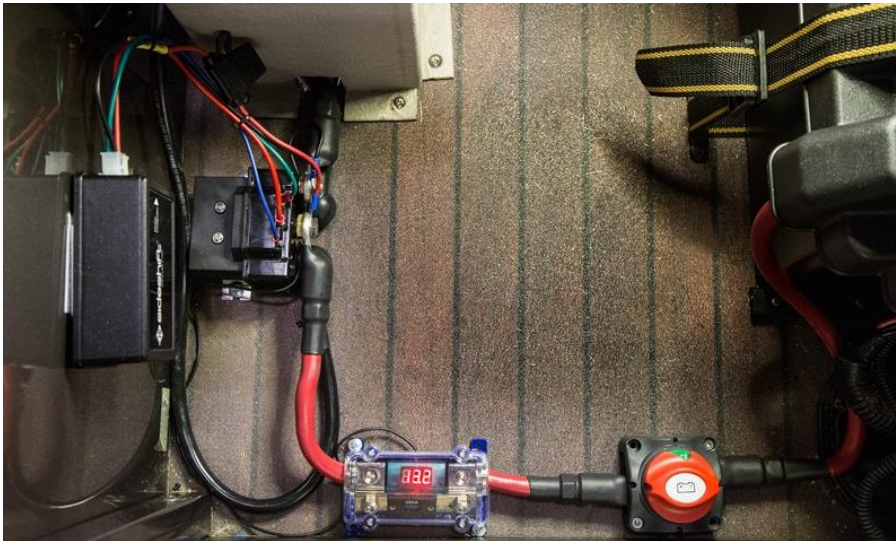


- NOTE:** You will require a helper for Step 2
- NOTE:** The thruster should be positioned directly under the bow rail for best performance. The thruster can be mounted further back on the boat where it is less visible, but performance will be affected.

## STEP 2: POSITION THRUSTER AND ATTACH TO UNDERSIDE OF DECK

1. Using a helper, position the thruster in place, and using the supplied self—drilling/self-tapping 1 ¼" stainless hex-head mounting screws, apply a small amount of supplied Loctite to the threads and drive the screws into the aluminum cross-members at the appropriate location. Pilot holes are not required. Two screws are required at the front and two at the back of the unit.

## STEP 3: FEED THRUSTER CABLES THROUGH DECK AND CONNECT TO MOTOR CONTROL MODULE, FUSE AND BATTERY SWITCH(REFER TO SCHEMATIC ON PG 10)



1. Determine a location for the motor control module, fuse, battery and battery switch in a dry storage area close to the bow or under the helm.
2. Using a 1 ¼" hole saw, drill holes at appropriate locations through the deck for routing of the thruster cables.



3. Route the motor thruster cables for connection **to a dedicated 12v starter-type battery.**
4. Route a charge line from your house battery to the thruster battery *or* connect a 12v marine battery charger to the thruster battery.

**WARNING:** Verify that hole placement will not interfere with or damage anything when drilling through the deck and storage location, and that there is sufficient space so that cables can be accessed after passing through the proposed hole location.

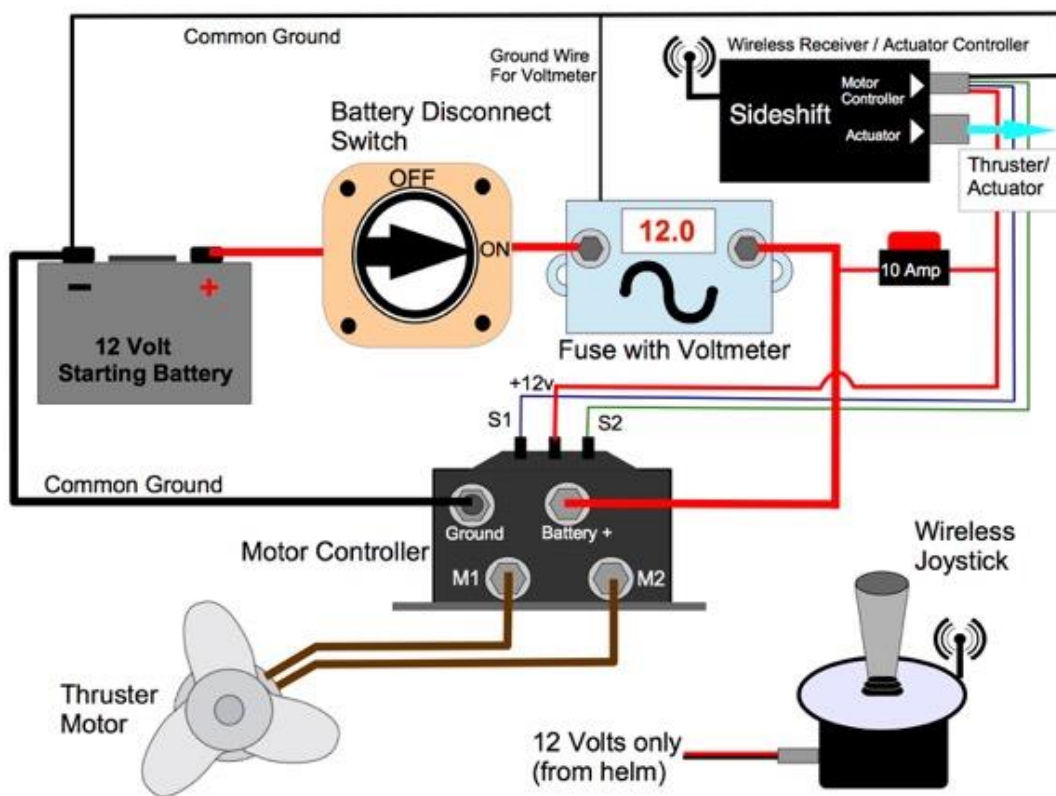
**WARNING:** Ensure the motor control module is located in a dry storage area



# INSTALLATION INSTRUCTIONS

## – ELECTRICAL

### Schematic – PT230



Due to the high current draw, Sideshift thrusters must be supplied with a dedicated starter-type battery for each thruster.

**WARNING:** High currents can result in reduced voltage supply to the thruster if improper cable, connectors and/or assembly procedures are used. This can result in poor performance or damage to the thruster motor.

**WARNING:** Ensure the dedicated thruster battery is fully charged and load tested. Low battery voltage can result in erratic actuator performance (actuator arm will not extend or retract properly) and poor thruster performance or damage to the thruster motor.

Correct cabling and connection practices are essential to maintaining correct operating voltage. Batteries must be fully charged before use.

In most cases, the cable run from battery to controller is less than 10 feet, in which case 1/0 AWG cable is appropriate. For longer runs, use 2/0 AWG cable. Heavier cable can be used although it provides no performance advantage. If in doubt, increase the cable gauge.

Batteries are usually subject to moisture and damp/corrosive conditions, therefore it is important that the connection terminals are properly sealed to the cables using heat shrink tubing (supplied).

Compression terminal sizes are labelled to match the following applications:

1&2 AWG Thruster cables

1/0 AWG Battery cable (motor controller end), SS230/PT230

2/0 AWG Battery cable (motor controller end), all other models

Ideally, the positive cables should be red and the negative cables black.



**NOTE:** If in doubt of which cable gauge to use, call Sideshift for technical advice.

## Instructions:

### STEP 1: CUT BATTERY CABLE TO LENGTH

1. Cut two lengths of marine battery cable of suitable length to reach from batteries to controller. Note that one cable may need to be longer than the other to accommodate the location of the battery terminals.

### STEP 2: CONNECT BATTERY TO MOTOR CONTROLLER

1. Fit terminal protectors over each battery lead at the controller end.
2. Choose a compression terminal to match the cable gauge (typically 1/0 AWG for SS230 thrusters and 2/0 for all other models).
3. Attach positive cable to the "BATTERY POS" post on the motor controller. Slip battery protector over terminal.
4. Repeat steps for "BATTERY NEG" cable.

### STEP 3: CONNECT BATTERY

1. Fit battery protectors and then shrink tube over each battery lead at the battery end.
2. Install compression terminals. See page [13](#) for instructions.
3. Attach positive cable (connected to "BATTERY POS" post on motor controller) to the positive post of the battery. Slip battery protector over terminal.
4. Repeat steps for "BATTERY NEG" cable.

### STEP 4: CONNECT THRUSTER TO MOTOR CONTROLLER

**NOTE:** Motor power cable polarity is not identified. **If thrusters operate in opposite direction from joystick, reverse cable connections on motor controller M1/M2.**

1. If thruster power cables are too long, cut them to length. Be sure that they are neatly routed, and comfortably reach the motor controller terminals. Leave some slack to make installation easier.



# How To Install Compression Terminals

**STEP 1:** STRIP 1" (2.5 CM) OF INSULATION FROM EACH END OF CABLES

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**NOTE:** Take care when stripping insulation to avoid damaging conductor. If some strands are removed the compression terminal will not make a good connection possibly resulting in performance reduction, a fire hazard or the cable pulling out of the compression terminal.

**STEP 2:** CHOOSE A COMPRESSION TERMINAL TO MATCH THE CABLE GAUGE

**STEP 3:** LOOSEN COMPRESSION TERMINAL NUT

**STEP 4:** PASS EXPOSED CONDUCTOR THROUGH NUT

**STEP 5:** TIGHTEN NUT WITH WRENCH

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You will feel the resistance increase a bit as you tighten the nut, then become stiff, at which point the nut is sufficiently tight. Give the terminal a tug to make sure it is solidly attached to the cable.

**STEP 6:** INSTALL HEAT SHRINK TUBE

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1. Slide shrink tube up the cable so that it covers the shaft of the terminal and the insulation of the cable.
  2. Apply even heat to the shrink tube until it makes a solid seal around the cable and terminal.
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## Installing Joystick on Console



1. Locate a position on the console of the boat suitable for the joystick. Check under the selected position on the console to ensure a minimum area of at least 4" diameter and a minimum three inches obstruction-free below the area of the joystick equipment.
2. Peel the backing and place the supplied template in the chosen location.
3. Using a 3/16" bit, drill a hole at the center of the template, marked by the cross-hairs.
4. Using a 2.5" hole saw and the pilot hole drilled in Step 3 above, drill a hole at the center of the template.
5. Remove the template.
6. Connect the red and black leads from the joystick power cable to a direct 12v source under the helm.

**Note:** Do not connect the joystick cable through an accessory or other type of switch.



7. Plug the power cable into the back of the joystick
8. Run a thin bead of marine sealant in the groove around the underside perimeter of the joystick, insert into the 2 ½" cutout and press in place. Use a sharp knife or razor to trim any excess sealant.

## CONNECTING WIRELESS JOYSTICK AND ACTUATOR CONTROLS

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**Refer to PT230 schematic on page 10 for complete system layout**

1. Position the wireless control module in a dry location near the motor control box.
2. Connect the red and black leads from the 4 pin motor control cable to "battery neg" and "battery pos" on the battery.
3. Connect "battery neg" and "battery pos" on the battery to "battery neg" and "battery pos" on the motor control module.
4. Connect the blue and green leads from the 4 pin motor control cable to "switch 1" and "switch 2" on the motor control module.
5. Plug the motor control cable into the black wireless control module.
6. Plug the 6 pin actuator cable into the black wireless control module.





**NOTE:** The joystick and wireless key fob are preprogrammed for operation. No pairing or programming is required.

## OPERATING THE THRUSTER

**WARNING:** The thruster is equipped with an overload protection circuit. Should the thruster encounter an obstruction when being retracted or deployed, the unit will shut down and a continuous alarm will sound. You must turn power off and then power back on to the joystick and to the main thruster battery switch, which will reset the unit. Clear any obstruction under the boat and proceed normally.

**WARNING:** Deploy and operate the thruster only when the boat is at slow speed or stopped. Never deploy the thruster when the boat is at speed as this may enable the overload protection circuit(see above warning) or damage the unit.

**WARNING:** Ensure the area under the boat is clear when operating the thruster and that there are no swimmers in the area.

1. Turn power on to the joystick by holding the power button for 1 second. A beep will sound and the blue joystick light will activate.
2. To lower the thruster, press and release the down button on the joystick console. A fast beep will sound during deployment, and a slow beep will sound once the thruster is in the fully down position and ready for use.
3. Use the thruster in short bursts as required. Do not run for more than 20-30 seconds at a time.
4. To retract the thruster push the up button on the joystick console. A fast beep will sound. When the unit is fully retracted the joystick will automatically power off.
5. The joystick will automatically power-off after 5 minutes of non-use.



**WARNING** Deploy or retract the thruster only when the boat is at slow speed or completely stopped

## OPERATING THE WIRELESS REMOTE

1. For operation of the wireless key fob the joystick must be turned on and the thruster in the fully down position.
2. Push the top left or right buttons as required to operate the bow thruster.
3. Push the bottom left or right buttons to operate the stern thruster(if applicable).
4. The wireless key fob will automatically power-off after 5 seconds to preserve battery life.
5. A flashing green light indicates low battery. No green light indicates a dead battery.
6. To replace the battery remove the 4 screws, open the case carefully, and insert a new CR2032 coin cell battery.

## OPERATION AND FAULT MODES

Operation	Action	Features
<b>Power on thruster</b>	Press and hold joystick power button for 1 second	<ul style="list-style-type: none"> <li>• Short beep and solid blue light to confirm power</li> <li>• Auto power-off after 5 min of non-use</li> </ul>
<b>Lower thruster</b>	Push and release actuator down button on joystick	<ul style="list-style-type: none"> <li>• Fast beep during deployment</li> <li>• Slow beep when fully extended</li> </ul>
<b>Operate thruster</b>	Push joystick left or right as required	
<b>Retract thruster</b>	Push and release actuator up button on joystick	<ul style="list-style-type: none"> <li>• Fast beep when thruster retracts</li> <li>• System will power-off automatically once thruster is fully retracted</li> </ul>



Failure mode	Alarm	Action
<b>Thruster arm obstruction</b>	Solid beep Thruster will power-off	<ul style="list-style-type: none"> <li>• Clear obstruction or slow down when deploying or retracting thruster</li> <li>• Power off and on thruster battery switch</li> <li>• Power off and back on to joystick</li> <li>• Operate as normal</li> </ul>
<b>Thruster arm not fully extending or thruster motor not operating</b>	Flashing blue light on joystick indicating low thruster battery voltage	<ul style="list-style-type: none"> <li>• Check thruster battery voltage</li> <li>• Load test battery</li> <li>• Check charging system</li> <li>• Ensure fully charged battery</li> </ul>

## KEY FOB OPERATION

Mode	Action	Features
<b>Power on</b>	<ul style="list-style-type: none"> <li>• Thruster must be in extended position before using key fob</li> <li>• Press left or right arrows to operate thruster as required</li> </ul>	<ul style="list-style-type: none"> <li>• Solid green light when power on</li> <li>• Auto power-off after 5 seconds</li> <li>• Flashing green – Low Battery</li> <li>• No light – Dead battery</li> </ul> <p><b>Replace with CR2032 Coin battery</b></p>



# MAINTENANCE

Sideshift thrusters are designed for long life, provided proper maintenance procedures are followed.

**WARNING:** When working near or on the Sideshift thruster, always turn thruster battery switch to "off" position.

## Motor Unit

The motor unit is sealed and requires no maintenance.

## Battery

Ensure batteries are always fully charged. **Refer to the digital voltage indicator found on the fuse holder.** Unlike other battery technologies such as NiCad, batteries should be lightly cycled. Avoid discharging beyond 75% capacity and even less if possible. To verify charge, measure the terminal voltage of the battery with **no load**, and refer to the chart below to determine the health of your battery:

Voltage	Specific Gravity	Approximate Charge*
>14.4		Over-charging**
>13.38		Charging
12.62	1.265	100%
12.54	1.251	90%
12.45	1.236	80%
12.4	1.225	75% ***
12.27	1.206	60%
12.18	1.19	50%
11.97	1.155	25%
11.76	1.12	0%

**Table 1: Terminal voltage vs. battery capacity**



- Note \* It can take 2 hours after charging for the terminal voltage to properly reflect the charge level.
- Note \*\* Over-charging can damage the battery and cause hydrogen gas to form which is an explosion hazard and can lead to serious injury and fire.
- Note \*\*\* Avoid discharging beyond 75% to avoid premature battery failure.



# WARRANTY

## 2 Year Warranty

Register your warranty at <https://sideshift.com/register-warranty/>

All Sideshift Inc. products are warranted to be free from defects due to faulty workmanship or defective materials for a period of two years. Products failing within the warranty period should be returned to Sideshift assembled and complete with a copy of the original invoice.

Return requests must be made directly to Sideshift. The request should include an itemized list of material, stating the reason for the requested return. Upon approval Sideshift will assign a Return Merchandise Authorization Number which must be placed on the return shipping container. Delivery of returned merchandise will be refused and credit will not be issued without written authorization and shipping instructions from Sideshift.

Sideshift Inc. will not be responsible for accidental damage or expense caused by the following conditions:

- Damage due to improper installation
- Improper wire size or low voltage conditions
- Burn-out due to overloading motor or related damage
- Tampering with or altering the motor before, during or after installation
- Damage due to collision of any kind
- Damage due to entanglement of foreign objects such as fishing line and netting material
- Warranty does not cover paint damage, dents, nicks and normal wear and tear of the product following delivery and installation.



# SPECIFICATIONS

## PT230 Pontoon Thruster

Parameter	PT230
Power (HP)	2.5
Voltage (VDC)	12
Start Current (A)	300
Housing Length (in)	34.0
Thruster Arm Length (in)	35.0
Housing Width (in)	12.0
Propeller (in)	8.0
Recommended boat size (ft.)	<35.0
Actuator deployment/retraction time (sec.)	6.0

## Wireless Receiver

Parameter	Value
Supply voltage	12VDC

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