

Service and Support

For S-Link Programming Manual
6 1307 S-LINK FIRMWARE UPDATE KIT



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MC_0020

The computer software *S-Link™ Programmer* together with *Firmware Upgrade Tool Kit For S-Link™ Programmer* enables upgrade, diagnostics and configuration of Sleipner S-Link™ products.

S-Link™ is a CAN-based control system used for communication between Sleipner products. The system uses BACKBONE cables as a common power and communication bus with separate SPUR cables to each connected unit. See the chapter *S-Link™ System Description* for more information about S-Link™.

S-link Programmer Download and Installation

1. Download the latest version of S-Link™ Programmer.
<https://www.sleipnergroup.com/thruster-systems/installation-parts/tools/firmware-upgrade-tool-kit-for-s-link-programmer>
2. Unzip the file and run SLI.msi. Ensure you have administrator privileges when executing the installer.
3. Go through the installation Wizard.

Requirements:

- Microsoft .NET V4.0 or newer.
- Supported operating systems: Windows 7, 8 10, 11.

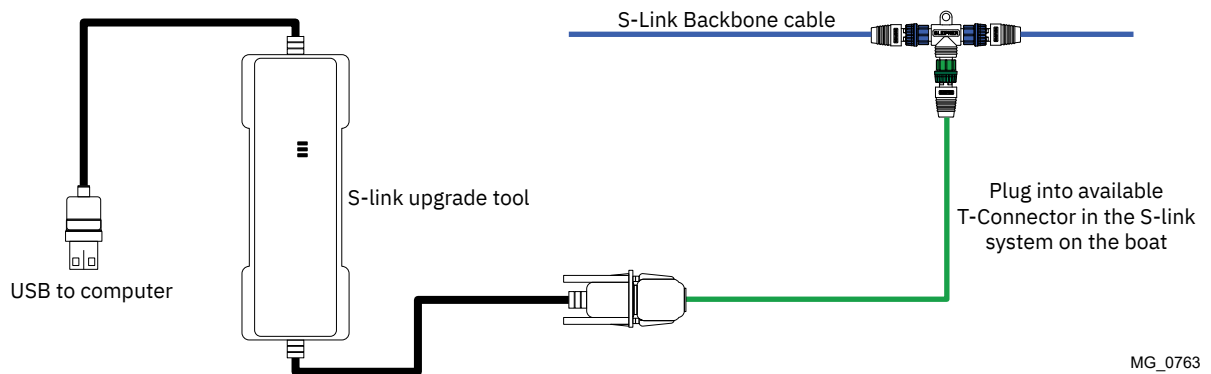
Connection Of Firmware Upgrade Tool Kit For S-link Programmer

The *Firmware Upgrade Tool Kit for S-Link™ Programmer* contains a USB to CAN dongle and cables for connecting the USB dongle to an S-Link™ BACKBONE cable.

1. Connect the USB to CAN dongle between a computer with S-Link™ Programmer installed and the S-Link™ bus, according to the wiring diagram shown below.
2. Power up all S-Link™ devices and ensure that the power supply to the S-Link™ bus is turned on. If an automatic main switch is present, it will engage when the S-Link™ Programmer is launched on a computer connected to the S-Link™ bus.

Requirement:

- Firmware upgrade tool kit for S-Link™ Programmer, order no. 6 1307
<https://www.sleipnergroup.com/thruster-systems/installation-parts/tools/firmware-upgrade-tool-kit-for-s-link-programmer>



The functionality available in the S-Link™ Programmer is determined by the user-level. A user key can be entered for access to extended functionality. Available functionality is accessible through menu options and buttons.

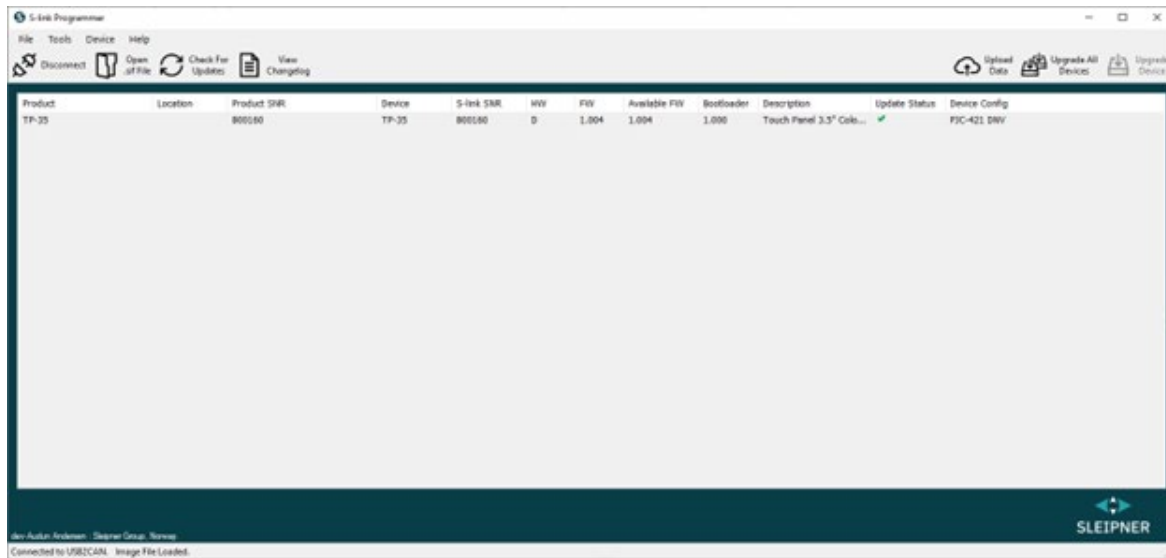
The default user level gives access to the following features:

- Firmware Upgrade
- Device Control
- Special Purpose Firmware

Other functionality described in this manual requires a user key. If required, please contact your local representative to apply for a user-key, www.sleipnergroup.com/support/map

See *Menu Functionality* chapter for information on how to enter the user key.

The main view of S-Link™ Programmer with default user-level is shown below. Detailed information on all connected S-Link™ products is listed. By clicking on one of the listed products the product is selected and marked in blue.











Product Information




The table below describes the product information listed for connected products.

Columns	Description								
Product	Name of product.								
Location	Configured location of the product. Not applicable to all products.								
Product SNR	Product serial number.								
Device	Name of product or product-family.								
S-Link SNR	Unique bus serial number.								
HW	Hardware revision of the product								
FW	Current firmware revision of the product.								
Available FW	Available firmware version in S-Link™ Programmer image file.								
Bootloader	Bootloader revision of the product.								
Description	Product description								
Update Status	Icon indicating firmware status: <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;"></td> <td>A newer firmware version is available in selected image file. Revision number in FW column is lower than revision number in Available FW column.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Firmware is up to date. Revision number in FW column is equal to revision number in Available FW column.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Firmware is newer than the version available in in selected image file. Revision number in FW column is higher than revision number in Available FW column.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Product is not support in selected image file.</td> </tr> </table>		A newer firmware version is available in selected image file. Revision number in FW column is lower than revision number in Available FW column.		Firmware is up to date. Revision number in FW column is equal to revision number in Available FW column.		Firmware is newer than the version available in in selected image file. Revision number in FW column is higher than revision number in Available FW column.		Product is not support in selected image file.
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	Firmware is newer than the version available in in selected image file. Revision number in FW column is higher than revision number in Available FW column.								
	Product is not support in selected image file.								
Device Config	Product configuration. Not applicable for all products.								

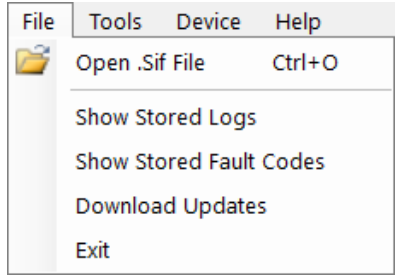
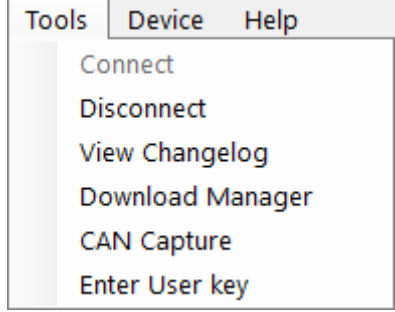
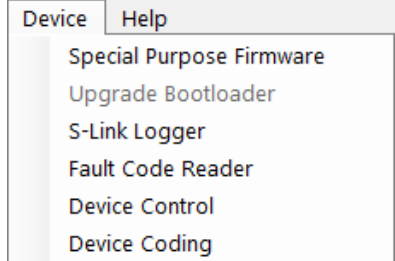
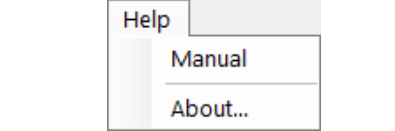
This section describes the functionality available through the button interface. The *Device Control* button will only be shown if the selected product supports this functionality.

	<p>Connect Connect to the USB to CAN dongle inserted in the USB port of the computer running S-Link Programmer. If the USB to CAN dongle is inserted into the computer before S-Link Programmer is launched, it will automatically be connected.</p> <p>Once S-Link Programmer has connected to the dongle, the icon on the button will change to the Disconnect symbol, see below.</p> <p>As long as the S-Link Programmer is connected it will send S-Link™ messages instructing Automatic Main Switches (AMS) to be turned ON.</p>
	<p>Disconnect Disconnect S-Link™ Programmer from the USB to CAN dongle.</p> <p>When the dongle is disconnected the icon on the button will change to the Connect symbol.</p> <p>Once the dongle is disconnected, the S-Link™ Programmer will stop sending messages instructing AMS to be ON. (NB: that the AMS will continue to be turned ON if a connected S-Link™ control panel is ON.)</p>
	<p>Open .sif File Load an image file from your computer. The “image.sif” file contains firmware and metadata for all S-Link™ products. This functionality is typically used to upload a special firmware version for test or for debugging purposes.</p> <p>After loading a .sif file, you will need to either restart the S-Link™ Programmer or navigate to File -> Download Updates to revert to the latest released firmware.</p>
	<p>Check For Updates Check if new firmware has been released and prompt user for download if a newer version of the image file is available.</p> <p>S-Link Programmer automatically checks for updates when launched and prompts user for download if a newer version is available.</p>
	<p>View Changelog Opens a change log, listing changes between firmware versions for all S-Link™ products. The change log will be opened in your default browser.</p>
	<p>Device Control Launch a dedicated control interface for the selected product. Primarily used for setup, development and debugging. Device control is not supported by all products.</p>
	<p>Upgrade All Devices Performs a sequential update of all products to the firmware version listed in the Available FW column of S-Link Programmer.</p> <p>Note that products with specific upgrade conditions will be skipped. Products with higher revision number in the FW column than in the Available FW column will also be skipped.</p> <p>Always verify upgrades by checking that the revision in the FW column is not lower than the revision in the Available FW column.</p>
	<p>Upgrade Device Update the selected product to the firmware version listed in the Available FW column of the S-Link Programmer.</p>

A user key is required to enable the following functionality. *Fault Codes* and *Logger* buttons are only visible if the selected product supports this functionality.

	<p>Upload Data Upload all locally stored log files, fault codes and CAN-bus log files to Sleipner’s server. After uploading, the locally stored files will be deleted. Uploaded log files will be of great help for service personnel in resolving support requests.</p>
	<p>Fault Codes View the fault code history for the selected product. Note that if the S-Link network lacks a GPS or the S-Link Programmer wasn’t connected when the fault occurred, the time stamp will be missing.</p> <p>See Fault Codes chapter for detailed information.</p>
	<p>Logger Monitor and observe selected parameters from the selected product in real-time. After conducting a logging session the log file is automatically saved locally on the computer. The log file can also be saved to a location determined by the user.</p> <p>See S-Link Logger chapter for detailed information.</p>

This section describes the functionality available in the menu bar. Some of the menu options will not be listed if a product is not selected or the selected product does not support the functionality. A user key is required to enable some of the functionality.

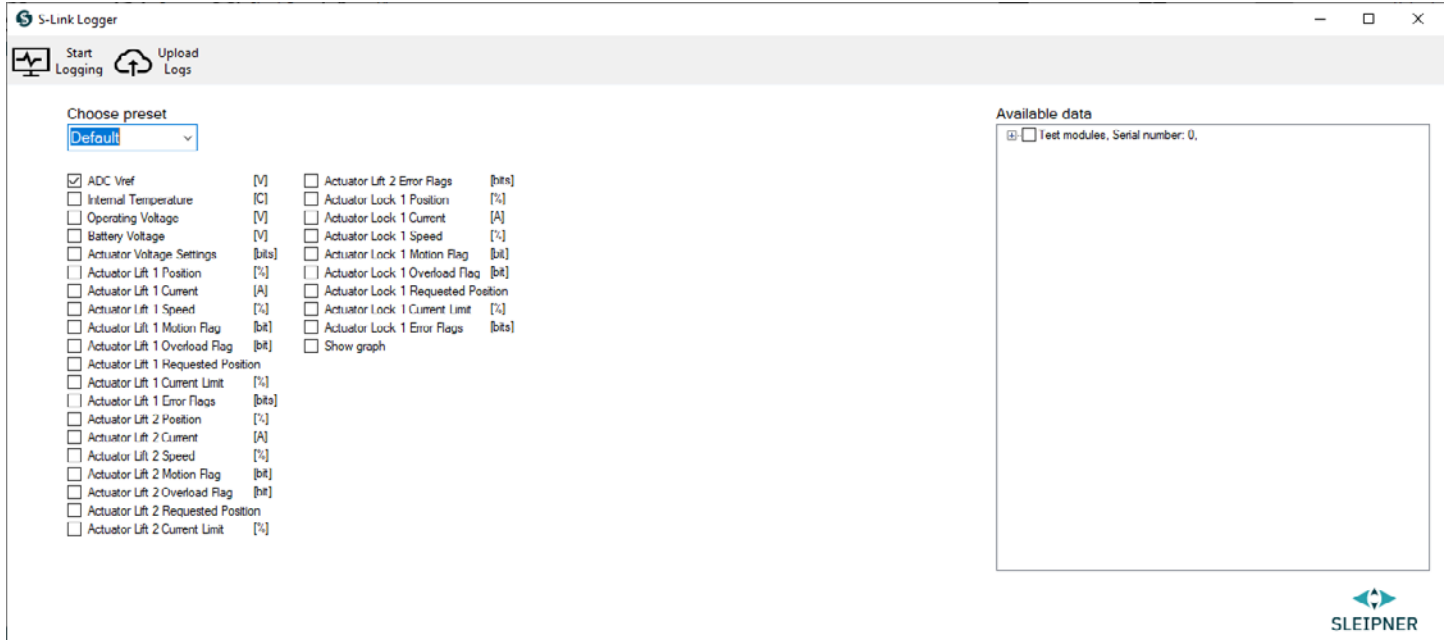
	<p>Open Image File Load an image file from your computer. The “image.sif” file contains firmware for all S-Link products. This functionality is typically used to upload a special firmware version for test or for debugging purposes.</p> <p>After loading a .sif file, you will need to either restart the S-Link™ Programmer or navigate to File -> Download Updates to revert to the image file with latest released firmware.</p> <p>Same functionality as the Open .sif File button.</p> <p>Show Stored Logs Opens Windows File Explorer and navigate to the directory containing locally stored log files.</p> <p>Requires a user key.</p> <p>Show Stored Faults Codes Opens Windows File Explorer and navigate to the directory containing locally stored fault code files.</p> <p>Requires a user key.</p> <p>Download Updates Download and load the latest released image file, containing the latest release of FW for all S-Link products.</p> <p>Exit Exit S-Link Programmer.</p>
	<p>Connect Same functionality as the Connect button.</p> <p>Disconnect Same functionality as the Disconnect button.</p> <p>Download Manager Facilitates downloading of the latest firmware for devices that cannot be updated with S-Link Programmer. Upgrade instructions can be found in the user manual of the product to be updated.</p> <p>CAN Capture Provides in-depth logging of the S-Link network, capturing raw CAN packets.</p> <p>Requires a user key.</p> <p>Enter User key Enter the user key, to enable extended access level.</p>
	<p>Special Purpose Firmware For some products special firmware versions are available.</p> <p>See the Special Purpose Firmware chapter for detailed information.</p> <p>Upgrade Bootloader On legacy products a distinct protocol is required for bootloader updates.</p> <p>This menu option is only available if a legacy product is selected in S-Link Programmer.</p> <p>S-Link Logger Same functionality as the Logger button.</p> <p>Requires a user key and is only visible if the selected product support supports logging.</p> <p>Fault Code Reader Same functionality as the Fault Code button.</p> <p>Requires a user key and is only visible if the selected product support supports fault codes.</p> <p>Device Control Same functionality as the Device Control button.</p> <p>Requires a user key and is only visible if the selected product support supports fault codes.</p> <p>Device Coding Some products might feature a unique code indicating a specific mode e.g. distinguishing between electric and hydraulic stabilizers.</p> <p>This menu option is only visible a when product is selected in the S-Link Programmer.</p>
	<p>Manual Opens the latest version of this document, Installation and User Manual for S-Link Programmer and the Firmware Upgrade Tool Kit.</p> <p>About... Displays S-Link Programmer version details and copyright information.</p>

The S-Link logger enables monitoring and storing of key parameters from S-Link products and can be used for:


- Performance analysis
- Troubleshooting and testing
- Gaining insights in device behaviour under precise conditions

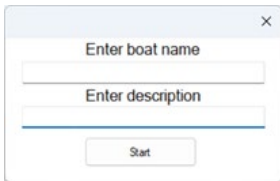
During installation and commissioning, logs can be recorded when running specific tests to verify and document proper performance.

Together with Fault Codes, logging is a powerful tool for troubleshooting and resolving potential faults. Note that logging is not supported by all S-Link products.





The Logger window list parameters that can be selected for logging. The type of available parameters will vary for different S-Link products. For some products different pre-sets of parameters are defined.



 Start Logging	When the Start Logging button is clicked the user will be prompted for a boat name and description. Always strive for accuracy since detailed information is crucial for support personnel in identification of uploaded log files.
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Logging is started by clicking Start Logging and the duration of the log session will be displayed below Logging duration. Once the logging has been started the Start Logging button is replaced with a Stop Logging button and the Show Graph button will be available.

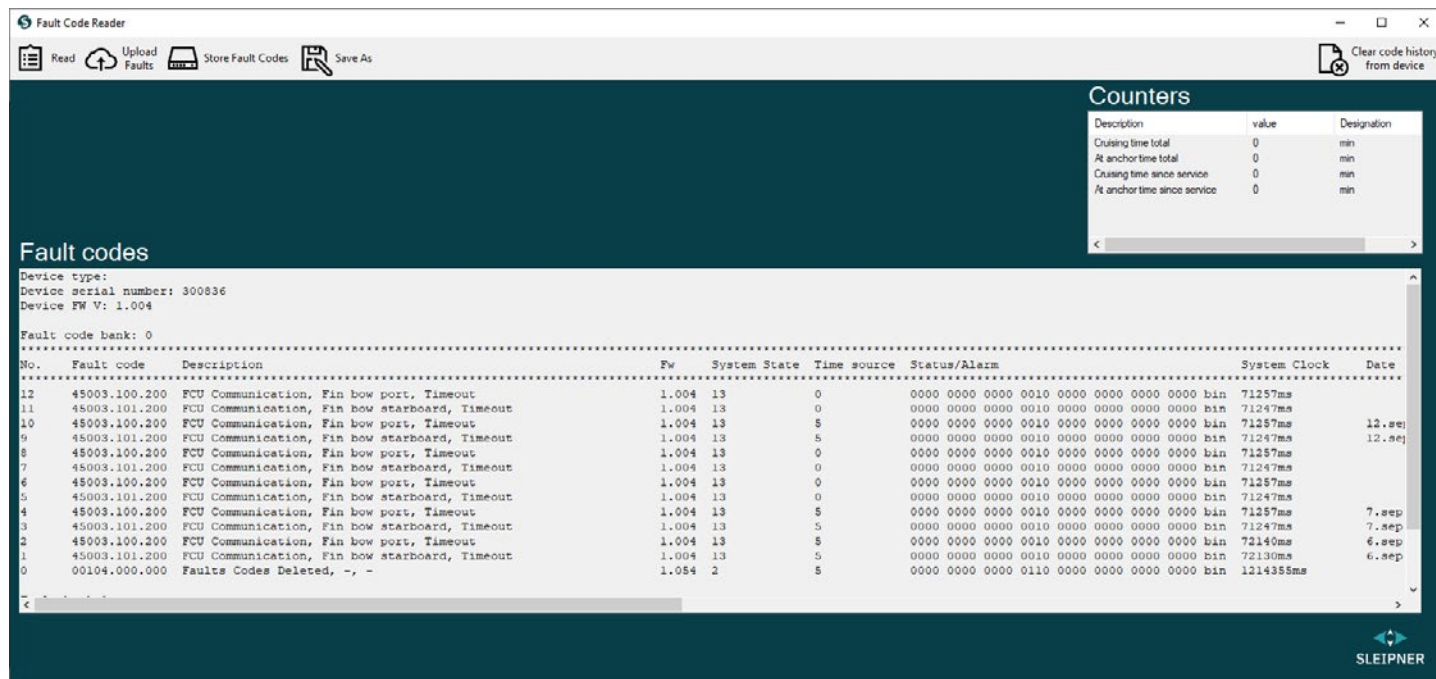
 Show Graph	Offers live graphical representation of the chosen log parameters.
 Stop Logging	When the Stop Logging button is clicked a log file will be saved locally. See Menu Functionality chapter for instructions on how to locate locally saved log files.

Once the logging is stopped the Upload data and Save As button will be available.

 Upload Logs	Sends locally saved logs to Sleipner's server. Once uploaded, the local logs are deleted.
 Save As	Save the log data as a comma-separated file in a user defined location. Log data can be inspected using data processing software like Microsoft Excel.

The Fault Code Reader is a diagnostic tool for S-Link products. If a fault occurs, a fault code is stored in the product's permanent memory together with relevant parameters. The number and type of parameters to be stored depends on the product type.

The Fault Code Reader provides access to fault code history and enables saving of fault code files on a computer, and uploading to Sleipner's server. One product must be selected in the main view of the S-Link Programmer to be able to open the Fault Code Reader. It is only the fault code history of the selected device that is shown. To view fault code history of another product the Fault Code Reader window must be closed before a new product is selected.

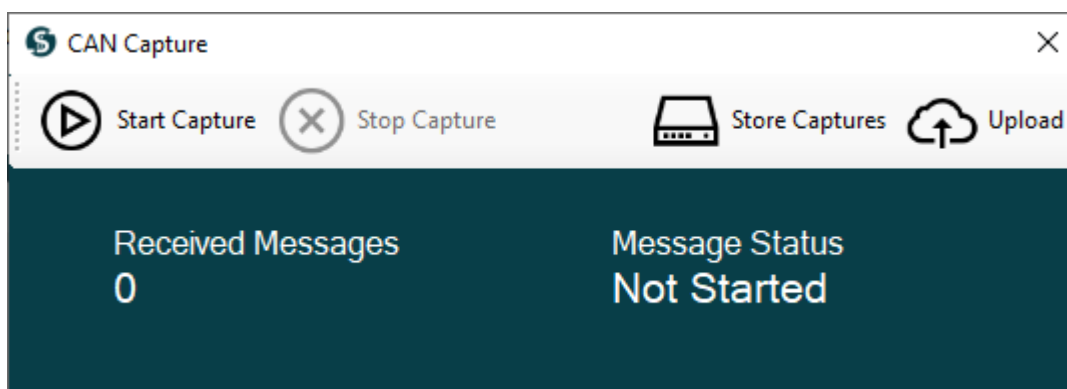






Read	Retrieve the fault code history from the selected product.
Upload Faults	Transfer all locally stored fault codes to Sleipner's server.
Store	The fault code history is locally saved on the computer. This must be done before using the upload functionality.
Save As	Save fault code history as text file in a user defined location.
Clear code history from device	Delete the fault code history from the selected product permanently.

The Counters section in the upper right corner of Fault Coder Reader can display the duration of different events or the number of time different events have occurred. The type of parameters displayed in the counter sections is product dependent.

CAN Capture

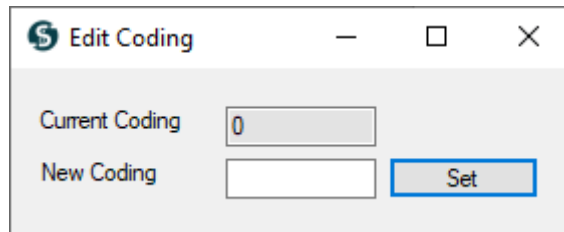
CAN Capture is a tool designed for monitoring all activity on the S-Link CAN network. Its primary function is to assist in diagnosing potential network issues.



 Start Capture	Start network monitoring and capture of data.
 Stop Capture	Stop network monitoring and capture of data.
 Store Captures	The captured data is locally saved on the computer. This must be done before using the upload functionality.
 Upload	Transfers Captured data that have been locally saved to Sleipner's server.
Received Messages 0	Counter showing number of received messages.
Message Status Not Started	Capture status: Not Started – Waiting for capture to be started Ok - Displayed when no packet loss is detected

Device Coding

The Device Coding tool enables modification of the Coding parameter within a product. It is utilized when a device demands a specific firmware line variant without necessitating a unique hardware or device identifier. Modifying the code will transition the device into bootloader mode, necessitating an update.





Current Coding	Displays current coding of selected product.
New Coding	Input new coding for selected product. Click "Set" button to update the coding.

Special Purpose Firmware

The Special Purpose Firmware enables distribution of specialized firmware versions for selected products. This might be necessary for test versions, pre-releases, or specific conditions.

Note that upgrading to special purpose firmware should only be done after instructions from Sleipner. Unintentional upgrades to special purpose firmware can lead to unpredictable product behaviour.

 Special Purpose Firmware
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 **IMPORTANT**

ONLY APPLY A SPECIAL PURPOSE FIRMWARE IF INSTRUCTED TO.
 Special purpose firmware for a specific device might appear here. This could be to address very specific issues, or for pre-release testing - using this without being instructed to might lead to unpredictable device behavior.

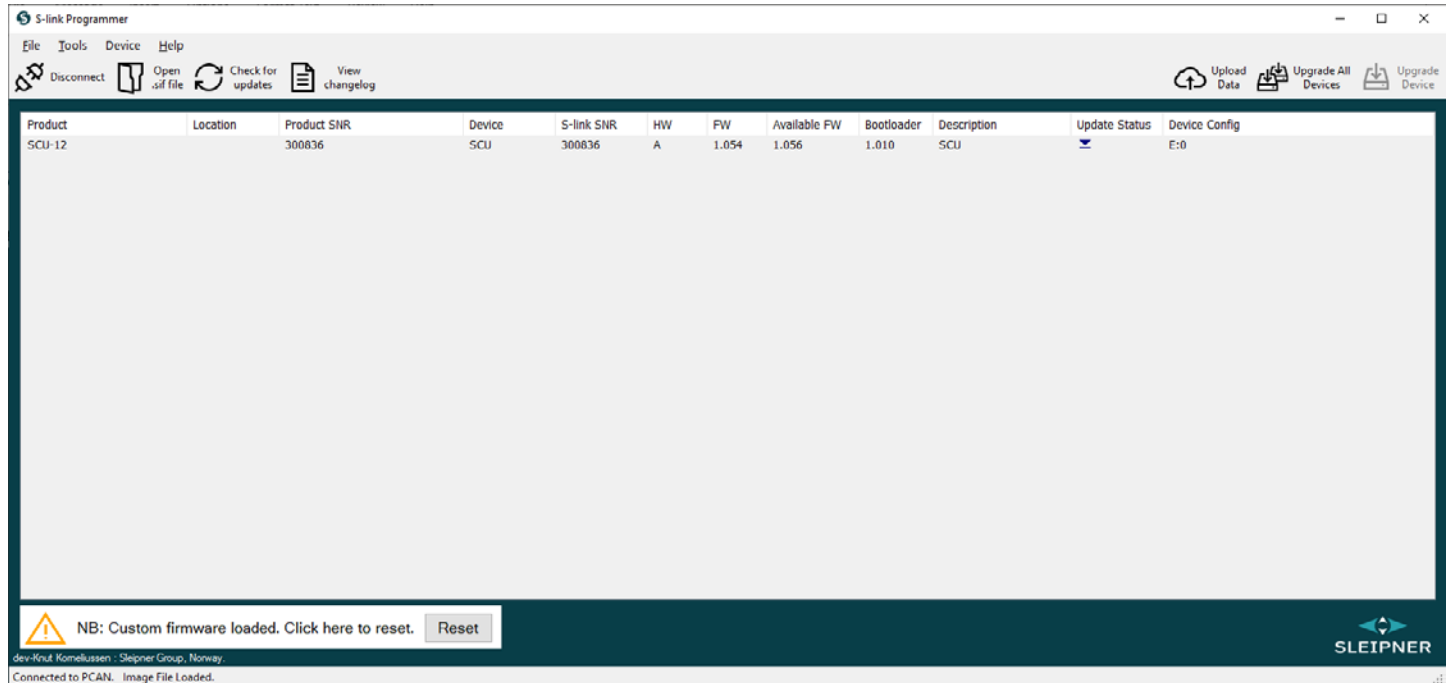
Device	FW	Description
SCU	1.056	PID Weak. Only for pre-release testing.
SCU	1.056	PID Medium. Only for pre-release testing.
SCU	1.056	PID Strong. Only for pre-release testing.

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Use
To Use: Select a firmware, click "Use", and upgrade the device in the main view.

Follow the below procedure to upgrade to a special purpose firmware:

1. In the main view of the S-Link™ Programmer select one product of the product type to be upgraded with special purpose firmware.
2. Open the Special Purpose Firmware window via the menu.
3. Click on the FW version to be uploaded. Ensure you understand the provided description thoroughly before proceeding.
4. Click the “Use” button (the Special Purpose Firmware window will close).
5. All connected products of the type that have a special purpose firmware loaded will now have that FW version shown in the Available FW column in the main view of the S-Link Programmer.
6. In the main view of the S-Link Programmer, select the product that shall be upgraded and click on Upgrade Device. Repeat for all product that are to be upgraded.

**Reverting to default firmware:**

1. After loading special firmware, a button for resetting loaded special firmware versions will appear at the bottom of the main view of S-Link Programmer.
2. Click this button to revert to the default firmware version. The revision number in the Available FW column will change.
3. Upgrade all products that are to be reverted using the Upgrade Device command.

S-Link is a CAN-based control system used for communication between Sleipner products installed on a vessel. The system uses BACKBONE Cables as a common power and communication bus with separate SPUR Cables to each connected unit. Only one S-Link POWER cable shall be connected to the BACKBONE Cable. Units with low power consumption are powered directly from the S-Link bus.

Main advantages of S-Link system:

- Compact and waterproof plugs.
- BACKBONE and SPUR Cables have different colour coding and keying to ensure correct and easy installation. BACKBONE Cables have blue connectors and SPUR Cables have green connectors.
- Different cable lengths and BACKBONE Extenders make the system scalable and flexible to install.

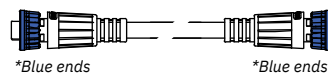
Installation of S-Link cables:

Select appropriate cables to keep the length of BACKBONE- and SPUR Cables to a minimum. In case of planned installation with total BACKBONE Cable length exceeding 100 meters please consult your local distributor. The S-Link cables should be properly fastened when installed to avoid sharp bend radius, cable chafing and undesired strain on connectors. Locking mechanism on connectors must be fully closed. To ensure long lifetime, cables, T-Connectors and Extenders should not be located so that they are permanently immersed in water or other fluids. It is also recommended to install cables such that water and condensation do not run along the cables and into the connectors.

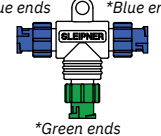
The POWER Cable should ideally be connected around the middle of the BACKBONE bus to ensure an equal voltage drop at each end of the BACKBONE Cable. The yellow and black wire in the POWER Cable shall be connected to GND and the red wire connected to +12VDC or +24VDC.

To reduce the risk of interference, avoid routing the S-Link cables close to equipment such as radio transmitters, antennas or high voltage cables. The backbone must be terminated at each end with the END Terminator.

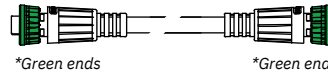
SPUR cables can be left unterminated to prepare for the installation of future additional equipment. In such cases, ensure to protect open connectors from water and moisture to avoid corrosion in the connectors.



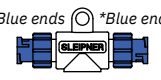
BACKBONE Cable
Forms the communication and power bus throughout a vessel. Available in different standard lengths.



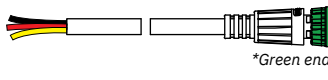
T-Connector
Used for connection of SPUR or POWER Cable to the BACKBONE Cable. One T-Connector for each connected cable.



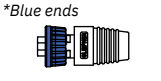
SPUR Cable
Used to connect S-Link compliant products to the backbone cable. One SPUR Cable must be used for each connected component, with no exceptions. Recommended to be as short as practically possible. Available in different standard lengths.



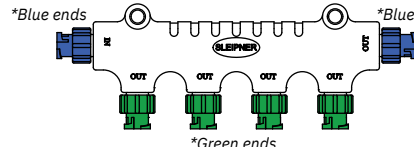
BACKBONE Extender
Connects two BACKBONE Cables to extend the length.



POWER Cable
Required in all installations for connection of BACKBONE Cable to a power supply and should be protected with a 2A fuse.

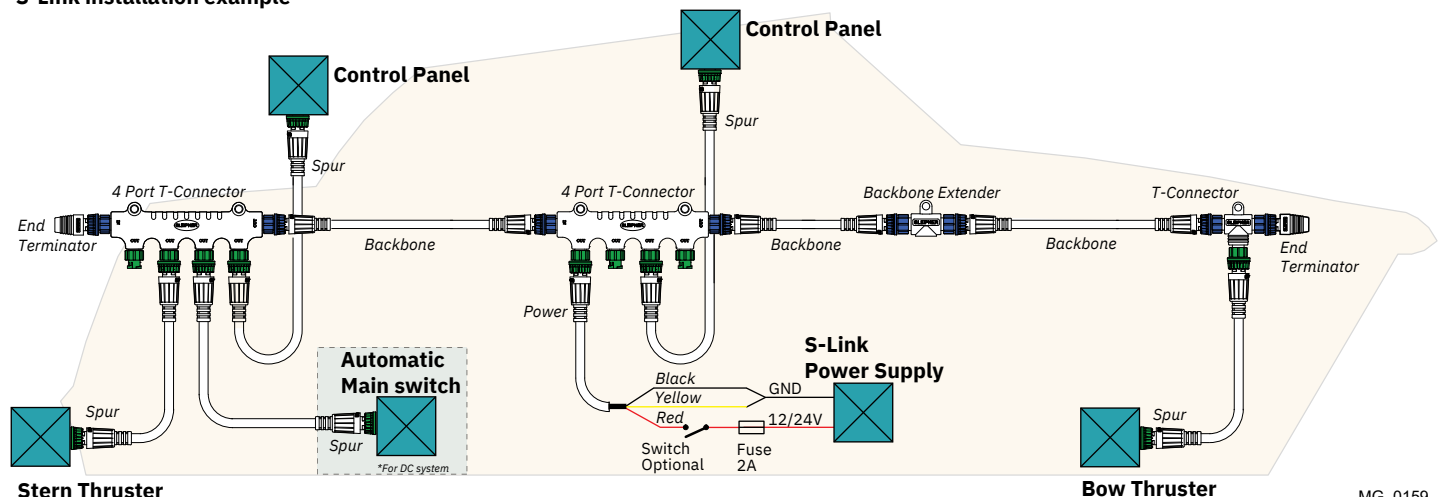


END Terminator
Must be one at each end of the BACKBONE bus.



4-Port T-Connector
The 4-PORT T-connector allows multiple SPUR Cables to be connected. The 4-PORT T-connector comes with two sealing caps to protect unused ports.

S-Link installation example



Find your local professional dealer from our certified worldwide network for expert service and support. visit our website www.sleipnergrouper.com/support

Product Spare Parts and Additional Resources

For additional supporting documentation, we advise you to visit our website www.sleipnergrouper.com and find your Sleipner product.

Warranty statement

1. Sleipner Motor AS (The “Warrantor”) warrants that the equipment (parts, materials, and embedded software of products) manufactured by the Warrantor is free from defects in workmanship and materials for purpose for which the equipment is intended and under normal use and maintenance service (the “Warranty”).
2. This Warranty is in effect for two years (Leisure Use) or one year (Commercial and other Non-leisure Use) from the date of delivery/purchase by the end user, with the following exceptions;
 - (a) For demonstration vessels, or vessels kept on the water, the dealer is considered as the end user from 6 months after their launch of the vessel;
 - (b) The warranty period starts no later than 18 months after the first launch of the vessel.
 Please note that the boat manufacturer and dealer must pay particular attention to correct maintenance and service both by the products manuals as well as general good practice for the location the boat is kept in the period the boat is in their care. In cases where the 6 and 18 months grace periods for boat builders and dealers are passed, it is possible to obtain a full warranty upon inspection and approval of the warrantor or such representative.
3. Certain parts, classified as wearable or service parts, are not covered by the warranty. A failure to follow the required maintenance and service work as described in the product manual render all warranty on parts or components directly or indirectly affected by this void. Please also note that for some parts, time is also a factor separately from actual operational hours.
4. This Warranty is transferable and covers the equipment for the specified warranty period.
5. The warranty does not apply to 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. In case the equipment seems to be defective, the warranty holder (the “Claimant”) must do the following to make a claim:
 - (a) Contact the dealer or service centre where the equipment was purchased and make the claim. Alternatively, the Claimant can make the claim to a dealer or service centre found at www.sleipnergrouper.com. The Claimant must present a detailed written statement of the nature and circumstances of the defect, to the best of the Claimant’s knowledge, including product identification and serial nbr., the date and place of purchase and the name and address of the installer. Proof of purchase date should be included with the claim, to verify that the warranty period has not expired;
 - (b) Make the equipment available for troubleshooting and repair, with direct and workable access, including dismantling of furnishings or similar, if any, either at the premises of the Warrantor or an authorised service representative approved by the Warrantor. Equipment can only be returned to the Warrantor or an authorised service representative for repair following a pre-approval by the Warrantor’s Help Desk and if so, with the Return Authorisation Number visible postage/shipping prepaid and at the expense of the Claimant.
7. Examination and handling of the warranty claim:
 - (a) If upon the Warrantor’s or authorised service Representative’s examination, the defect is determined to result from defective material or workmanship in the warranty period, the equipment will be repaired or replaced at the Warrantor’s option without charge, and returned to the Purchaser at the Warrantor’s expense. If, on the other hand, the claim is determined to result from circumstances such as described in section 4 above or a result of wear and tear exceeding that for which the equipment is intended (e.g. commercial use of equipment intended for leisure use), the costs for the troubleshooting and repair shall be borne by the Claimant;
 - (b) No refund of the purchase price will be granted to the Claimant, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. In the event that attempts to remedy the defect have failed, the Claimant may claim a refund of the purchase price, provided that the Claimant submits 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.
8. Warranty service shall be performed only by the Warrantor, or an authorised service representative, and any attempt to remedy the defect by anyone else shall render this warranty void.
9. No other warranty is given beyond those described above, implied or otherwise, including any implied warranty of merchantability, fitness for a particular purpose other than the purpose for which the equipment is intended, and any other obligations on the part of the Warrantor or its employees and representatives.
10. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives based on this Warranty for injury to any person or persons, or damage to property, loss of income or profit, or any other incidental, consequential or resulting damage or cost claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment or damages arising from collision with other vessels or objects.
11. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.

Patents

At Sleipner we continually reinvest to develop and offer the latest technology in marine advancements. To see the many unique designs we have patented visit our website www.sleipnergrouper.com/patents

Dotted lines for note-taking.

A series of horizontal dotted lines for writing notes.

A series of horizontal dotted lines for writing notes.

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