Installation guide
**DE uation of Conformity**

Sleipner Motor AS  
P.O. Box 519, Arne Svendsensgt. 6-8  
N-1612 Fredrikstad, Norway  

Declare that this product with accompanying standard control systems complies with the essential health and safety requirements according to:  

DIRECTIVE 2013/53/EU  
DIRECTIVE 2014/30/EU  
DIRECTIVE 2014/35/EU

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### Technical specifications

**Motor:** Custom made reversible DC-motor, 12V  
**Motor output:** SX35/140-12V: 1,8kW  
**Thrust:** 35kg at 10,5V - 40kg at 12V  
**Ignition protection:** Thruster assembly and controller unit conforms to ISO 8846 and ABYC c1500 when installed correctly.  
(Certification pending)  
**Propeller:** 5 blade skew "Q"-propeller, fibreglass reinforced composite.  
**Batteries:** Minimum recommended battery capacity (cold crank capacity by DIN standard)  
See table.  
**Max. use:** S2 = 6 min. All electromotors are protected against overheating.  
**Safety:** Electronic time-lapse device protects against sudden change of drive direction. Electric thermal cut-off switch in electromotor protects against over heating (auto reset when electro motor cools down).  
If original Sideway panel is used, the panel shuts off automatically 5 minutes after last use.  
Integrated microprocessor monitors solenoids, reducing wear and risk of solenoid lock-in. Auto-stop of thruster in case of accidental solenoid lock-in or if run signal is continuous for more than 3 minutes.
Prior to installation, it is important that the installer reads this guide to ensure necessary acquaintance with this product.

- The external sternthruster assembly must be handled carefully. Do not lift it by the cable connections.
- Beware to keep installation within advised measurements. The entire surface is hardcoated seawater resistant aluminum.
- Careful not to damage/penetrate the coat.
- We advice to paint the gearhouse and propellers with antifouling. Epoxy primer prior to antifouling is recommended for extended protection. PS! Do not paint sealings or propeller shaft.
- Do not finish the inside of the tunnel with a layer of gelcoat / topcoat or similar. It is only room for a thin layer of primer and two layers of anti-fouling between the tunnel and the props.
- With the boat on land, only run the thruster for a fraction of a second, as without resistance it will accelerate very fast to a damaging rpm. Also, while the thruster is in air, make sure that the propellers have come to a complete stop before performing a direction change of the thruster, as it does cause damage to the thruster.
- This manual is intended to support educated / experienced staff and is therefore not sufficient in all details for the correct installation.
- The external sternthruster assembly and controller unit has been tested to be fully ignition protected so that it can be installed in an area with the possibility of explosive gases in accordance to ISO 8846 and ABYC c1500. (Certification pending)
- Do not install the thruster in a position where you need to cut a stiffener/stringer/support for the hull integrity without checking with the boatbuilder that this can be safely done.
- When installed in boats approved or classified according to international or special national rules, the installer is responsible for following the demands in accordance with these regulations / classification rules. The instructions in this guide can not be guaranteed to comply with all different regulations / classification rules.

IMPORTANT!
The thruster is delivered with tunnel pieces NOT assembled to the thruster assembly. See instructions below how to assemble the tunnel to the thruster unit. If cowls or grids are to be fitted you must fit them before you assemble the tunnel to the thruster unit.

NB! Faulty installation of the tunnel, thruster or panel will render all warranty given by Sleipner Motor AS void.

NOTE!
If a bow thruster is also installed, we strongly advice to use separate battery banks for the two thrusters to avoid extreme voltage drop if both thrusters are to be used at the same time. Refer to the thruster manuals for advised battery capacity and cable sizes for each thruster.
Also ensure that you do not have direct connections of both + and - if you have built together controls for both thrusters to avoid current leakage between separate battery banks.
If you are installing the standard Sidepower dual joystick panel this is already secured.
IMPORTANT! No part of the thruster must be outside/below of the boat transom, cowles included.
IMPORTANT!
The thruster is delivered with tunnel pieces NOT assembled to the thruster assembly. See instructions below how to assemble the tunnel to the thruster unit. If cowls or grids are to be fitted you must fit them before you assemble the tunnel to the thruster unit.

If assembling tunnel with cowls or grids:

Fit the grid or cowl to each tunnel piece.

1. Drill 5.5mm holes in the tunnel piece as illustrated. Fig.1
2. Place nut in position as illustrated. Fig.2
3. Position the grid or cowl and fasten with bolts. Tightening torque 2Nm(max). Fig.2
4. When both tunnel pieces have been fitted with grids or cowls the tunnel assembly is ready to be fitted to the thruster unit. See fig 3 on next page.

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<th>MATERIAL DESCRIPTION</th>
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Fig.1: Drill 5.5mm holes here for fastener
Fig.2: Illustration with Grid
Assembling tunnel to thruster unit:

IMPORTANT!
Ensure all Snap lock positions are correct, and tunnel is fitted correctly
Bolt on installation of the sternthruster assembly

1. Make sure that there are enough space both inside and outside the transom of the boat.

   **NOTE:**
   Make sure no part of the thruster is lower than the transom or protrudes outside the transom on either side - the lowest part of the thruster must be minimum 19mm over the bottom of the transom.

2. Once the place for the installation has been decided, use the drilling template/dimensions and drill the holes.

3. It is important that the thruster assembly sits flush on the transom. If this is not so, then the area on the transom will have to be flattened to ensure a snug fit.
   PS! Take care with grinders as it is very easy to remove too much in fibreglass

4. Subsequently, exactly measure the height/depth of the drill hole, it is very important for the sealing. Depending on the hull thickness, several seals must be used. It is to be considered that the seals are compressed by about 25% when tightening the bolts.

   **The total sealing height results as follows:**
   
   Hull thickness x 1,25

   **Example:** Total seal height with hull thickness of 20mm
   
   20 x 1,25 = 25 mm total seal height

   Apply MS Polymer both inside transom holes and as illustrated.

5. When fitting the thruster assembly, ensure that there is ample sealant (MS Polymer) around the center tube with cable connectors and around the bolts to make a water tight fitting.
**Electrical installation**

- **Explanation of electrical table**
  - All cable lengths are the total of + and - (to and from).
  - Battery size is stated as minimum cold crank capacity, not Ah. Higher CCA will improve the overall performance greatly.
  - Use slow fuse rated to hold stated Amp-Draw for min. 5 minutes.
  * Cable size and main battery size when an extra bow battery with minimum the CCA mentioned as A is installed.

- It is important that you use a good cable size and batteries with a high cold cranking capacity to feed the thruster, because it is the actual voltage at the motor while running the thruster that decides the output rpm of the motor and thereby the actual thrust. Please see the table for advised min. sizes of cables and batteries. You can of course use larger cables for even better results.

- A main switch (*C*) that can take the load without noticeable voltage drop must be installed in the main positive lead so the power for the thruster can be turned off independently of the rest of the system when not on board or in emergencies. This should be placed in an easily accessible place and the boats instructions should include information that this should be turned off like the other main switches of the boat.

- A fuse (*D*) in the positive lead for protection against short circuiting of the main cables. This fuse should be of a adequate quality which normally means that it is physically large as these have less voltage drop than the simple / small ones. It should be of the slow type and sized to take the amperage draw for at least 5 minutes.

- We also advice to install a fuse (*D*) in the positive lead for protection against short circuiting of the main cables. This fuse should be of a adequate quality which normally means that it is physically large as these have less voltage drop than the simple / small ones. It should be of the slow type and sized to take the amperage draw for at least 5 minutes.

- Remember to use ignition protected fuses and switches if fitted in areas that require this feature.

- A circuit breaker can be used instead of the fuse and main power switch as long as the functionality is the same.

- The cable ends must be fitted with terminals and these must be well isolated against contact with anything but the proper connection point.

- If the main switch and fuse are installed in the same gas area they also have to be ignition protected.
Control Elements (separately available)

To operate SX thruster, one of the following separately available control elements is necessary:

- Control Element „single joystick panel“ (Article No. 8960 G/S):
- Control Element „dual joystick panel“ (Article No. 8940 G/S):
- Control Element „touch panel“ (Article No. 8950)
- Control Element „radio remote control“ (Article No. RC-20)

Cable Sets (separately available)

Likewise, for the connection between SX controller and control panel, a control cable with appropriate length is required:

- 6 1277-04M Control cable 4 meter, 4-lead
- 6 1277-07M Control cable 7 meter, 4-lead
- 6 1277-09M Control cable 9 meter, 4-lead
- 6 1277-12M Control cable 12 meter, 4-lead
- 6 1277-15M Control cable 15 meter, 4-lead
- 6 1277-18M Control cable 18 meter, 4-lead
- 6 1277-22M Control cable 22 meter, 4-lead
- 6 1274 Y-connector for multiple control panels, 4-lead

If an automatic main switch is used, a 5-lead cable from control panel to the automatic main switch is required:

- 6 1278-04M Control cable 4 meter, 5-lead
- 6 1278-07M Control cable 7 meter, 5-lead
- 6 1278-09M Control cable 9 meter, 5-lead
- 6 1278-12M Control cable 12 meter, 5-lead
- 6 1278-15M Control cable 15 meter, 5-lead
- 6 1278-18M Control cable 18 meter, 5-lead
- 6 1278-22M Control cable 22 meter, 5-lead
- 6 1265 Y-connector for multiple control panels, 5-lead

SX controller measurements:

![Control Elements and Cable Sets Diagram](image-url)
Installation of SX controller

- The Controller is the central control element, to which several control panels can be attached. The controller can be mounted in any direction, preferably with cables facing down.

- Controller must be positioned within 0,75 meter from the thruster assembly.

- See cable connections and torque loads in figure above.

- Install thruster cable tube in accordance with instructions on next page.

**IMPORTANT!** It is the installers full responsibility to follow instructions and ensure total Ignition Protection.
1. Fit cable tube according to illustration.

2. Tighten hose clamps in order to ensure Ignition Protection as illustrated.
Wiring diagram - Manual main switch

**CONTROLLER CONNECTIONS:**

- **<<B+>>:** Power supply pos from thruster battery/ Main switch/ Main fuse
- **<<B->>:** Power supply neg from thruster battery
- 2 Motor cables from thruster
- 2 Control cables from control panel(s)/ remote

To control panel(s)/remote.

**Diagram Description:**

- **THRUSTER BATTERY 12V**
  - **B+**
  - **B-**
- **MANUAL MAIN SWITCH**
- **MAIN FUSE**
- **CABLE SUPPORT**
- **BLUE HOSE**
- **THRUSTER**

*(MUST BE IGNITION PROTECTED IF LOCATED IN IP REQUESTED AREA)*
Wiring diagram with AMS

CONTROLLER CONNECTIONS:

<<B++>: Power supply pos from thruster battery/ Main switch/ Main fuse
<<B->>: Power supply neg from thruster battery
2 Motor cables from thruster
4 wires from thruster overtemp switch
2 Control cables from control panel(s)/ remote

To control panel(s)/remote.

AUTOMATIC MAIN SWITCH (AMS)

THRUSTER BATTERY 12V

(MUST BE IGNITION PROTECTED IF LOCATED IN IP REQUESTED AREA)
Control panel and control-leads

Control panel installation:
- All standard Side-Power control panels of 1999 models and later can be used in any combination as well as any two way switching device when installed with an ON/OFF switch that breaks control power to this switch.
- You can install as many panels as you wish by using optional Y-connectors. If two or more panels are operated at the same time in opposite directions, the electronic control box will stop the thruster until it only receives a signal to go in one direction.
- When using original Side-Power equipment it is all "plug & play".
- Should drive direction be wrong: Switch the main +/- cables from the thruster on the relay. (potential 0-series issue)
- All controls must have spring load for automatic return to neutral position.
- The mechanical installation of the panel is described in the manual following the panel.
- The thruster control should be placed in a position were it is easy to use, and it is very common to use the thruster at the same time as your gear/throttle lever so it is normally a user friendly solution to be able to access these with one hand for each control.

Pin configuration of 4 pole AMP contact:
- Pin 1: BLACK = Ground
- Pin 2: BLUE = Engages thruster SB solenoid
- Pin 3: GREY = Engages thruster Port solenoid
- Pin 4: RED = Positive voltage for control panel
Important user precautions

- Ensure that you know the location of the main battery switch that disconnects the thruster from all power sources (batteries) so that the thruster can be turned off in case of a malfunction.
- Always turn the main power switch off before touching any part of the thruster, as an incidental start while touching moving parts can cause serious injuries.
- Always turn the control device off when the thruster is not in use.
- The maximum continues usage time of the electrical thruster is approximately minimum 6min. (OBS. After 3min the intelli controll will stop and reactivate thrust is nesccesary for longer intervals). The electromotor has a built in thermal cut-off switch that will shut off the electr motor if it is overheating and re-engage it when it has cooled down. This should be considered when planning your maneuvering.
- Please note: This is not a DP system (Dynamic positioning).
- For extended control the vessels main propulsion must be used.
- Never use a thruster close to somebody in the water, as the thruster will draw objects close by into the tunnel and contact with the rotating propellers will cause serious injuries.
- With the boat on land, only run the thruster for a fraction of a second, as without resistance it will accelerate very fast to a damaging rpm. Also, while the thruster is in air, make sure that the propellers have come to a complete stop before performing a directions change of the thruster, as it might cause damage to the thruster.
- If motor runs without thrust, stop operation.
- When leaving the boat always turn off the main power switch for the thruster.
- We advice to always keep the main engine(s) running while using a thruster. This will keep the batteries in a good charge condition. This will also give better performance to the thruster, as a higher voltage at the thruster results in a higher torque (power) in the electromotor.
- Please note that the performance of a thruster strongly depends on the voltage available at the electromotor. This voltage will decrease with aging batteries. By installing new batteries the effect of the thruster should be back at the original level.
- Make sure that only one control is used at the same time, if two panels are operated in opposite directions at the same time the thruster will not run at all. If they are operated in the same direction the thruster will run in this direction.
- If the thruster is not performing or functioning as usual, the cause for this must be found and corrected as soon as possible so to avoid causing any other or further damage to the equipment. You must also turn off the main battery switch immediately in case the problem is of electric origin.
- Never store anything (e.g. equipment, sails, ropes etc.) in the same compartment as the thruster. When the thruster runs for a longer period it will get hot and will cause damage. Do not to put permanent tension or strong deflections on the line/tube between thruster and controllboks.
- It is the owner/captain/other responsible party full responsibility to assess the risk of any unexpected incidents on the vessel. If the thruster malfunctions for some reason while maneuvering you must have considered a plan on how to avoid damage to persons or other objects.

Warning:

- Tampering with the Ignition Protected stern thruster assembly/controller or any attempt to disassemble anything on this thruster assembly inside the boat can cause an explosion with very serious consequences. Tampering will also void the thruster assembly waterproofing.
- If there is a problem with your Ignition Protected stern thruster, please contact your dealer.
- Service and repair of the thruster motor and components that requires the sealed casing to be opened must be done by authorized Side-Power service personnel to avoid rendering the warranty void.
- Danger: NEVER Disassemble any part of the Ignition Protected stern thruster assembly or controller
How to use Side-Power thrusters

How to use a bowthruster
1. Turn main power switch for the bowthruster on. (Always turn off the main power switch when not onboard.)
2. Please take some time to exercise thruster usage in open water to avoid damages to your boat.
3. Turn the control panel on by pushing both “ON” buttons on the original Side-Power panel simultaneously. If another type of control is installed, engage the On/Off switch for the bowthruster.
4. Turn the bow in the desired direction by pushing the red button for port movement or the green button for starboard movement. If you have a joystick control, move it in the direction you wish the bow to move. Other controls like footswitches or toggle-switches on the throttle can be used. These are normally logically installed, so by engaging the port control, the bow goes port etc. In case of any doubts, try in open waters first.
5. Depending on the sideways speed of the bow, you must disengage the control device shortly before the bow is in the desired direction, as the boat will continue to move after stopping the bowthruster.

How to use a single stern thruster
Some boats might however have installed a single stern thruster because of space limitation in the bow. In this case the stern thruster is used in the same way as a single bow thruster (see above) for moving the boat’s stern.

How to use a bow and stern thruster combined
The combination of a bow and stern thruster offers total manoeuvrability to the boat and the opportunity to move the bow and the stern separately from each other. This enables you to move the boat sideways in both directions and to turn the boat around its own axis staying at the same place.

• Again, if in doubt, try in open water first!
Maintenance

» Keep the propeller and gearhouse clean from growth by painting with antifouling before every season. Note! Propeller shafts must absolutely not be painted.

» As a part of the seasonal service of your boat, and before every season, always check that:
  • The propeller is securely fastened
  • The area where the thruster is installed is clean and dry. If there are signs of water you must try to find the source and eliminate it.
  • All electrical connections are clean and fastened firmly.
  • Make sure that batteries are in a good condition so that the thruster gets a good voltage. Old or bad batteries will give a reduced performance from the thruster.
The SX series bow or stern thruster cannot be started:
- The main switch is not switched on.
- The control panel is inactive, no LED light.
- The main fuse tripped.
- The thruster motor is overheated.

The SX series bow or stern thruster runs in the wrong direction:
- Blue and grey wire on the contactor in the Controlunit have to be interchanged.

The SX series bow or stern thruster has insufficient power:
- The battery is not sufficiently charged.
- The electrical connections are bad (e.g. because of corrosion).
- The necessary minimum voltage of 10 V or 21 V is not reached.
- The propeller is blocked (e.g. by fouling, wood, line).

Before seeking assistance at the help desk of your Side-Power dealer/distributor please perform these tests and make notes of all measurements to ensure that they have as much information as possible to work on. **NB! All check points and solutions must be carried out after consulting the relevant information elsewhere in this manual to understand how the system is intended to work. If you are unable to understand what to check, you must consult a professional.**
1. The equipment manufactured by Sleipner Motor AS (The "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service.

2. This Warranty is in effect for two years (Leisure Use) or one year (Commercial use) from the date of purchase by the user. Proof of purchase must be included, to establish that it is inside the warranty period.

3. This Warranty is transferable and covers the product for the specified time period.

4. In case any part of the equipment proves to be defective, other than those parts excluded in paragraph 5 below, the owner should do the following:
   (a) Prepare a detailed written statement of the nature and circumstances of the defect, to the best of the Owner’s knowledge, including the date of purchase, the place of purchase, the name and address of the installer, and the Purchaser’s name, address and telephone number;
   (b) The Owner should return the defective part or unit along with the statement referenced in the preceding paragraph to the warrantor, Sleipner Motor AS or an authorized Service Centre, postage/shipping prepaid and at the expense of the Purchaser;
   (c) If upon the Warrantor’s or Authorized Service Centre’s examination, the defect is determined to result from defective material or workmanship, the equipment will be repaired or replaced at the Warrantor’s option without charge, and returned to the Purchaser at the Warrantor’s expense;
   (d) no refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. Prior to refund of the purchase price, Purchaser must submit a statement in writing from a professional boating equipment supplier that the installation instructions of the Installation and Operation Manual have been complied with and that the defect remains;
   (e) warranty service shall be performed only by the Warrantor, or an authorized Service Centre, and any attempt to remedy the defect by anyone else shall render this warranty void.

5. There shall be no warranty for defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specifically designed as waterproof.

6. No other express warranty is hereby given and there are no warranties which extend beyond those described in section 4 above. This Warranty is expressly in lieu of any other expressed or implied warranties, including any implied warranty of merchantability, fitness for the ordinary purposes for which such goods are used, or fitness for a particular purpose, and any other obligations on the part of the Warrantor or its employees and representatives.

7. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, loss of income or profit, or any other consequential or resulting damage or cost which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment, or part thereof.

8. The Warrantor assumes no liability for incidental or consequential damages of any kind including damages arising from collision with other vessels or objects.

9. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.
All electrical wiring, cable sizes and battery capacity is according to the thruster installation manual.

All bolts are securely tightened and sealant are applied as instructed.

Anti-fouling have been applied to the gearhouse and propeller but NOT or the gearhouse lid/ shaft where the propeller is fastened.

Correct drive direction as per control panel.

All electrical connections are clean, dry and tight, and the correct cable, fuse and main switch sizes have been used.

Very important for IP protection:

- The main power cables have securely been connected as described.
- The control lead ends out of the explosive area and has been properly fitted and secured against damage.

*The thruster has been installed as per the instructions in this manual and all points in checklist above have been controlled.*

Signed: .....................................   Date: .....................................

Extra pre-delivery tests by installer / yard who does not use other quality control systems !

Thruster type: ................................................. Voltage: ......................

Serial number: ....................................................................................

Date of delivery: ..................................................................................

Correct drive direction as per control panel: .......................................

Voltage at thruster when running: ......................................................

Battery cable size used: .....................................................................

Other comments by installer:
In order to present the most up to date documentation, we advise you to go to our website www.side-power.com and locate your product to find relevant spare parts.
Worldwide sales and service

www.sleipner.no

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