Manual

argoTrackPilot

Automatic track-keeping system for inland vessels

Version 3.6

October 2026

Version	Date	Changes	Editor
1.0	05.12.2017	English version	Lachmeyer
1.1	21.05.2019	Update to newest software	Eichler
2.0	08.01.2021	Update to software version 2.0	Eichler
2.1	06.04.2021	Update to software version 2.1	Eichler
2.2	04.11.2021	Update to software version 2.2, added chapter 7.5, 7.6	Eichler
2.3	04.03.2022	Updated to software version 2.3, added chapter 7.7	Eichler
2.6	30.11.2022	Updated to software version 2.6	Eichler
2.7	25.05.2023	Updated to software version 2.7	Eger
3.0	24.11.2023	New: argoRoutePlanner, argoControlPanel *flex* Update: “8.4 Warnings and Alarms”	Eger
3.0.4	21.12.2023	Update: argoRoutePlanner	Eger
3.1	01.04.2024	New: Adjustable transition intensity, automatic stream velocity, watch alarm, new alarms added Changes: Moved argoTracks list- and map view, argoTargetPilot and argoLaneWarning, deleted “list showing possible collisions” (double)	Eger
3.2	23.07.2024	New: Feedback option in argoTracks, technical data - switch cabinet added Changes: argoRoutePlanner - water level “Auto” omitted, water level “HW” added, Feedback via main screen	Eger
3.3	27.09.2024	New: stream direction Changes: Reactivation of watch alarm now 2 h, Translation of various warnings and alarms, changed symbol “remote support”, changes heading chapter 2, GPS —> GNSS	Eger
	14.01.2025	New: Chapter 3 – Notes on Data Protection (Privacy Policy Information), Chapter 8 – Data Protection Page	Eger
	06.02.2025	Translations of warnings and alarms improved	Eger
3.4	18.03.2025	New subchapter in 9.4 on lock warning	Eger
	30.06.2025	New: Added activation on autopilot AlphaRiverPilot MFS (Alphatron Marine) in “Switching the system on and off”	Eger
3.5	04.11.2025	New: Stopovers in route planning Changes: Icons instead of text in “Status” displays for “Filter,” “Track,” and “Active”; update in “Technical data”	Eger

3.6	17.07.2026	New: 3.1 Usage Data Backup and Transfer to argoCloud Changes: Note under "Data Protection Information" regarding the data storage location. Lock Warning: Changed from distance-based to ETA-based triggering. Track End Warning: Changed from distance-based to ETA-based triggering.	Eger
	21.10.2026	Updated individual entries in section 9.4 Warnings and Alarms	Eger

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1. Safety instructions

- This manual applies only to the track control system argoTrackPilot. It does not apply to the autopilot system (rate of turn control), the rate of turn sensor and indicator, the GNSS receiver nor the rudder control system.
- There is no warranty that the tracks delivered with the track control system are free of errors.

The track control system has only one sensor for determining the position and orientation of the ship (GNSS compass). If there is an undetected failure of the sensor there may be large deviations from the selected track. Beneath bridges and close to large buildings reception of GNSS signals is highly deteriorated and thus the track control system must be monitored carefully.

The track control system is not an autonomous system that reacts to the surrounding traffic. The skipper is fully responsible to comply with the laws and regulations of inland navigation.

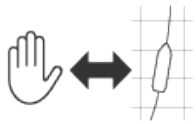
For safe operation of the track control system the following safety instructions must be respected:

- Read the complete manual before activating the track control system.
- Keep this manual at hand for all users of the track control system.

- Make sure the track control system is only used when in perfect technical condition.
- Maintenance and installation must only be carried out by qualified persons.

- **Risk of electric shock or physical damage!**
  Always disconnect power to the track control system before performing any maintenance. Make sure the track control system can not be switched on by accident.

- Follow the local rules concerning accident prevention and environmental protection.
- Follow the general safety instructions of the country where the track control system is used.



- The skipper must monitor the operation of the track control system at all times and switch back to manual control in case of an error.
- At the begin of each trip, the skipper must make sure that switching between track control, autopilot and emergency steering works correctly.
- If an alarm is signaled by the track control system the skipper must switch to manual or emergency steering. The track control system must not be activated again before the cause for the alarm is resolved.

2. Notes on this manual

Although this manual has been written with great care, Argonics GmbH assumes no liability for the consequences of errors in this manual. Argonics GmbH reserves the right to make changes to this manual without notice.

Copying or publishing of parts or the whole manual only after written permission by Argonics GmbH.

3. Privacy Policy Information

Consent

To use the Trackpilot and its optional modules, it is required that you provide your **explicit consent** to the collection and processing of data. You provide this consent voluntarily, in an informed and unambiguous manner, and were already informed about the collection and processing of data prior to purchase (e.g., on the offer/invoice or the website).

Before using the system, you will confirm this consent again through a dialog in the user interface, which appears at regular intervals.

If consent is refused, the system cannot be used.

Data Collection and Processing

We place great importance on the protection of your data.

The collection of **personal data** (e.g., phone numbers) is based on your consent in accordance with Art. 6(1)(a) of the GDPR. In line with the GDPR, we do not collect personal data through the Trackpilot. However, for support inquiries, we use your contact details (e.g., your phone number). These are stored in our database and, where applicable, in the contact management of one or more support phones, so that we can contact you again if necessary.

The processing of **operational data** (e.g., system operating states) is carried out on the basis of our legitimate interests in accordance with Art. 6(1)(f) of the GDPR, to ensure the functionality and safety of the system. This includes, among other things, the system's operating states, configured profiles, activity and inactivity phases, information about the selected track, as well as warnings and alarms.

Purposes of Data Collection and Processing

The collection of operational data serves the following purposes:

Product Improvement

- The continuous optimization and further development of our products.

Compliance with Legal Obligations

- Compliance with the **requirements for trackpilot systems (Track Guidance Assistant for Inland Navigation, TGAIN)** funded through the program for the sustainable modernization of inland vessels.
  "I) The manufacturer must take measures to secure all warnings and operational states. This requirement ensures that, in the event of incidents, the full operational readiness and functionality of the assistance system can be demonstrated. The manufacturer must inform the user of the installed assistance system on board (e.g., the Trackpilot) about the collection of the stated system warnings and operational states and must obtain their consent to secure this information before the system is used, documenting it appropriately (e.g., through the user interface during system startup). Provisions of the GDPR (Regulation (EU) 2016/679) must be observed." – Excerpt from the Manufacturer's and Applicant's Declaration, as of 01.01.2024
- Manufacturers are obligated to continuously monitor their products for defects and potential risks. Through continuous system monitoring, potential risks can be identified at an early stage, and measures can be taken to mitigate those risks. The collection of operational data also contributes to ensuring the flawless functionality of our system and your safety.
- In certain cases, legal regulations may require the transfer of collected data, for example, in the context of official investigations or court orders. In such cases, personal and operational data will only be shared if it is strictly necessary and no other legal options are available to fulfill these obligations.

Storage and Transfer

The collected personal and operational data is **stored** for the duration of the active use of the system and for up to three years thereafter. The storage serves the purposes of effective error analysis,

system optimization, compliance with legal obligations, and ensuring traceability and defense in legal disputes. After this period, the data will be securely deleted or anonymized in accordance with recognized standards, ensuring that it cannot be traced back. If a longer storage period is required due to legal obligations, this will be appropriately documented and implemented.
Data **transfer** occurs only in cases where legal regulations require it, e.g., in the context of investigations.
The collected data is transferred via the internet connection provided by us, unless a different vessel-specific configuration has been agreed upon and implemented. Our Internet service provider operates within the European network and is headquartered in Germany. The servers on which the data is stored are also located in Germany.

Withdrawal of Consent
A withdrawal of consent does not affect the lawfulness of processing that took place before the withdrawal. **The withdrawal of data collection and processing results in the Trackpilot and its optional modules no longer being usable.**

As a Shipowner: A withdrawal must be made in **writing** and can be submitted at any time to either our postal address or our support email address, including the ship's name and ENI.

As an Employed Shipmaster: A withdrawal of data collection and processing is typically initiated by the shipowner. If you, as a user, wish to initiate a withdrawal, this is only possible with the **written** consent of the shipowner. For the duration of your employment on board, your phone number is stored solely for contact purposes. You may request the deletion or modification of your number at any time, including by **phone**.

Contact
Our contact details may change. Please also visit https://argonics.de/en/kontakt/ for the most up-to-date information.

Address: Argonics GmbH | Heßbrühlstraße 21D | 70565 Stuttgart | Germany
Email: support@argonics.de
Phone: +49 711 / 25253721

3.1. Usage Data Backup and Transfer to argoCloud

Operating states, selected profiles, active and inactive periods, information about the selected track, as well as warnings and alarms—in short, everything related to the operation of the argoTrackPilot—is continuously stored on the Trackpilot so that the last four days can be analyzed in the event of an incident. This enables us to comply with the CCNR transitional provisions for Track Guidance Assistants regarding the recording and storage of relevant operating data.

In addition, the usage data described above is simultaneously stored in argoCloud. To ensure that at least one backup is available in the event of an incident, it is important that the argoTrackPilot can transmit this data. Accordingly, the system issues a warning if it cannot establish an Internet connection or connect to our servers for an extended period of time.

What is argoCloud?

argoCloud is the central service for all products from Argonics, Argonav, and Alphatron Marine. It collects the usage data of our products and makes it available in a browser via a dashboard. The argoTrackPilot is argoCloud Ready. It communicates directly with argoCloud without requiring any additional hardware. With an additional license, these live data are available to you, for example as: Live View, Voyage Log and Fleet View (if you operate multiple vessels).

4. Functional Description

argoTrackPilot is a track control system for inland vessels. It is designed to assist the skipper in navigation by steering the ship along pre-defined tracks. The track control system computes the steering commands such that the center of gravity of the ship follows the track with a small cross track error. The steering commands are sent to the autopilot system as desired rate of turn values. The autopilot system sets the rudder angle in such a way the ship turns as required by the track control system. The position, orientation and motion of the ship are measured using a GNSS compass together with a rate of turn sensor (gyro).

The track control system features a network interface for inland ECDIS chart displays. The chart display shows the selected track. Using the chart system, the skipper can select other tracks or create new tracks according to personal experience and send them to the track control system.

For passing and meeting of other vessels there is an adjustable offset to the track. The offset is changed using two buttons on the control panel, a third button serves to reset the offset to zero. When an offset has been set a new parallel track is computed by the track control system and displayed in the chart system. The ship will move gradually to the new path.

The track control system is delivered together with a touch screen that displays the most important data of the control system. The skipper can select different configurations of the control parameters for different loading conditions. The touch screen also displays alarms and warnings.

The track control system can be delivered with an optional LTE modem for remote monitoring and maintenance. In addition, an Argonics Tracks service from version 2.0 can be used via this internet connection.

Limitations

The argoTrackPilot does an extensive analysis of the sensor data to be able to detect errors of the GNSS receiver and the rate of turn sensor. The detection of errors is subject to the technical limitations. Detected errors are displayed on the touch screen, severe errors trigger an additional acoustic alarm. In case of a severe error, the skipper must switch to manual steering.

Since there is only a maximum of two sensors for the measurement of the position and heading of the ship there is no guarantee that every possible error of the sensors is detected. If there is an undetected failure of the sensors there may be large deviations from the selected track. Underneath bridges and close to large buildings reception of GNSS signals is highly deteriorated and thus the argoTrackPilot must be monitored carefully.

The skipper must monitor the operation of the argoTrackPilot at all times and switch back to manual control in case of an error or erratic behaviour of the ship.

The argoTrackPilot is not an autonomous system that reacts to the surrounding traffic. The skipper is fully responsible to comply with the laws and regulations of inland navigation.

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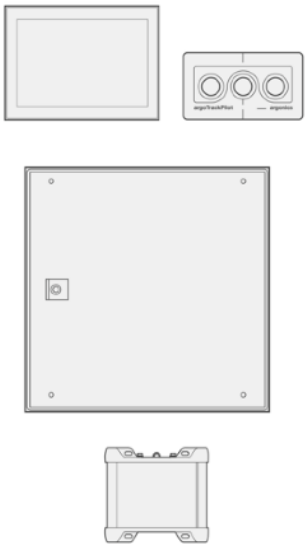
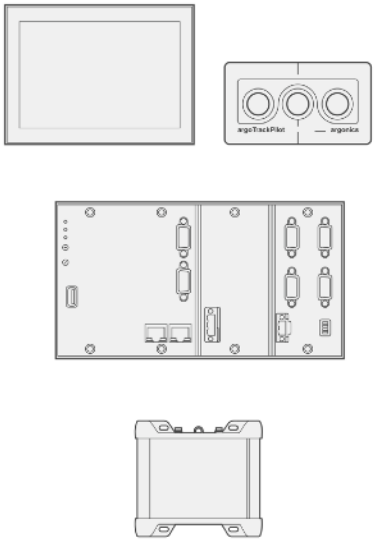
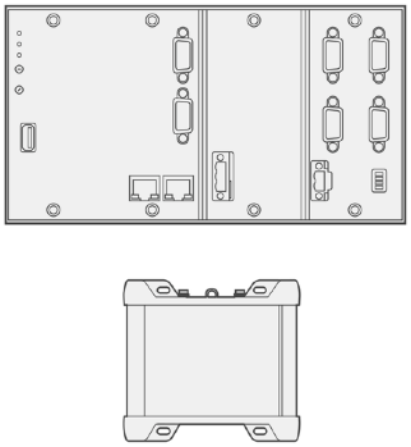
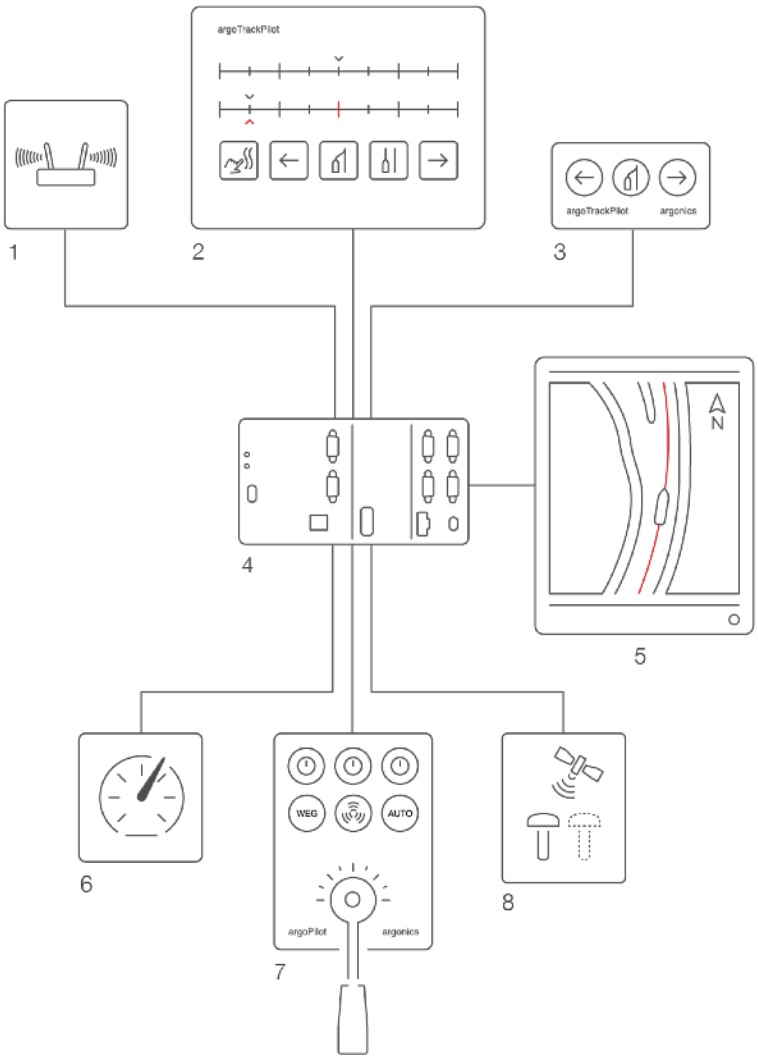
5. Scope of Delivery

The scope of delivery of the product differs depending on the variant.

argoTrackPilot	**argoTrackPilot *seriell***	**argoTrackPilot *flex***
		
Variant with analogue interfaces.	*Variant with serial interfaces.*	*Variant with serial interfaces and flexible equipment.*
touch screen 7”	touch screen 7”	optional: touch screen 7”
control panel for table top mounting	control panel for table top mounting	optional: control panel for table top mounting
switchboard (with control system argoTrackPilot)	control system argoTrackPilot	control system argoTrackPilot
LTE-Modem	LTE-Modem	LTE-Modem

6. System Overview



1. LTE modem
2. Touch screen / AlphaRiverTrackPilot panel
3. Control panel argoTrackPilot (only argoTrackPilot)
4. Control system argoTrackPilot / PLC
5. ECDIS
6. Rate of turn sensor
7. Autopilot
8. GNSS compass

7. Technical Data

Control system / PLC	
Supply voltage	18 V DC ... 32 V DC
Supply current	1,5 A
Ambient temperature	-25 °C ... 60 °C
Storage temperature	-40 °C ... 85 °C
Relative humidity	5% … 95%
Dimensions	Width: 220mm, Height: 120mm, Depth: 60mm
Weight	1,4 kg
Control panel	
IP rating	IP 65
Dimensions front plate	Width: 130mm, Height: 70mm
Dimension for mounting hole	Width: 121mm, Height: 60mm, Depth: 67mm
Weight	290g
Ambient temperature	-25 °C ... 60 °C
Storage temperature	-40 °C ... 85 °C
Relative humidity	5% … 95%
Touch screen	
Size	7“
Resolution	800x480px
Power Supply	24V
Dimensions	Width: 222mm, Height: 167mm
Dimension for mounting hole	Width: 197mm, Height: 141mm, Depth: 45mm
Weight	0.85 kg
Ambient temperature	0 °C ... 60 °C (without cooling)
Storage temperature	-20 °C ... 70 °C
Relative humidity	5% … 95% (without condensation)

Modem	
IP rating	IP 30
Supply voltage	9 V DC ... 30 V DC
Ambient temperature	-40 °C ... 75 °C
Relative humidity	10% … 90%
Dimensions	Width: 109,6mm, Height: 100mm, Depth: 50,1mm
Weight	280g
Conformity	ES-TRIN 10.20
Control cabinet	
IP rating	IP 66
Dimensions	Width: 380mm, Height 380mm, Depth: 210mm
Weight	9,48kg

8. Operation

The track control system is operated using either the touch screen or the control panel.

Alternatively, since the introduction of the "argoTrackPilot *flex*" variant, we also offer the option of operating the argoTrackPilot via the already installed ECDIS PC. See chapter "argoControlPanel flex".

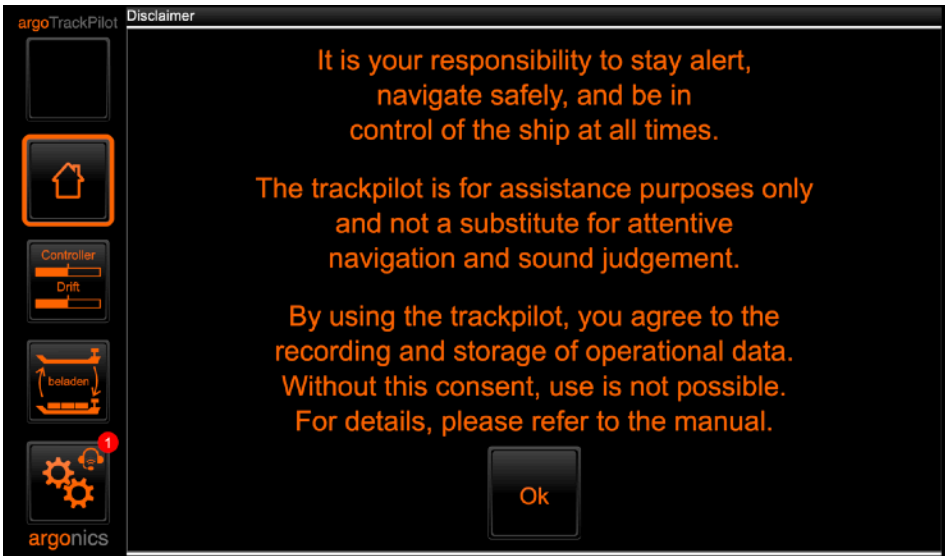
8.1. Touch screen

The user interface on the touch-sensitive screen can be used to perform all actions that can also be performed via the control element in the console. In addition, alarms and warnings are displayed in detail. The selection of configurations for loading and convoy composition is also carried out via the user interface on the touch-sensitive screen. In addition, some measured values relevant for the Trackpilot are displayed.

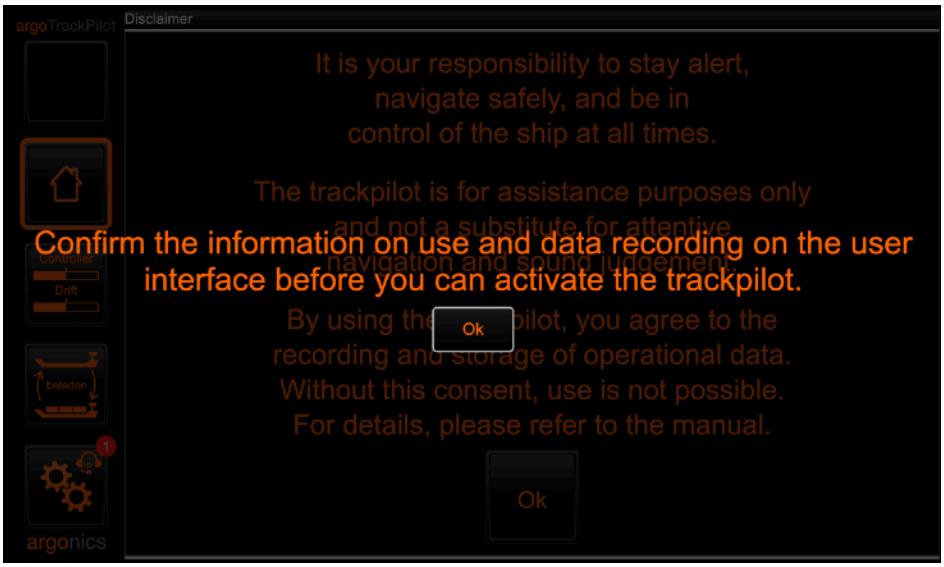
After switching on the touch-sensitive screen, a PIN input field opens. After entering the correct number combination and pressing “OK”, the graphical user interface opens with the page “Trackpilot”, also known as “Main screen” or “Home”.

Page Data protection

Before you can use the trackpilot, you must agree to the recording of operational data. You can find out which data we record and why in Chapter 3, "Notes on Data Protection”, or on our homepage (https://argonics.de/datenschutz/).

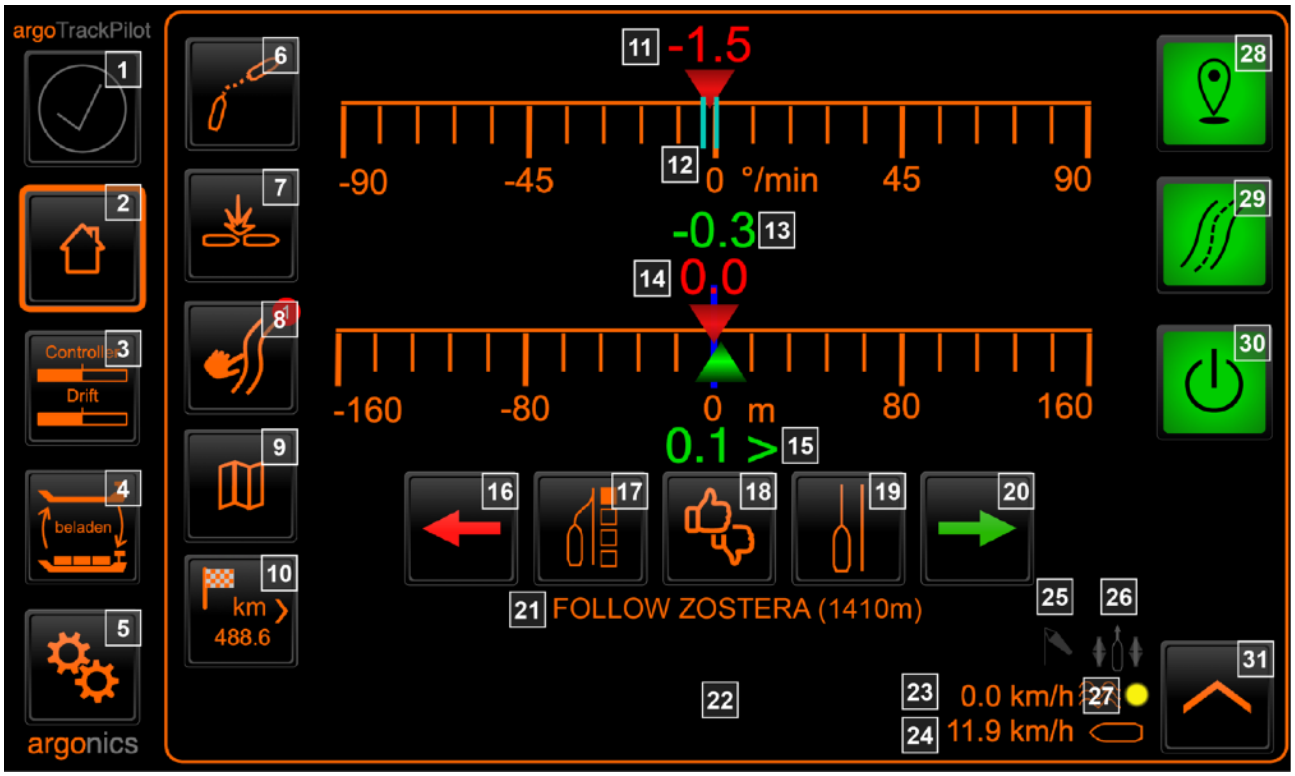


If the Trackpilot is accessed outside the touch panel and consent to the recording of operational data has not yet been given, the first window will look like this:



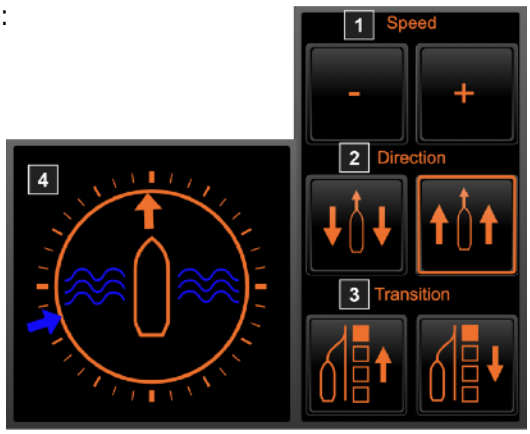
Page “Main screen”

This is the "main screen," also called “home". Use the buttons on the left to select different (sub)pages of the user interface. This page displays information about the status of the Trackpilot.

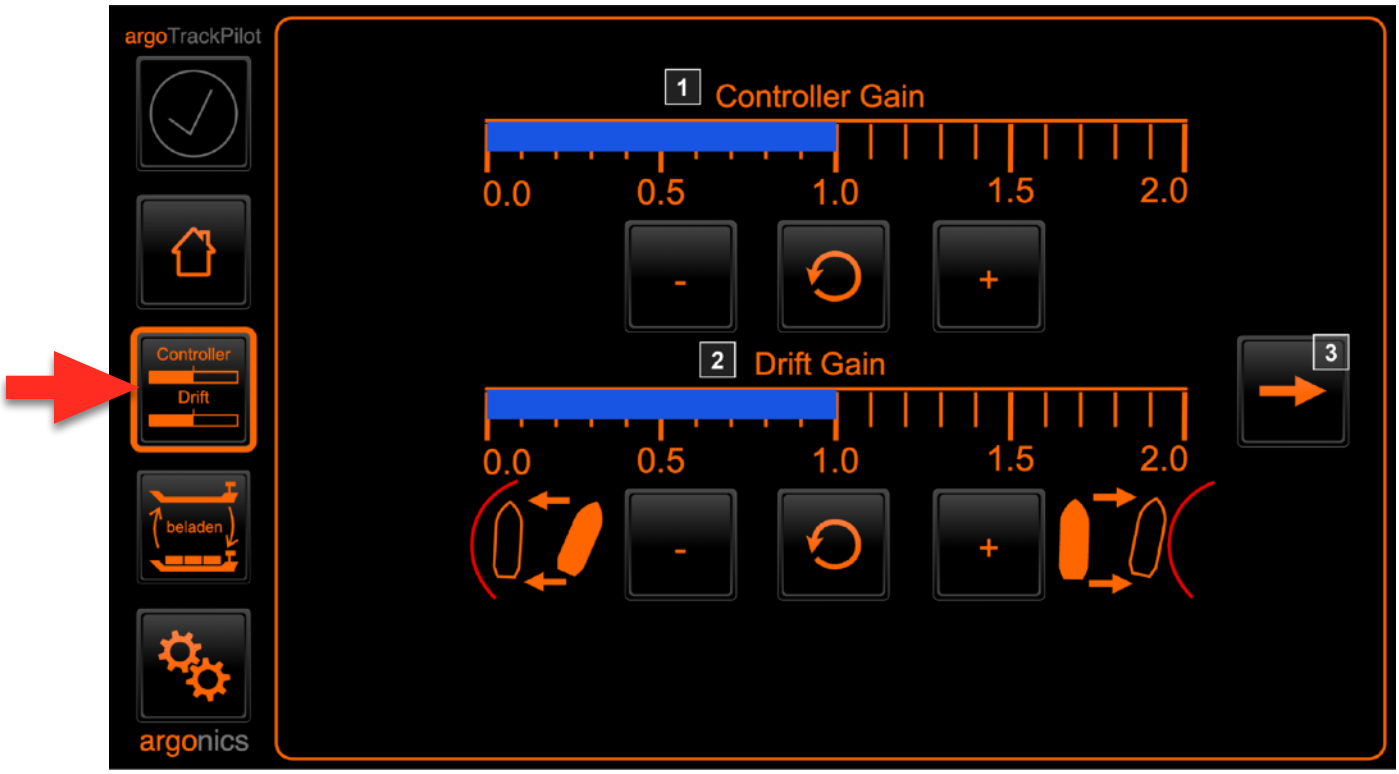


1. General display of warnings and alarms. If there is an active warning or alarm, the corresponding symbol is displayed here. More detailed information on the alarm can then be found in the text field (19). A flashing frame around the alarm symbol indicates an open access for remote support. Warnings are displayed in yellow, alarms in red.
2. Navigation button to get to the main screen
3. Navigation button to get to argoTrackPilots configuration menu
4. Navigation button to get to the menu for changing the active profile
5. Navigation button to get to the general settings. Here you will find information regarding your system and the help subpage.
   - As long as the gears are turning there is an active connection between the user interface and the argoTrackPilot controller.
   - The remote support indicator is located in the top right-hand corner of the button. If remote maintenance is active, the symbol is orange. If remote maintenance is not active, it is gray.
6. Optional: Navigation button to get to the user interface of argoTargetPilot. Only available with an active argoTargetPilot license. Pressing this button opens the TargetPilot user interface for selecting an AIS target and activating the TargetPilot. More information in chapter „7.6 argoTargetPilot“.
7. Optional: Navigation button to get to the user interface of argoLaneWarning. Only available with an active argoLaneWarning license. Pressing this button opens the list of possible collisions. The collision detection settings can also be changed via the same interface. More information in chapter „7.7 argoLaneWarning“.
8. Optional: Navigation button to get to the user interface of argoTracks. Pressing this button opens the list of all tracks saved on the Trackpilot. More information in chapter “7.8 argoTracks”.
9. Optional: Navigation button to get to the user interface of argoTracks. Pressing this button opens the map with all the tracks saved on the Trackpilot. More information in chapter “7.8 argoTracks” and “7.9 argoRoutePlanner”.
10. Optional: Fold-out ETA display of the argoRoutePlanner – only when the argoRouteplanner is active.
11. Setpoint from Trackpilot to autopilot. This is a turning rate in ° / min.
12. Valid turning rate range for the autopilot of the ship (° / min). For the Trackpilot to perform well, the ship's turning speed must follow the set speed with a slight delay. This means that the turning rate of the ship (green bar) should always be between the two light blue lines.
13. Turning rate of the ship, in °/min. For a good performance of the system, the turning rate of the ship must follow the setpoint (see (5)) with only little delay.
14. Current track offset (distance of the shifted line to the base line): If the red triangle is to the right of the blue marking (blue marking represents track offset = 0), the ship will move to the right of the base line and vice versa.
15. Distance to the shifted line. In this example the ship is 0.1m right (portside) of the shifted track.
16. Set offset – port (see chapter “7.4 Moving the track")
17. Reset offset (incl. 4-step transition) (see chapter "7.4 Moving the track")
18. Feedback: Possibility to give feedback regarding our argoTracks (track further to port/starboard or general error in the track).
19. Select current distance as offset
20. Set offset – starboard (see chapter “7.4 Moving the track")
21. Optional: Display of argoTargetPilot targets with name (or mmsi) and collision warnings (only with active argoTargetPilot or argoLaneWarning)

22. Alarm and warning display. Alarms are displayed on the left edge with a flashing red alarm icon (1). Confirmed but active alarms are displayed with a permanently visible red alarm icon. Warnings are displayed on the left edge with a yellow icon. A flashing symbol indicates a new warning and a permanently visible symbol indicates a confirmed warning. The lower center part of the display (22) shows the time of the last occurrence and the text of the alarm or warning. Warnings are automatically confirmed and go away when the cause disappears. A confirmation of the warnings can also be made by clicking into the text area. You can test the alarm horn by pressing the symbol for more than 5 seconds. The horn will sound as long as the button remains pressed.
23. Set water speed in km/h and direction. This can be changed using the button 13. Depending on the direction of travel (upstream/downstream), the direction of travel is displayed above the speed if the set current speed is >0 km/h. Starting from version 3.0, the water speed and direction are automatically recognised and displayed as a suggestion.
24. Speed of the vessel in km/h. If the speed is below 5 km/h, a warning is displayed. The reason for this warning is an insufficient flow of the rudder at low speeds.
25. Heavy wind setting: When activating the heavy wind setting a symbol will flash on this page to indicate the active status. More details in part „Trackpilot Settings subpage 2“.
26. Set stream direction. Adjustable in the context menu on the right (31). If the flow direction is set, an orange symbol appears here.
27. Update of the water speed. If the function is active, an orange symbol appears next to the waves. Details can be found in section "Trackpilot settings subpage 2 ".
28. Status light “Filter" (GPS-symbol). The system can only be activated if the filter of the measured values can estimate a sufficiently accurate position.
    - A red filter status light indicates that the filter's estimation is insufficiently supported with measurement. After a few seconds in this state, an alarm ("FilterDegraded") will sound in the switched-on state which warns the captain of the insufficient accuracy.
    - A yellow light indicates that one or more readings are out of range. However, the estimate in this state is still sufficiently supported by measurements with a yellow light.
    - A green light indicates correct functioning of the filter. The system can only be switched on with a green filter status light.
29. Status light “Track” (track-symbol). The system can only be activated if the selected track meets the minimum requirements. This includes a sufficient length and curvatures which are not too large. If this status light is red, the selected track must be checked.
30. Status light ”Active“ (on/off symbol) indicates whether the Trackpilot (alternatively: argoRoutePlanner) is active.
31. Context menu: This button is used to show or hide the context menu.
    The following settings and displays can be found here:
    1. Setting the stream velocity – The absolute speed can be reduced or increased.
    2. Setting the stream direction (upstream/downstream) – From version 3.0, the stream velocity and direction are automatically detected and displayed as a suggestion.
    3. Setting transition intensity – Individually adjustable intensity of the distance correction from the ship to the track. Adjustable in four levels.
    4. Display of the estimated stream direction (blue arrow) and own course (orange arrow).



Trackpilot Settings subpage 1



On the page "Trackpilot settings" important settings of the Trackpilot can be changed. The settings are divided into two – optionally 3 – subpages, which can be switched between using the buttons on the right and left edge (3).

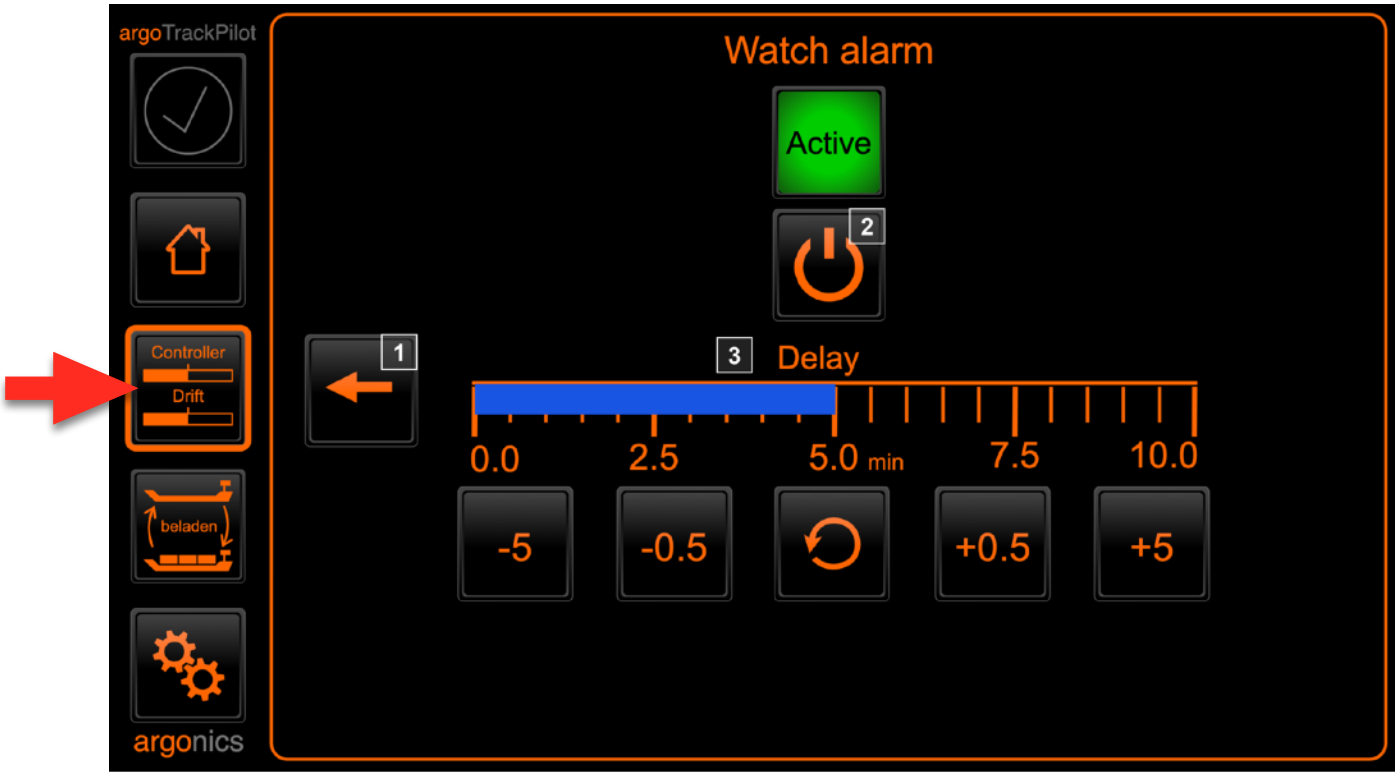
1. Controller Gain: This can be varied in several stages from little (left button) to much (right button). A larger value for the controller gain allows the system to be more active at the rate of turn. As a result, deviations from the track can be reduced faster, but the navigation becomes more dynamic due to the increased rudder activity. The selected setting is indicated by a blue bar.
2. Drift Gain: The preset settings of the drift factor might not always be the best setting for the current situation. To adjust the drift the captain can lower or raise the drift gain here. Raising the drift gain will increase the drift and move the ship more to the inside of the curve. Lowering the drift gain will therefor reduce the drift and move the ship more to the outside of the curve. The selected setting is indicated by a blue bar.
3. To get to the second subpage of the settings press this button.

Trackpilot Settings subpage 2

1. To get to the first subpage of the settings press this button.
2. Automatic updating of the water speed (suggestion): The argoTrackPilot can show you a suggestion for the water speed and direction based on your location and daily updated water level data. You can activate or deactivate this function here. If the function is active, the argoTrackPilot will show you the suggestions while you are travelling. You can accept these immediately.
   The function has three statuses, indicated by the small, round LED. In this example, it is yellow. You will also find it on the main screen (27).
   - green: The function is active and we can provide up-to-date water data.
   - yellow: The function is active, but we can not provide up-to-date water data.
   - grey: The function is not active.
3. Activates the heavy wind setting. This allows the argoTrackPilot to compensate for large deviations due to wind more freely. The compensation might take a few minutes. The status of the heavy wind setting is displayed on the main page with a flashing windsock (25).
4. To get to the third subpage of the settings press this button.
5. Distance Warning: The skipper can use this value to specify the distance from the line at which he wishes to be warned. However, a warning is not always issued for a larger deviation. If the track is intentionally shifted by more than this threshold value, no warning is issued. The warning therefore only appears if the deviation is greater than the system expects.

NOTICE: The "Safety corridor" function is no longer available from version 3.1.

Trackpilot Settings subpage 3



1. To get to the second subpage of the settings press this button.
2. Suspend the watch alarm temporarily

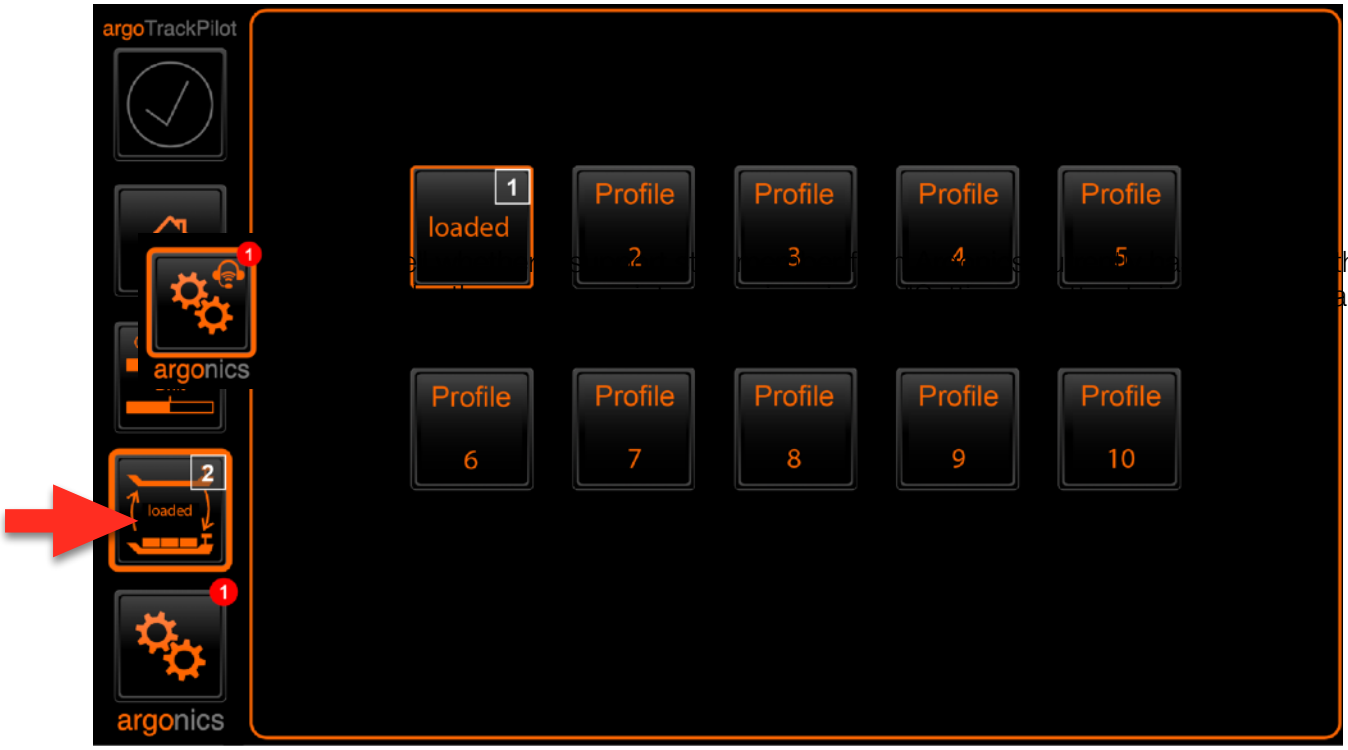
   Monitoring can be temporarily suspended by pressing this button. The watch alarm is automatically reactivated as soon as the Trackpilot has been deactivated for more than two hours. You may not be able to suspend the watch alarm if your shipping company does not allow this.
3. The time until the first warning will sound can be set under “Delay". Pressing the +/- 5 buttons will change the time by 5 minutes. Pressing the buttons +/- 0.5 will change the time by 0.5 minutes. To reset it to 5 minutes, use the button in the middle (“Reset”).

The current status is indicated by the "Active" status light. If the watch alarm is active, a **warning (three short signals)** will sound after the time set under "Delay" has elapsed, if the skipper has not made any entries on the argoTrackPilot during this time. This input can be made either on the touch display or by pressing one of the buttons on the control panel.
After 60 seconds of active warning, it is upgraded to an alarm. The alarm can only be confirmed by deactivating the Trackpilot.

Notice: The argoTrackPilot is never deactivated automatically. Only visual and acoustic warnings/ alarms are issued.

Profiles

On the page „profiles“ predefined settings can be loaded.



The active profile is shown with a frame (1) around the corresponding button. Additionally, its name appears in the menu button (2) on the left.

While travelling with an active argoTrackPilot, the profile cannot be changed. In this case the buttons are greyed out.

A maximum of 10 preset profiles can be created. Profiles that have not been set are no longer displayed in the user interface as of version 2.3. If you need more profiles than what was initially set up please contact argonics customer support.

Miscellaneous Settings

With the settings (gears) button on the left of the page the miscellaneous settings can be opened.

The following settings can be changed:

1. Brightness: Opens a menu to set the brightness and color scheme of the touch display. The brightness of the buttons built into the control panel can also be changed here.
2. News history: Opens the latest news regarding software updates or changes to the Trackpilot. The system checks daily if there are any news and downloads them automatically. If this is the case, a new message is displayed at the bottom left of the button for switching to the settings page.
   The news items are listed chronologically. The lines can be expanded and collapsed with ▶/▼ or by clicking in the line itself.

   You can use the double arrows at the side to jump to the beginning or end.

   The simple arrows are used for scrolling.

3. About: This button can be used to display the system name, version and CPU utilization of the Trackpilot system.

   Licenses
   You can view and update the Trackpilot licences on this subpage.
   (LED green=licence active, LED grey=licence not available, LED red=licence expired)

   Back to the previous page

   Version history
   Read here which changes and new features have been introduced in the current and previous versions. The operation is the same as in the news history (2).

Version history
Read here which changes and new features have been introduced in the current and previous versions. The operation is the same as in the news history (2).

Perform update

4. Remote support: Access to remote support can be operated via the two buttons “Open” and “Close”. Pressing the "Open" button activates the access and allows connections for remote support etc. To close the access, the "Close" button must be pressed for a few seconds. A small bar above the button indicates the closing process. The status of the access is shown above the two buttons. The lock symbol represents whether the access is currently open or closed. If the access is open, the remaining time is also displayed. After the time has expired, the access is automatically closed again.
5. Language: The language setting can be changed here. The languages German, English and Dutch are available. If a permanent setting of a specific language is desired, this must be done elsewhere. Please contact the Argonics customer support.
6. Help: Pressing this button takes you to a sub-page with a redirect to a set of help-links and the contact information of the customer support. We have provided a link to short videos and operating instructions for you here.

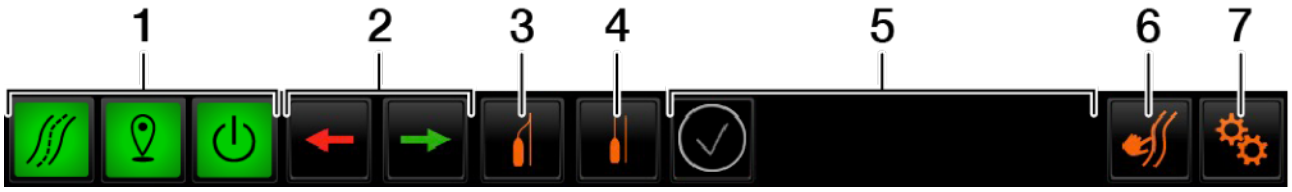
Restarting the touchscreen and system
The touchscreen and system are shut down and restarted automatically using the "Restart" button. This may take a few minutes.

Back to the previous page

8.2. argoControlPanel *flex*

argoControlPanel flex is a **free** program for system-independent operation of the argoTrackPilot. You can download argoControlPanel flex from the "Download" section of the argoTrackPilot on the argonics website and install it on a Windows PC or ECDIS. The readme file stored in the ZIP file explains how to install the ControlPanel and provides further information on initial setting options.

argoControlPanel flex can be displayed horizontally or vertically. Both variants are opened when the program is started. Close the version you do not want by clicking on the "X". To ensure that you always have access to the ControlPanel, this window is always displayed above all other windows.



1. Status LEDs - This shows whether a track is selected ("Track"), whether the received measured values are within the permitted range ("Filter") and whether the Trackpilot is active ("Active").
2. Move track to port or starboard
3. Reset offset
4. Set current distance as offset
5. Place for warning symbol and warning or alarm symbol and alarm
6. Select track – Opens the map view to select a track in the standard view.
7. Settings – Opens the "argoTrackPilot" page in the standard view.

The operation of the standard view is described in the previous chapter.

8.3.Control panel for desk installation

There are multiple variants of this control panel.

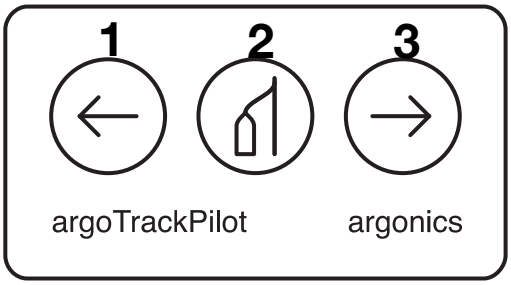
Variant 1: The control panel has 4 buttons (1-4), which can be pressed, one selector switch (6) and one alarm horn (5).

Variant 2 only features the buttons 1-3.

The elements have the following functions:

1. Moving the track to port side
2. Moving the track back to the center (offset = 0)
   From software version 2.2 and newer the function of this button has changed.
   1. When pressing the button shortly the current distance will be set as desired distance
   2. When pressing the button for 2 seconds the desired distance will be reset to 0.
3. Moving the track to starboard side
4. Switching Trackpilot mode on, status light active (not available when using Alphatron or RadioZeeland systems)
5. Alarm horn. Should the control panel only contain buttons 1-3, warnings and alarms are indicated via a built-in buzzer.
6. On/Off switch (only with argoPilot)

Variant 1: Four lighted buttons, warning buzzer and a rotational switch



Variant 2: Three lighted buttons and a built-in buzzer

8.4. Switching the system on and off

To activate the Trackpilot, there are different methods. These depend on which autopilot is connected to the Trackpilot.

Below you will find instructions for the different manufacturers.

8.4.1. Argonics argoPilot

Trackpilot mode is activated by pressing the "Bahn" button [4]. The following conditions must be fulfilled for this:

- Selector switch "On / Off" [6] in position "On"
- Track condition ready (see "Display Trackpilot")
- Filter condition ready (see "Display Trackpilot")

If the selector switch is turned to the "off" position while the system is active, the system remains active until it is deactivated via the autopilot. However, the function of the argoPilot may be impaired. Please consult your installation technician.

8.4.2. Alphatron AlphaPilot

Trackpilot mode is activated by pressing the "compass" button on the AlphaPilot control. The following conditions must be fulfilled for this:

- Track condition: ready (see "Bottom Trackpilot")
- Filter condition: ready (see "Bottom Trackpilot")
- Lever of the AlphaPilot in zero position (depending on autopilot setup)

After pressing the button the pilot will sound a short beep. If all devices are functioning correctly, only a short beep sounds and the Trackpilot controls the ship. A not stopping beep indicates that the autopilot is not receiving feedback from the Trackpilot about the navigation status. The Trackpilot can not be activated at this time.

8.4.3. Alphatron AlphaRiverPilot MFS

Trackpilot mode is activated by pressing the "Track" button on the AlphaRiverPilot MFS control. The following conditions must be fulfilled for this:

- Track condition: ready (status light “track” is green)
- Filter condition: ready (status light “filter" is green)
- Lever of the AlphaRiverPilot MFS in zero position (It is not possible to switch to track mode while another steering maneuver is still being carried out or completed.)
- “Track” button on the AlphaRiverPilot MFS is white (If the button is orange, there is a fault; communication with the Trackpilot may be disrupted.)

If all systems are functioning correctly, pressing the “Track” button will emit a short signal tone, the button turns green, and the trackpilot takes over control of the vessel. If instead three short consecutive signal tones are emitted, a malfunction is present and the trackpilot cannot be activated at this time. If switching to Track mode on the Trackpilot fails, an alarm is also triggered on the MFS pilot. Switch to the WEG/MAN mode by pressing the “MAN” button to acknowledge this alarm.

8.4.4. RadioZeeland Sigma/Titan

Trackpilot mode is activated by pressing the external button on the RadioZeeland control. The following conditions must be fulfilled for this:

- Track condition: ready (see "Bottom Trackpilot")
- Filter condition: ready (see "Bottom Trackpilot")

A beep from the autopilot after pressing the external button indicates a malfunction of the system and the Trackpilot can not be activated at this time. The beep warns that the autopilot is not receiving feedback from the Trackpilot about the navigation status.

8.4.5. Veth Autopilot

Trackpilot mode is activated by pressing the „Bahn“ button [4] on the control panel. It is

also possible to activate Trackpilot mode with the button „Bahn“ (7) on the graphical user interface (see ”Display Trackpilot“). The following conditions must be fulfilled for this:

- Track condition: ready (see "Bottom Trackpilot")
- Filter condition: ready (see "Bottom Trackpilot“)
- Autopilot im Modus „AUTO“

A beep from the autopilot after pressing the button indicates that the system is malfunctioning and the Trackpilot can not be activated at this time.

8.4.6. Schwarz RiverPilot

Trackpilot mode is activated by pressing the „Bahn“ button [4] on the control panel. The following conditions must be fulfilled for this:

- Track condition: ready (see "Bottom Trackpilot")
- Filter condition: ready (see "Bottom Trackpilot“)
- Autopilot im Modus „AUTO“

A beep from the autopilot after pressing the button indicates that the system is malfunctioning and the Trackpilot can not be activated at this time. The beep warns that the autopilot is not receiving feedback from the Trackpilot about the navigation status.

The illumination of the "Bahn" button and the "Bahn" light on the user interface indicates that the Trackpilot has been successfully **turned on**. If the lights are not turned on despite pressing a button, the ship must still be controlled manually.

CAUTION

Checking the function

After switching the Trackpilot on, the skipper must check whether the Trackpilot actually controls the ship in the desired manner and whether the autopilot correctly implements the control commands.

➢ Read the chapter “Sea trial” in the installation manual.

Switching off the Trackpilot is done via a button on the autopilot, which switches the autopilot back to "AUTO" mode. This is named differently depending on the manufacturer. When the command is given to the autopilot, the "Bahn" light on the control panel and in the user interface goes out.

One exception is the Veth autopilot. On this autopilot, the Trackpilot mode must be deactivated on the Trackpilot. This is done by pressing the "Bahn" button (7) on the user interface again. It is also possible to switch the mode to "WEG" on the autopilot in order to regain control of the rudder on the autopilot.

8.5. Moving the track

For overtaking and evasive maneuvers, the skipper can move the track to both sides transversely using buttons 1 and 3 of the control elements. Button 2 resets the offset back to the original track. To continually shift the track, keep key 1 or 3 pressed.

CAUTION

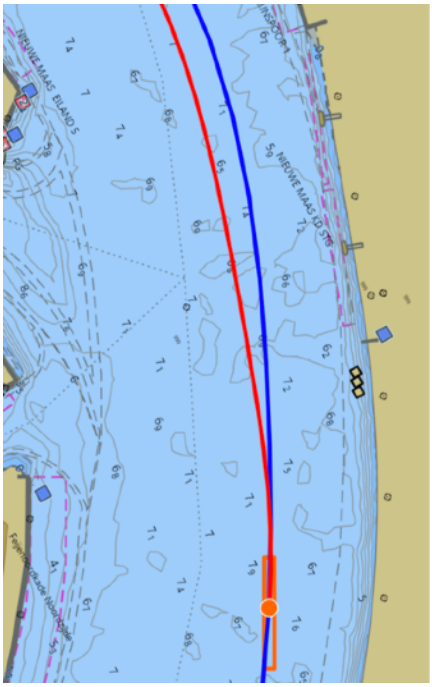
Checking the function

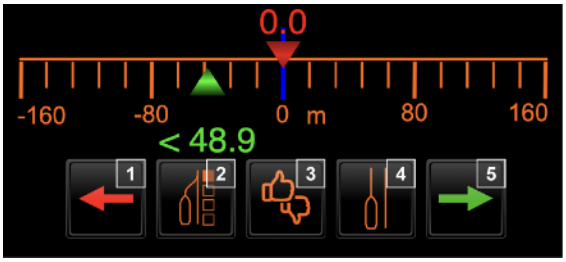
The moved track may run outside the fairway and dangerous encounters may occur.

➢ Check the track using the connected chart display and adjust it, if necessary.

From software version 2.6 the red line will be displayed as a transition from the current position towards the shifted track.

Moved track with transition (red) and original track (blue):



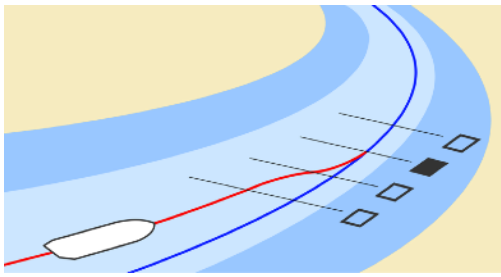


On the touch screen, the shift is displayed on a scale as a red triangle (here 0.0m), the current distance to the shifted track is represented by a green triangle (here 48.9 m)

You will also find buttons for moving (1,5) and for resetting (2) the offset on the touch screen. The distance at which the track moves can be set in the configuration menu. Contact the customer service or the installer.

In addition, the current distance can also be selected as a track offset (4).

Adjustable transition

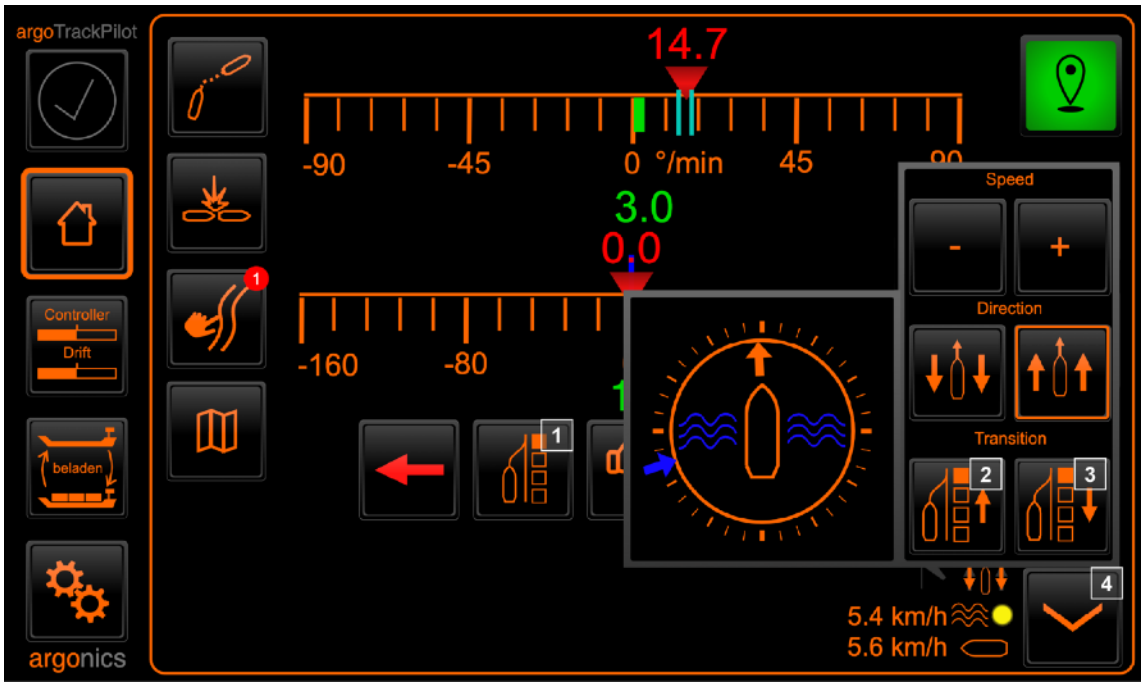


This function allows you to control how much the argoTrackPilot corrects large distances. You can set the intensity of the transition in four stages. You can see the set intensity on the main screen in the "Reset offset" button (1).

This affects several situations, for example resetting the offset or switching from one track to another in route planning.

You can set the transition intensity in the context menu (4) using the two buttons "Decrease transition intensity" (2) and "Increase transition intensity" (3).

Alternatively, the transition can also be adjusted using the joystick on the Alphatron MF display. Push the joystick forwards to reduce the transition strength, i.e. to move the transition point further forward. Pull the joystick backwards to increase the transition strength, i.e. to move the transition point closer to the current position.



1. Reset offset (incl. display of the 4-stage transition)
2. Decrease transition intensity
3. Increase transition intensity
4. Open/Close context menu

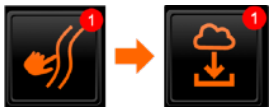
ⓘ	You can find out how to navigate along a track with the argoTrackPilot in the next chapter “argoTracks - Guideline Service”.

8.6.argoTracks - Guideline Service

The guideline service argoTracks can be subscribed to together with the maintenance contract. The lines are maintained by argonics customer support and are constantly being improved with every feedback from various skippers. Don't hesitate to give argonics customer support feedback about a suboptimal course of a line.

Download new tracks

We regularly update our routes and tracks.



The example on the left shows that new tracks are available. Go to the list view to download the latest tracks using the "Download" button.

Filter - Select - Activate

What is the difference between filter, select and activate?

1. Filter
   We provide you with filters so you don't have to browse through all the available tracks from A to Z. You can filter the tracks in different ways, e.g. by "last activated" or "in my immediate vicinity". List view and map view provide different filters.
2. Select
   1. List view: Use the arrow keys to scroll through the listed (and filtered) tracks. You select the desired track by clicking on its name. If a track is selected, it has an orange frame (see graphic under "List View").
   2. Map view: Use the arrow keys to scroll through the filtered tracks. As soon as the name of the track appears at the top, it is selected.
3. Activate
   Clicking on the checkmark symbol activates the track. It is loaded and can be used.

List view

Pressing the button on the main page opens the sub-page “argoTracks-Service” in its list view.

The buttons on this page have the following functions:

1. Back to the main screen.
2. List of locally saved tracks.
   Displayed are only tracks which are saved inside argoTrackPilot. If a track is greyed out, the usage time has expired. Please contact the Argonics customer support.
   To preselect a track, please press the respective area. The selected track is now displayed with an orange frame, but is not yet activated.
   For each track the following details are displayed if available:
   1. River or start to end point
   2. Direction (only for rivers)
   3. Waterlevel (if available)
   4. Miscellaneous informations like version, type, etc.
3. Filter: Alphabetical
   Displays the list divided into five sections of the alphabet. To deactivate the filter, press the filter button again.
4. Filter: Last activated tracks
   This button switches the display to the 5 most recently used tracks. The list is sorted by time.
5. The arrow keys up and down can be used to scroll through the list. Below the buttons, the current page and the total number of pages are displayed.
6. Activating the selected track: To activate the selected track, the Trackpilot must be deactivated. The successful loading of the track is displayed. Also check the correct selection of the track in the connected ECDIS.

7. Downloading new tracks from the server.
   An error during download can have different reasons. Try again at a later time. If a successful connection could not be established after several attempts, please contact Argonics customer support.
8. Feedback on argoTracks: With this function you can give us direct feedback on our tracks on the spot. Click on the symbol to open a window. You will be asked for confirmation before sending.

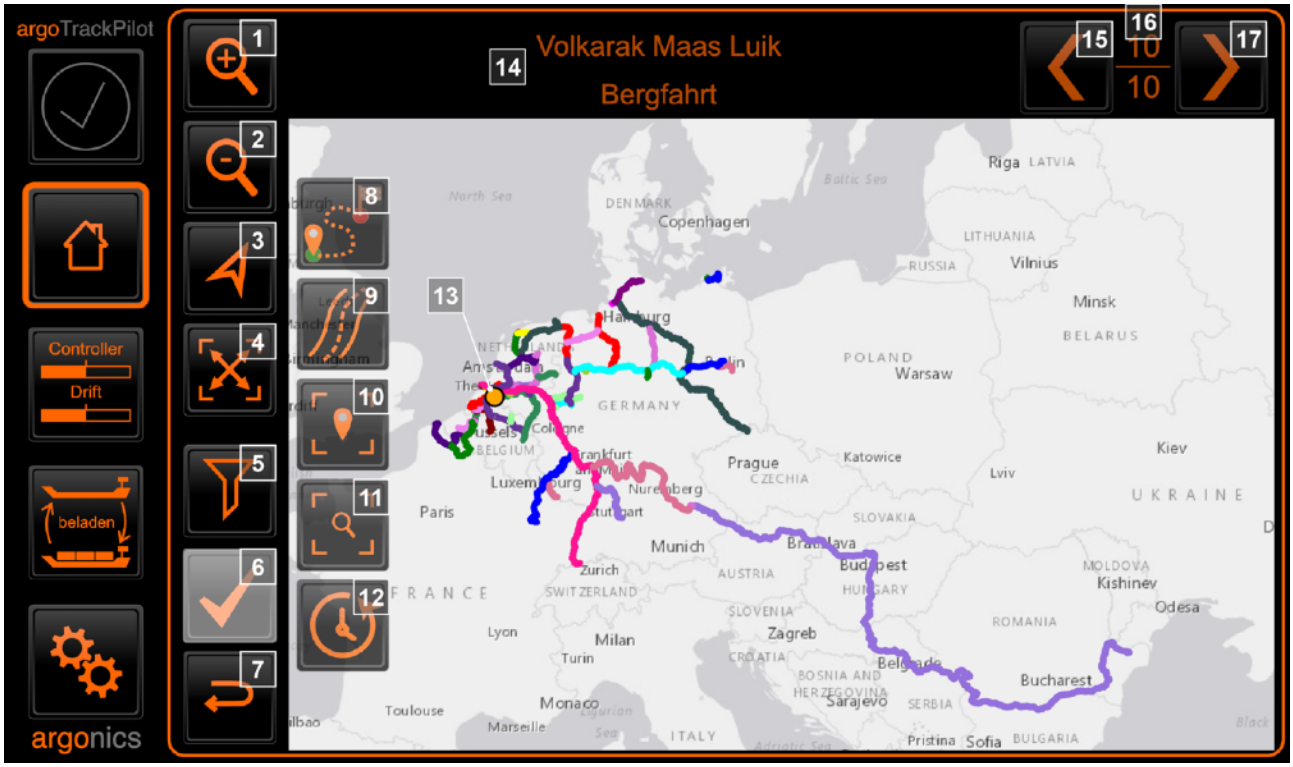
Feedback 1 - Track must be moved further to starboard (or other button: Track must be moved further to port)

Feedback 2 - Other error in the track, for example a displaced can.

Back to the previous page

Map view

The button on the "Trackpilot" page takes you to the "argoTracks-Service" subpage in its map view. Additionally, here you will find the optional module „argoRoutePlanner“ (8).



1. Zoom in – Zooms in on the map section.
2. Zoom out – Reduces the map section.
3. Centre view on own position (orange circle (13)).

4. Restrict map section to selected track.
   The map section displayed adapts to the selected track. If no track is selected, the map section is selected so that all tracks can be displayed in their total length.
5. Filter options for track selection
   If you have not yet applied a filter option, the symbol represents a filter. Click on it to open further filter options on the right (9-12). Additionally, you will find the optional module argoRoutePlanner (8) here.
6. Activating the selected track: To activate the selected track, the Trackpilot must be deactivated. The successful loading of the track is displayed. Check the correct selection of the track also in the connected ECDIS.
7. Switch the display back to the main screen.
8. Optional module: argoRoutePlanner – load optimised route planner.
   Find out more in chapter 7.8 argoRoutePlanner.
9. Filter: Active track
10. Filter: Tracks in my direct vicinity
11. Filter: tracks in current section
12. Filter: Recently activated tracks
13. Own position in the map view (orange circle)
14. Name of the selected track
15. Use the left (15) and right (17) arrow keys to scroll through the tracks. In the centre (16) the current track and the total number of tracks are displayed.
16. Numbering of tracks
    If you have selected several tracks in one area, the current track and the total number of selected tracks are displayed here.
17. You can scroll through the tracks with the arrow keys left (15) and right (17).

Customizing the map section

When you first open the map view, all available tracks are displayed. The map can be moved by clicking in the map area.

The Zoom In (1) and Zoom Out (2) buttons can be used to further adjust the displayed area.

Alternatively, you can also use the button (3) to quickly center the map view on your own position.

The button (4) adjusts the displayed map section to the currently selected track. If no track is selected, the map section is selected so that all tracks are displayed.

Filtering and selecting tracks

Filtering

If you have not yet applied a filter option, then the symbol (5) represents a filter.
If you click on the filter, the following filter options open on the right (9-12):

Filter: **Active track** (9)
If a track is already active, this filter centers the view on it. The track is displayed in its total length.

Filter: **Tracks in my direct vicinity** (10)
This filter displays all tracks in the direct vicinity of your position. This function is useful if you want to see all tracks that run through the river or harbor you are currently navigating. The filter area is displayed as a red frame.

Filter: **Tracks in current section** (11)
This filter displays all tracks that are located in the current section of the map.

Filter: **Recently activated tracks** (12)
This button switches the display to the 5 most recently used lines. The list is sorted by time.

Selecting

Once you have applied a filter, an overview (16) of the total number of available tracks appears in the upper right corner. You can now scroll between them with the arrow keys (15, 17). The map view adjusts accordingly.

As soon as a track is selected, its name appears in the upper, free area (14).

Activating a track

To activate the selected track, the Trackpilot must be deactivated. The successful loading of the track is displayed. Check the correct selection of the track also in the connected ECDIS.

Press the "Activate track" button (6) to activate the track you have selected.

The "Back" button (7) takes you back to the main screen.

On the ECIDS-PC

Additionally there is an advanced user interface which can be reached with a PC, usually the ECDIS PC. The usage of this user interface is described in this chapter. To do this, please activate the access for remote support on the argoTrackPilot.

NOTE: Since the interface to any external PC is a possible security issue the user interface is only reachable when access has been granted.

For an installation on your PC please contact argonics customer support.

Put in the pin code you already use to log in to the user interface on the touch display. You will reach the following page.

The current position is displayed on the map with an orange dot. The black line represents the currently active track. You can move the map and inspect this track here.

To update the tracks package use the button below „Download new Tracks“. argoTrackPilot will then look for a new package and if available install it automatically. After updating the package the page will reload.

Choosing a track on the (ECDIS-)PC

To choose a line simply click on the button below „Choose new track“.
To get a complete overview of all tracks, you can use the button with the "Zoom" symbol in the top right-hand corner.

To select a track, please click on the desired track.

If there is more than one track at the clicked location, only these tracks are then displayed on the map. Further a dropdown menu on the left side appears which can be used to choose one track from these tracks.

To reduce the number of selected tracks further click on any of the displayed tracks or choose a line from the dropdown on the left.

When the selection has finally been made to only one track its name is displayed on the top left.

You can activate this track by clicking on „Activate“. After successfully loading the track the diplayed lines will disappear and the currently active track will be shown again. Please confirm the selection by checking if the line in your ECDIS and the track you selected match.

8.7. argoRoutePlanner – route planning

The argoRoutePlanner offers comprehensive route planning, taking your own draft into account. The safety margin can also be customised.

Interface – argoTrackPilot

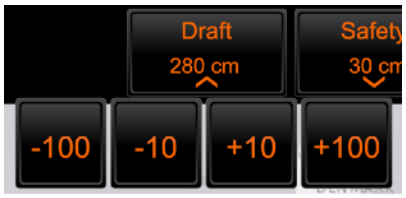
In the map view you will find the argoRoutePlanner module in the filter .

After selecting the "argoRoutePlanner" module, your interface could look like the one shown below. argoRoutePlanner-specific buttons (1-7) can be found at the top of the screen. The view is automatically centred on your position (8) at the start.

1. Set start - use current selection as start
2. Set stopover - Apply current selection as a stopover. Up to 10 stopovers are possible. Press and hold the button to remove the last set stopover.
3. Set destination - use current selection as destination
4. Set the draft and display the currently set draft (here: 280 cm)
5. Setting the safety margin and displaying the currently set safety margin (here: 30 cm)
6. Setting the water level and displaying the currently set water level (here: "MW" for medium water)
7. View water level data (currently only available for the German Rhine)
8. Current position (orange circle
9. Selection (cross)

argoRoutePlanner – Settings

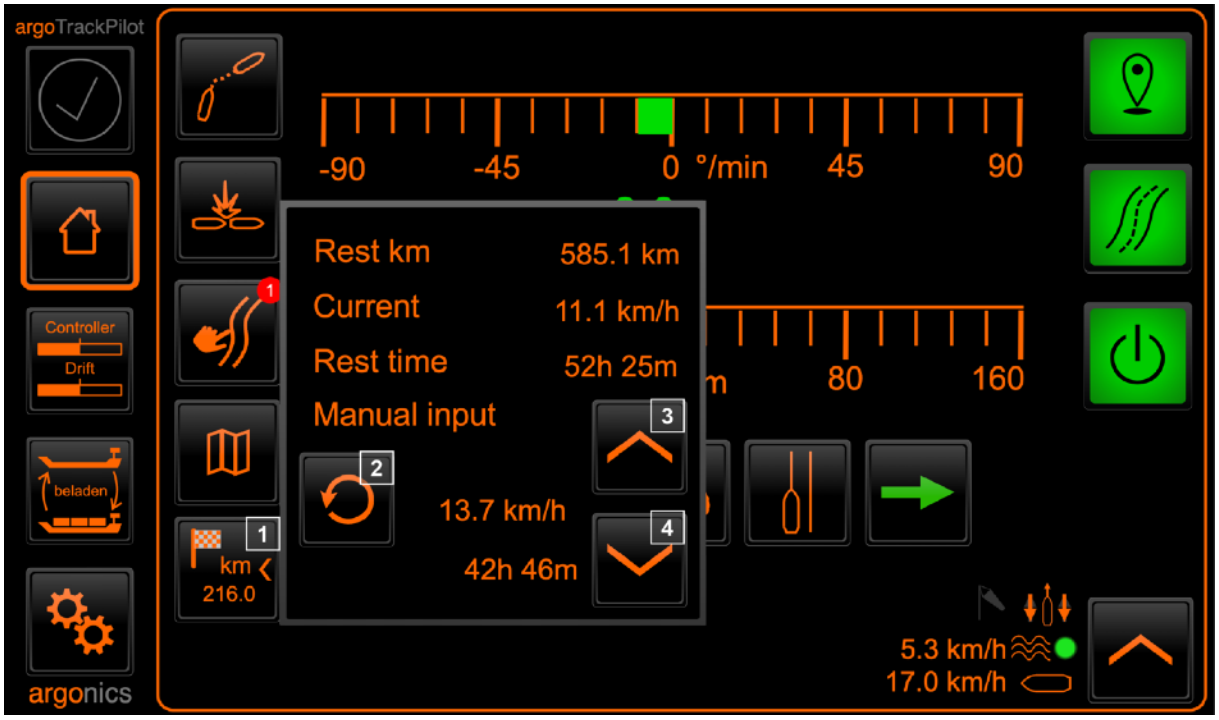
In the respective settings, you can set the draft, the safety margin and the water level. The setting options become visible by clicking on the corresponding button. The current setting is always displayed in the button itself.



You will find the following selection options in the "Set water level" button:

- Select "Low water (LW)" water level
- Select "Medium water (MW)" water level
- Select “High water (HW)” water level

argoRoutePlanner active – Estimated time of arrival (ETA)



1. Symbol "argoRoutePlanner – Route active"
2. Use current speed
3. Increase speed
4. Decrease speed

If the Trackpilot has successfully loaded the route, the "Track" LED turns green.
A new symbol (1) appears in the menu bar on the left. This indicates that route planning is active. You can also see how long the route is in the symbol.

Click on the icon (1) to open a context menu. Within this menu, you have the option of increasing (3) or decreasing (4) the speed. The updated remaining journey time for the selected route is displayed immediately.

Set start and destination

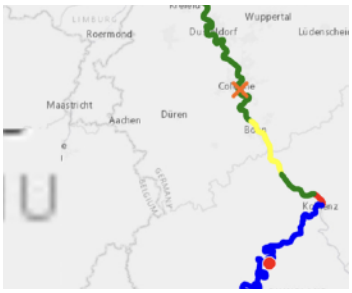
You can set the start or the destination first; the order does not matter. The argoRoutePlanner assumes that you want to set your current position as the start and has already loaded this as the start. However, you can always set a different starting point manually.

Click on the map to move the view and thus the selection ✕.

Click on the "Set start" or "Set destination" buttons to set the current selection as the start or destination. In addition, you can set stopovers (and delete them again with a long press).

The argoRoutePlanner displays the start with a green circle ● and the end with a red circle ●. Stopovers are displayed with a yellow circle ● and additionally numbered consecutively.

Calculating the route



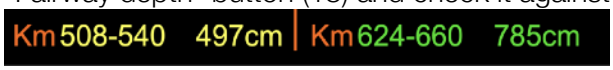
The argoRoutePlanner calculates the route automatically as soon as you have selected a start and destination point. It also recognises when you make changes to the settings. The displayed route is colour-coded:

- **Green font:** More than 30 cm available after deduction of draft + safety margin
- **Yellow font:** Between 30 cm and 0 cm available after deduction of draft+safety margin
- **Red font:** Less than 0 cm available after deduction of draft+safety margin

> ***Problems with stopover(s) during route calculation?***
>
> If the route includes a stopover that causes a back-and-forth passage along the same section, no route can be found and the stopover must be removed. Please follow the instructions shown in the user interface.

Change settings in the argoRoutePlanner

1. Set the current **draft**
2. Optional: Set the **safety margin.**
3. Set the **water level**
   Set the water level manually (LW/MW/HW).
4. Optional: **Check the depth of the fairway**
   Thanks to the current water level data, you can display the current depth of the fairway using the "Fairway depth" button (13) and check it against your current settings:

   The information is colour-coded and you will find the same colours in the route display on the map.

Load route/track

5. Set route

   Click on "Accept track" to load the route into the argoTrackPilot.
6. Back to page "argoTrackPilot"
   ➡

   Go back to the "argoTrackPilot" page. The "argoRoutePlanner - Route active" symbol now appears here.
7. Optional: Set speed in the context menu
   In the context menu of the argoRoutePlanner you can find out more about the route, set the speed and check the remaining journey time.
8. Activate Trackpilot
   Activate the Trackpilot on the autopilot.

8.8.argoTargetPilot - automatic following of AIS targets

argoTargetPilot is an additional module to argoTrackPilot and can be purchased separately. The function enables the automatic following of AIS targets in front.

Connection to an AIS transponder is a prerequisite for using argoTargetPilot. If this connection has not yet been installed speak to your navigation electronics specialist. Please contact argonics customer support for more information.

CAUTION

Responsibility of the skipper

The skipper is responsible for the vessel and its course at all times.

➢ Do not leave the helm.

➢ Never allow the argoTrackPilot to steer the vessel without supervision.

NOTICE

Unreliable AIS information

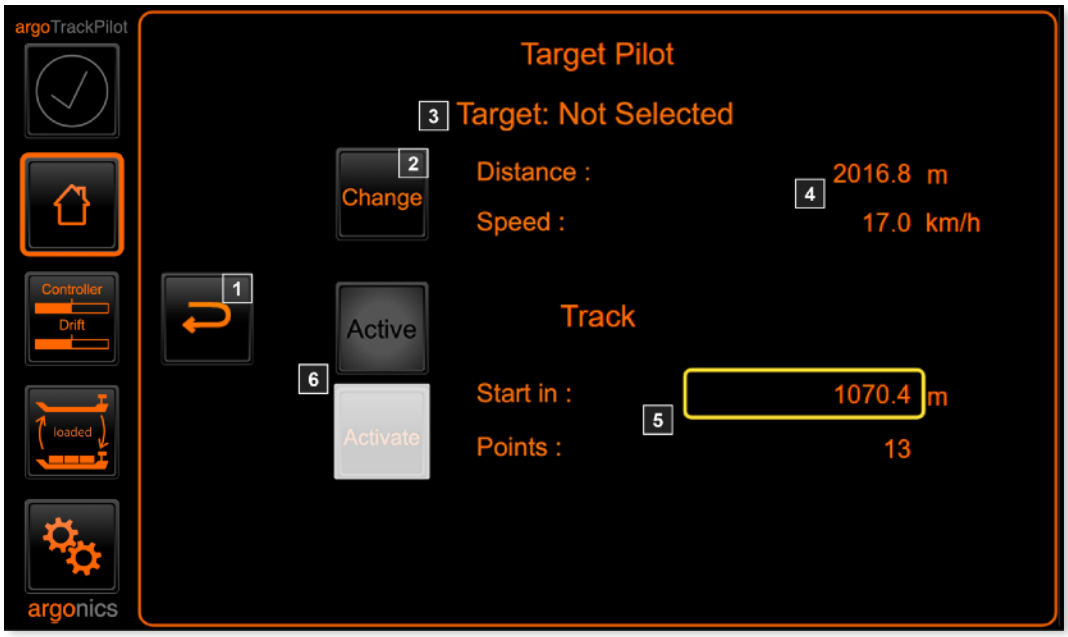
Only AIS information is used as a basis for the subsequent voyage. These AIS positions may be inaccurate and unreliable. The resulting path may possibly lead through unnavigable places.

➢ Increased caution is required when using the argoTargetPilot.

➢ In particularly narrow and curvy areas, the argoTargetPilot should only be used with extreme caution.

Page argoTargetPilot

Pressing the button with the symbol on the main page opens up the user interface for argoTargetPilot.



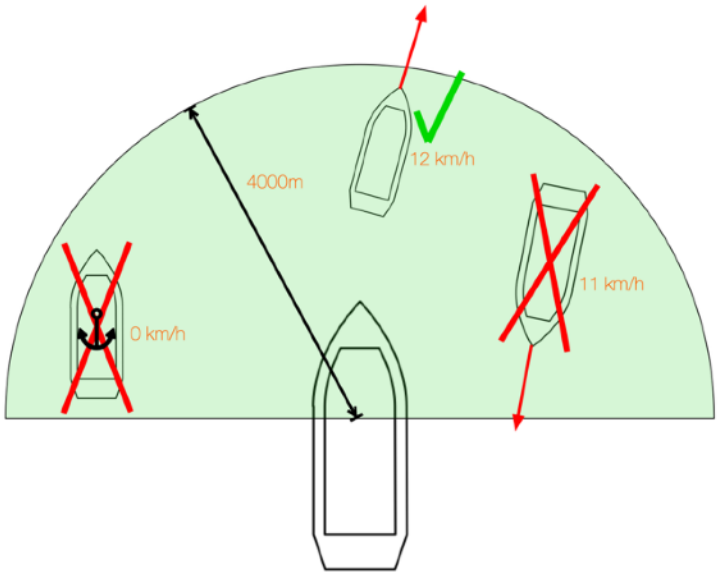
The elements have the following meaning or function:

1. Back to main screen.
2. Change the selected target: Pressing this button opens up a list with all available ships. All AIS targets within a 4km radius are filtered according to speed and course. Only those ships are displayed in the list that have a similar course and a speed greater than 5 km/h.
3. Display of the currently selected target: If the argoTargetPilot does not yet have a name, the MMSI is shown here instead.
4. Data for the selected AIS target: The data includes the current distance to the target along the recorded path and the current speed of the target.
5. Data for the recorded track:
   - Start in: Distance to the start of the track recorded from the target. argoTargetPilot cannot be activated before the start of the track is reached. The display is outlined in yellow before the target's track is reached.
   - Points: The number of track points recorded from the target. If there are not enough points yet argoTargetPilot cannot be activated. The "Start in" display then shows the value "9999".
6. Activate argoTargetPilot: The status light "Active" indicates whether the recorded track is currently selected for automatic travel with the argoTrackPilot. To change the status, the argoTargetPilot can be activated and deactivated using the "Activate" button.
   When the argoTargetPilot is deactivated the track which was selected prior to activating argoTargetPilot is activated again.

Selecting a target and activating argoTargetPilot

In order to keep the list of AIS targets short all targets are filtered.

The targets are filtered as follows:



- Distance to target: max 4000m (green semicircle)
- Direction to target: +- 90° relative to own heading (green semicircle)
- Targets' course over ground: +- 90° relative to own course over ground
- Velocity of target: at least 5 km/h

The ships in the green semicircle are filtered according to the rules mentioned above. The ship at the left edge is anchored. Thus, its speed is too low. The ship on the right-hand side travels against the own direction of travel and is also filtered out. Only the ship in the upper part of the picture fulfills all conditions and can be selected as a target for argoTargetPilot.

In order to select a target argoTrackPilot must be deactivated. The list of possible targets can then be displayed using the "Change" button on the main argoTargetPilot interface.

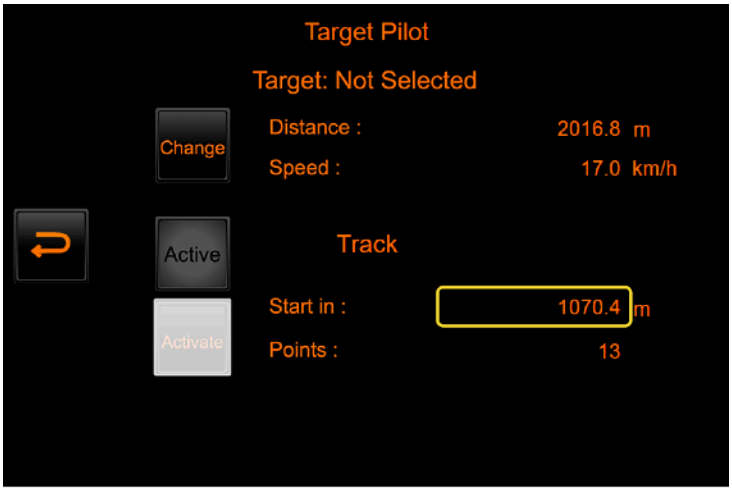
If a target has already been selected it will be shown in the list with an orange frame. In addition to the name (or MMSI) of each target, the distance and the current speed are also displayed. If a name has not yet been received for a target its MMSI is displayed instead.

To select a target press the corresponding entry in the list. The button in the top right corner with the "X" can be used to deselect the current target.

The button with the reload symbol is used to update the list.

To scroll through the list use the buttons with the up and down arrow.

After selecting a target, the list is automatically closed and all information relating to the target is displayed in the main interface of argoTargetPilot.



If the distance to the start of the recorded track is 0 and argoTrackPilot is not active argoTargetPilot can be activated with the „Activate“ button. When activating argoTargetPilot the currently active track is switched to the recorded track of the AIS target. argoTrackPilot can then be used with the recorded track. On the main page of argoTrackPilot a message is displayed that an AIS target is being followed. See number (4) of the main argoTrackPilot page.

8.9. argoLaneWarning - collision warning based on AIS

argoLaneWarning is an additional module to argoTrackPilot and can be purchased separately. The function enables collision warning based on AIS information. argoLaneWarning **supports** the skipper by providing collision warning based on AIS and thus contributes to increasing safety while sailing with argoTrackPilot.

Connection to an AIS transponder is a prerequisite for using argoLaneWarning. If this connection has not yet been installed speak to your navigation electronics specialist. Please contact argonics customer support for more information.

WARNING

Possible collision with cross traffic

The argoLaneWarning system assumes that traffic always moves in the direction of its own track. It therefore does not warn of possible collisions in cross traffic.

➢ Continue to observe the vessel traffic carefully.

CAUTION

Failure to warn when argoTrackPilot is deactivated

argoLaneWarning can only warn while sailing with activated argoTrackPilot. If the argoTrackPilot is deactivated, there is also no warning of collisions.

➢ Make sure that the argoTrackPilot is activated.

NOTICE

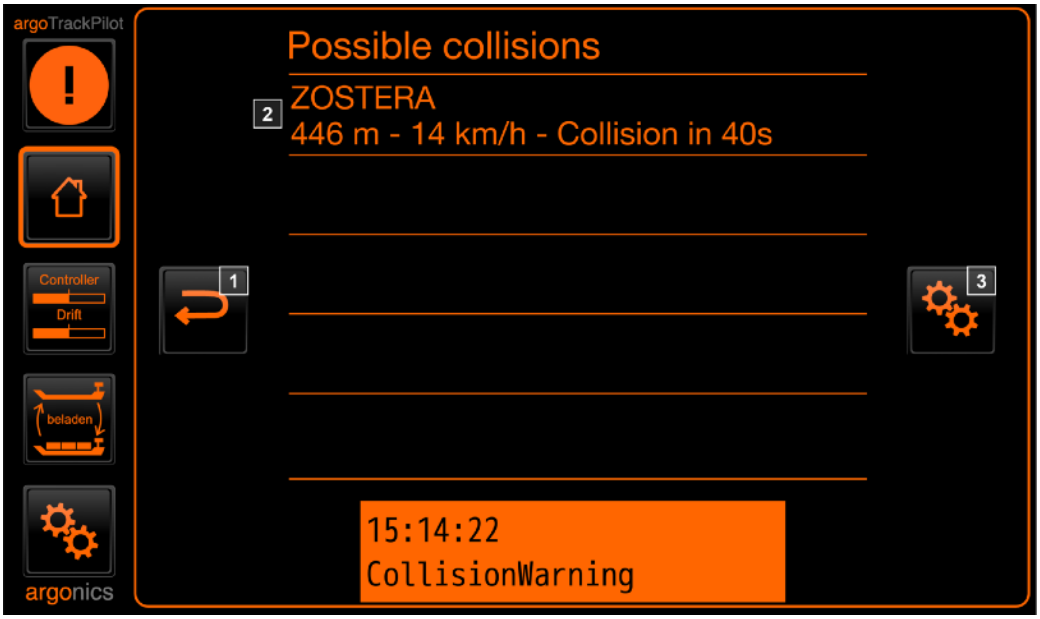
Unreliable AIS information

argoLaneWarning only uses AIS information to detect targets. This AIS information can be inaccurate and unreliable. Furthermore, not all possible obstacles are equipped with AIS transponders. argoLaneWarning may therefore produce incorrect warning messages or not warn at all.

➢ Continue to observe vessel traffic carefully.

Page argoLaneWarning (collision warning)

Pressing the button with the symbol on the main page opens up the user interface for collision warning. From there, another button takes you to the settings subpage for the collision warning.



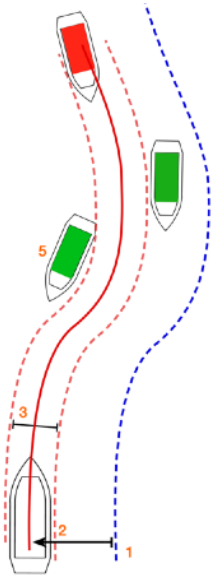
The elements have the following meaning:

1. Back to main screen.
2. Display of active potential collisions. All potential collisions are displayed with the distance to the target, its speed and the time to potential collision.
3. Opens up the settings subpage for collision warning.

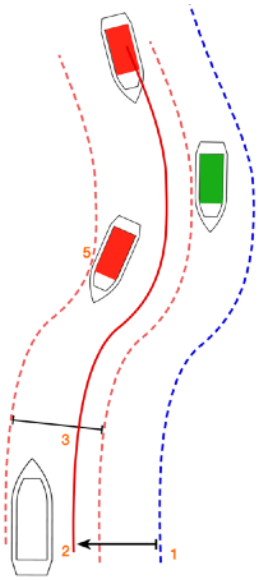
How does the collision detection work?

In order to detect a potential collision argoTrackPilot compares the position of all AIS targets with the currently selected track. The following schematic illustration clarifies which targets are recognized as potential collisions (red) and which are not (green).

For the prediction of the own position it is assumed that argoTrackPilot steers the ship to the red line (2) which can be shifted with respect to the base track (1). Accordingly, only the area around the red line is checked for possible collisions. The width of the ship plus an adjustable lateral safety distance is set as safety



Sailing on the red line



Detection when sailing with distance to the red line

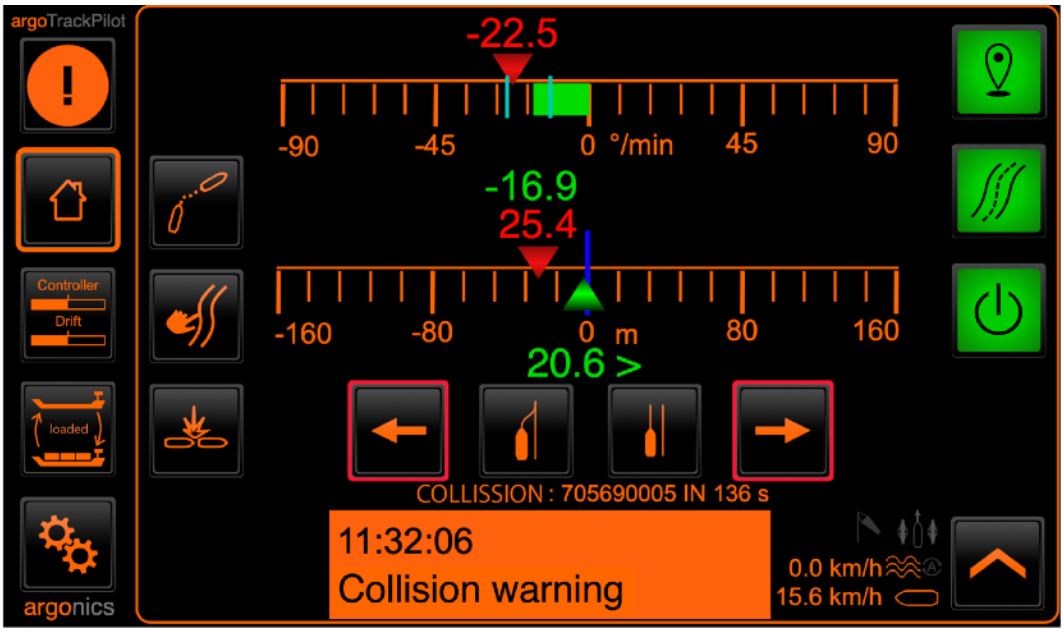
corridor around the red line (3). The current distance to the red line is added to the safety corridor which is checked for potential collisions. In the illustration on the right the corridor (3) around the red line is wider to port side than to starboard side. The time to collision is calculated for all vessels within this safety corridor. Their length and width as well as additional width due to drift is taken into account. If the time to collision of any ship violates the time to collision warning threshold a collision warning becomes active. If the time to collision of any ship violates the time to collision alarm threshold a collision alarm becomes active.

In addition, the longitudinal distance to all AIS targets is checked at all times. If this distance violates the distance warning threshold a collision warning becomes active. If this distance violates the distance alarm threshold a collision alarm becomes active. The threshold settings can be modified in the configuration interface of argoLaneWarning. More on this in the section "Configuration of argoLaneWarning".

All ships are presumed to be aligned with the selected track of argoTrackPilot because AIS does not provide heading information for many ships. Thus, potential collisions with ships which are not aligned with the track direction of argoTrackPilot cannot be detected reliably.

Warning

On the main page of argoTrackPilot potential collisions are indicated. The settings can be adjusted via the configuration interface of argoLaneWarning. More on this under "Settings for collision detection". If a potential collision has been detected the following information can be found on the main page:



Display version 3.1

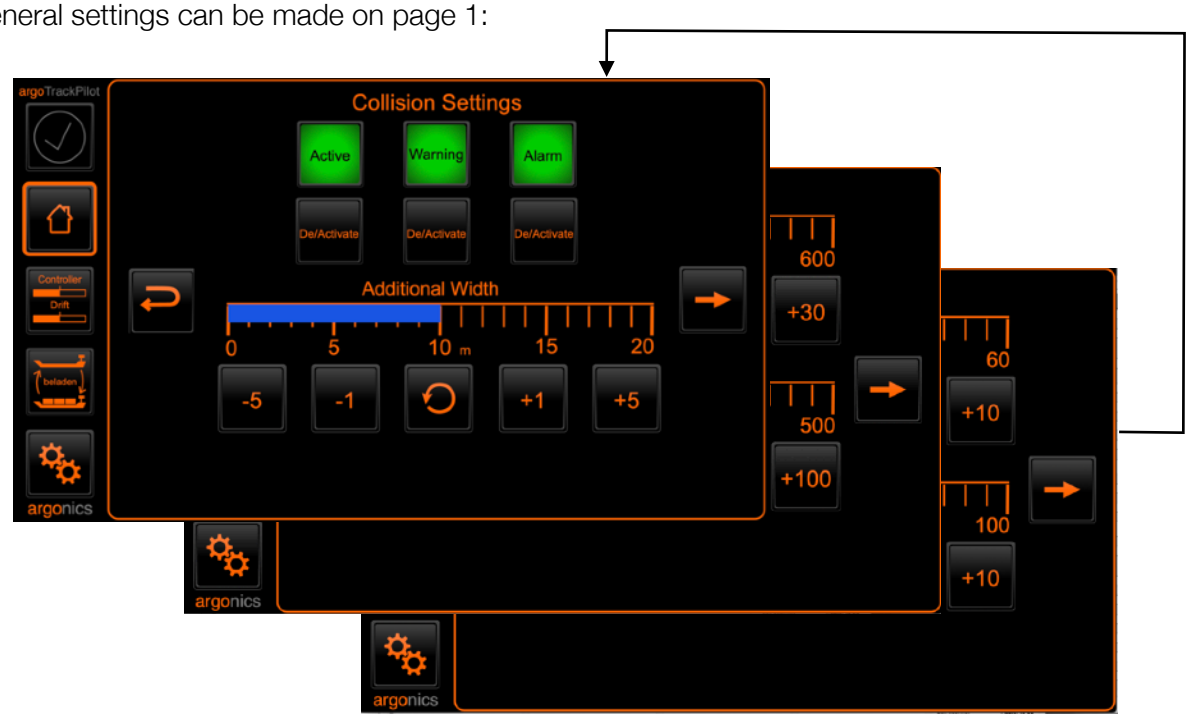
If a potential collision is detected there is an indication of the vessel (name or MMSI) with which a collision is imminent and the time until collision in seconds. In addition, red frames flash around the two buttons for moving the track. These frames are intended to suggest a possible reaction to the warning.

When the warning is activated a visual warning “Collision warning” appears as well as an acoustic warning in the form of two short beeps from the alarm horn which is repeated every second.

Configuration of argoLaneWarning

The configuration interface is divided into 3 sub-pages which can be switched using the arrows on the right-hand side.

General settings can be made on page 1:



- Switching collision warning on and off:
  Activates or deactivates the entire collision warning module. If this setting is deactivated collisions are not detected. There are no visual indications in the user interface in the event of a potential collision.
- Switching the acoustic warning on and off: Deactivates the acoustic warning when a potential collision is detected. Visual indications and the alarm remain unaffected. Settings for the acoustic warning thresholds can be adjusted on the second page of the configuration interface.
- Switching the acoustic alarm on and off: Deactivates the acoustic alarm when a possible collision is detected. Visual indications and the warning remain unaffected. Settings for the acoustic alarm thresholds can be adjusted on the third page of the configuration interface.
  NOTE: A triggered alarm can only be confirmed by deactivating argoTrackPilot.
- Additional Width: Setting the extra lateral width of the safety corridor. For details please refer to the descriptions in the section „Collision Detection“.

On page 2 the settings for the acoustic warning can be modified. These settings also apply to the visual information on the main user interface of the Trackpilot:

- Threshold time to collision:
  A warning will be triggered if the time to collision is lower than this threshold. In order to be warned of fewer collisions this threshold value can be reduced. An increase in this threshold leads to more and earlier warnings.
- Threshold distance:
  A warning will be triggered if the distance to an AIS target is smaller than this threshold. In order to be warned of fewer collisions this threshold value can be reduced. An increase in this threshold leads to more and earlier warnings.

On page 3 the settings for the acoustic alarm can be modified:

- Threshold time to collision:
  An alarm will be triggered if the time to collision is lower than this threshold. In order to be alarmed of fewer collisions this threshold value can be reduced. An increase in this threshold leads to more and earlier alarms.
- Threshold distance:
  An alarm will be triggered if the distance to an AIS target is smaller than this threshold. In order to be alarmed of fewer collisions this threshold value can be reduced. An increase in this threshold leads to more and earlier alarms.
  NOTE: A triggered alarm can only be confirmed by deactivating argoTrackPilot.

8.10. Updating the software

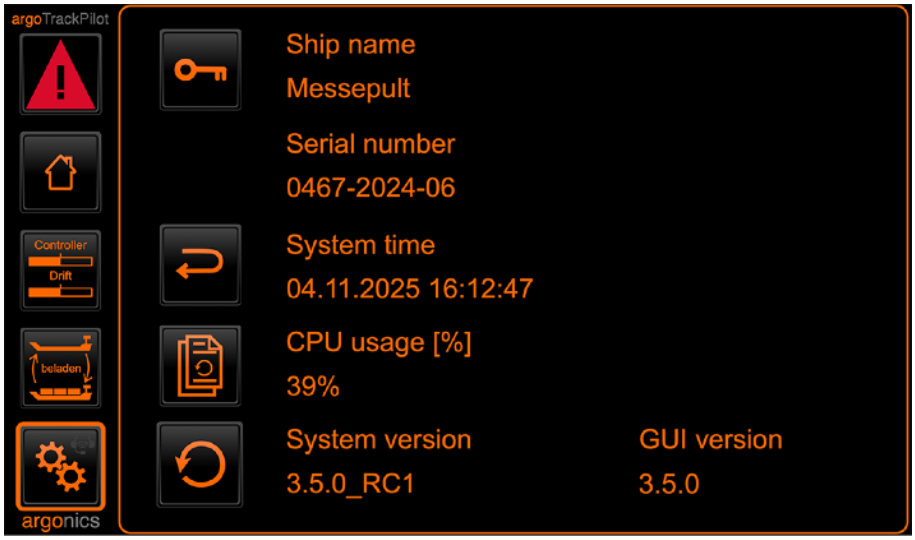
As of version 2.6., updating the software of the argoTrackPilot is possible via the touch display.

The Trackpilot regularly checks whether updates are available. If an update is available it is indicated by a red "1".

To install the update, please open the miscellaneous settings (gear wheels) and click on the info icon.

The update button is located on the left edge of the display, right next to the currently installed software version. After pressing the button, follow the on-screen instructions to update the software.

After the update is successfully installed, both the Trackpilot and the display will reboot.



The change history can also be found on this page. The button above the “Refresh”-button takes you to the list with all changes from the last updates.

Possible License Conflict

During the update process, the argoTrackPilot also checks whether the currently stored **support license** is valid. If no valid license is found, please update the licenses first (see the button on the left). If you have any questions, please contact customer support.

ⓘ	After an update the **Alphatron MF screen must be restarted manually**. If this screen is not restarted, errors may occur in the user interface display.

9. Troubleshooting

9.1. Service homepage

On the "Miscellaneous settings" page, you can use the help button to call up a QR code to the service homepage and see the Argonics customer service telephone number.

If you can no longer access this menu, you will find all information listed here again:

http://videos.argonics.de

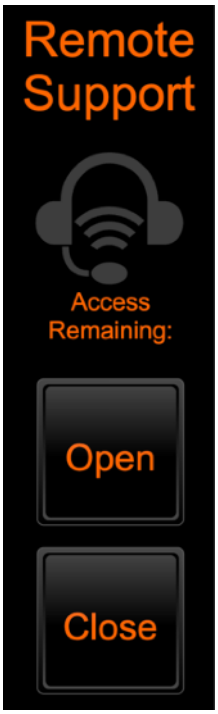
This link will take you directly to the help videos in the "Online help" section.

http://manuals.argonics.de

This link takes you directly to the operating instructions and quick guides ("Cheatsheets") in the "Online help" section.

Support-Hotline
+49 711 / 252 537 21
Mo. - Fr. | 09:00 - 16:00 Uhr

9.2. Remote support



For remote support, the user must grant access to customer service.

- Pressing “Open” temporarily opens access to the argoTrackPilot.
  If the access is open, the remaining time is displayed until it is automatically closed again. The lock symbol also shows whether the access is open or closed.
- Press and hold “Close” to close the access again.
  A bar appears showing how long you need to hold the button down.
- After a restart, access is open for 5 minutes. After the 5 minutes have elapsed, access is closed automatically.

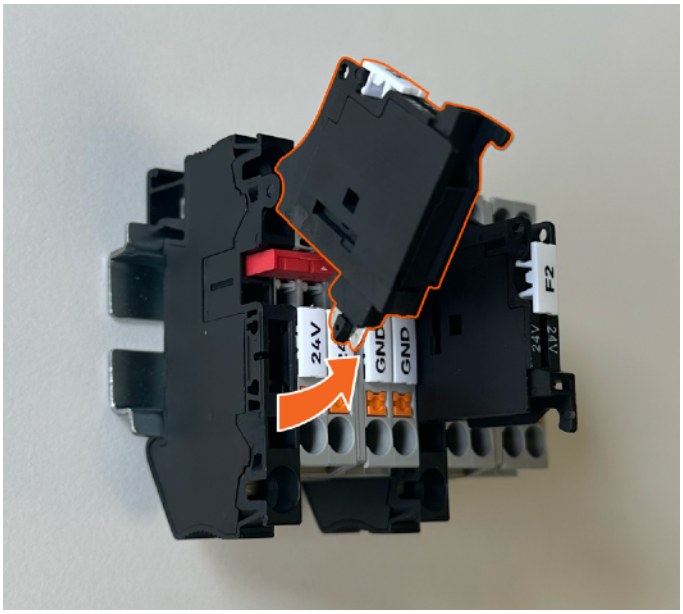
9.3.Restarting the Trackpilot

You can shut down the Trackpilot by clicking on the "Restart" button. It will restart automatically.

This button restarts both the system and the argonics touch display.

Alternatively, to restart the Trackpilot fuse F1 must be opened.

After 30 seconds, the fuse can be closed again. The controller will then start up again by itself.



9.4. Warnings and Alarms

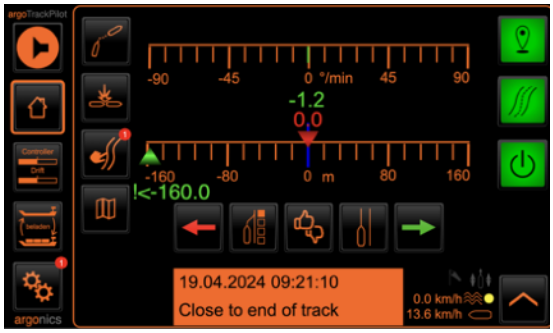
With the help of **warnings**, the Trackpilot signals less critical conditions of the system which do not require immediate intervention by the skipper. However, the skipper should check the cause of the warning and, if necessary, switch to manual mode.

Alarms are triggered in critical conditions of the system and require immediate intervention by the skipper.

	Whether it's a lock warning, collision warning, or watch alarm – the argoTrackPilot will never shut off automatically, even during critical maneuvers. → Always take control in such situations.

Signals

Our warnings and alarms are displayed visually and acoustically. You will find the alarm symbol in the top left-hand corner. The warning or alarm is displayed at the bottom of the screen with the date, time and name. Warnings are coded orange, alarms red.



An acoustic signal sounds next to this visual display. A short beep sounds at regular intervals for all warnings. Alarms sound continuously.

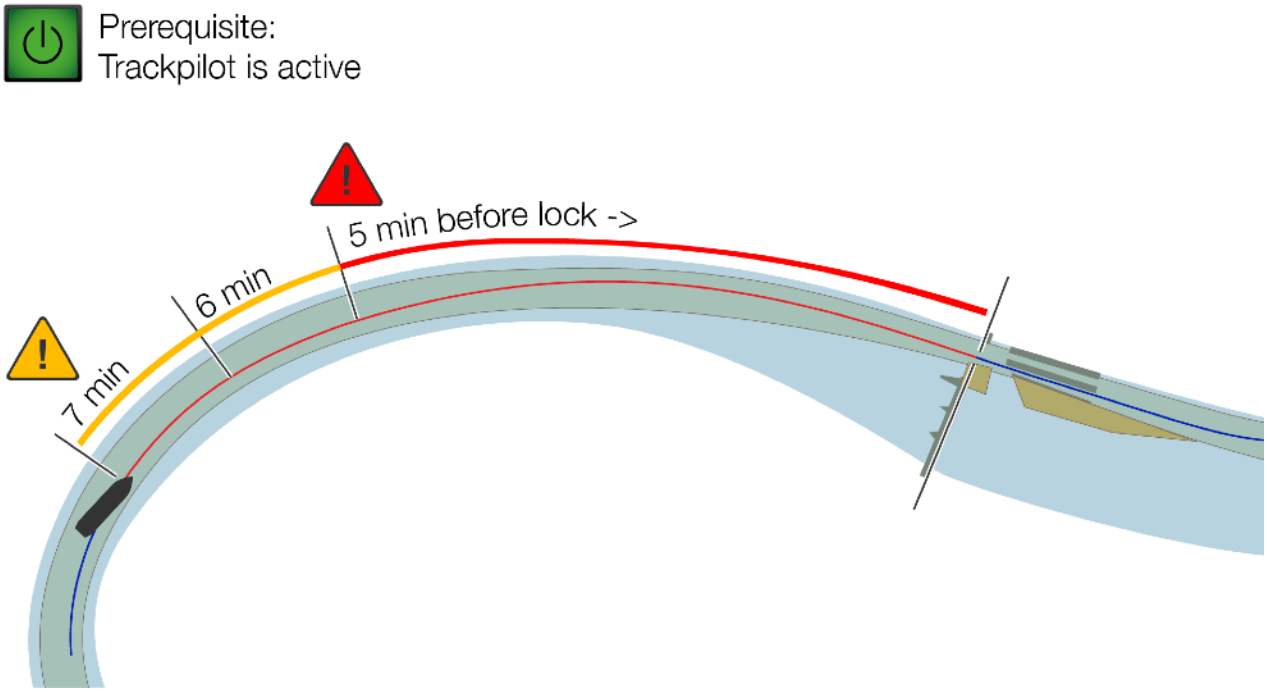
Warning	Signal	
„regular“ warning	1x short	•
Collision warning	2x short	• •
Watch alarm	3x short	• • •

Lock warning

ⓘ	We strongly recommend that all customers connect the output of the acoustic warning of the argoTrackPilot to the **ship's alarm system**. This is the only way to ensure a reliable alert for the entire crew in the event of an alarm. Please contact your dealer for assistance.

To prevent accidents at locks, a new function has been introduced that warns of approaching locks when the **Trackpilot is active**.

This function consists of a three-stage warning system:



- 7 minutes and 6 minutes before reaching a lock, the message "Lock Ahead" is displayed.
- If the argoTrackPilot is still active 5 minutes before reaching the lock, an alarm is triggered.
- If, while the argoTrackPilot is active, the vessel comes within 500 m of the lock even though the calculated time remaining until the lock is still more than 5 minutes, an alarm is also triggered.
  → The alarm can only be acknowledged by deactivating the argoTrackPilot.

These warnings and alarms cannot be temporarily disabled or turned off, as they serve a critical safety function.

Warnings

The following table lists all warnings and gives recommendations on what to do when the corresponding warning occurs.

Warning Name	Description	Action
AIS: Error - Contact support	The connection to the AIS has been interrupted or there is an error in the software	(Re-)Start the AIS. If the warning does not disappear by itself, contact support.
AIS: No data received	AIS data is no longer received.	If the TargetPilot is active, continue sailing with increased attention. If there is a malfunction of the AIS, deactivate the TargetPilot immediately. The warning will confirm itself if the data reception is coming back.
Alphatron display: Connection lost	The connection to the Alphatron control unit has been interrupted	(Re-)Start the Alphatron Display. If this warning does not disappear by itself, contact support.
Collision ahead	A possible collision with an AIS target was detected	Move the current track to avoid the collision. Wait for the ship to reach the shifted line. The warning should then confirm itself.
Distance to track large	The cross track error to the parallel line is too large.	Check if the autopilot system processes the commands by the track control system (compare rate of turn to desired value) Acknowledge warning
ECDIS: Connection lost	The connection to the ECDIS has been interrupted	(Re-)Start the ECDIS If this warning does not disappear by itself, contact support.
End of SafetyContour ahead	The end of the safety corridor is approaching.	Select new safety corridor
End of track in 6 minutes	The ship is approaching the end of the track. After the end of the track, the system can not calculate meaningful control commands.	• Switch to manual steering • Choose new track
End of track in 7 minutes	The ship is approaching the end of the track. After the end of the track, the system can not calculate meaningful control commands.	• Switch to manual steering • Choose new track
GPS (2): No heading received	GPS receiver does not send HDT sentences	• Acknowledge warning • Closely monitor track control system for correct operation • Increase attention • Wait if data comes back, otherwise switch to manual steering

Warning Name	Description	Action
GPS (2): No position received	GPS receiver does not send GGA sentences	• Acknowledge warning • Closely monitor track control system for correct operation • Increase attention • Wait if data comes back, otherwise switch to manual steering
GPS (2): No velocity received	GPS receiver does not send VTG sentences	• Acknowledge warning • Closely monitor track control system for correct operation • Increase attention • Wait if data comes back, otherwise switch to manual steering
Left/Right limit violated	The left/right boundary of the safety corridor is crossed with the proposed path.	Move the track to keep the planned path within the safety corridor
Lock ahead: 6 minutes	The Trackpilot warns of a lock that is expected to be reached in 6 minutes.	• Pay close attention. • Adjust speed if necessary.
Lock ahead: 7 minutes	The Trackpilot warns of a lock that is expected to be reached in 7 minutes.	• Pay close attention. • Adjust speed if necessary.
Lock warning not available	The lock warning function is not available.	Contact customer service.
No internet - Contact support	The argoTrackPilot cannot connect to the Internet.	Restart the argoRouter connected to the argoTrackPilot by disconnecting its power supply. If the warning is still displayed after one hour, contact customer support.
No ROT received	The turn rate reception is disturbed (only Trackpilot serial with Alphatron autopilot).	Check the correct function of all devices. If this warning does not disappear by itself, contact support.
Position inaccurate	Error detection of GPS sensor found a problem.	Wait for the warning to disappear If EstimationDegraded error comes up switch to manual steering
Power supply connected incorrectly	The power supply has been connected incorrectly. (Trackpilot classic only)	Contact dealer/installer
Strong cross current detected	The trackpilot has detected a strong cross current.	Pay close attention.
Target close	The distance to the AIS target is too small. The behavior of the Trackpilot can be strongly influenced by course fluctuations from the AIS target.	Reduce speed, deactivate TargetPilot or select another AIS target

Warning Name	Description	Action
Target lost	The AIS information about the selected target has not been updated for a few seconds. If the target does not send an update again within the next few seconds, an alarm is activated.	Pay close attention, especially in tight or twisted areas.
Trackpilot switched off	The Trackpilot was unexpectedly switched off	Activate Trackpilot again if required Check correct function of all devices
Velocity low: check stream settings	The velocity of the ship is below a certain threshold. At slow speeds there is not enough rudder force to steer the ship.	Increase velocity or switch to manual steering
Watch alarm: Activity required	The watch alarm watchdog hasn't registered any input for the set time period.	Make any input on the Trackpilot like clicking any button on the touch display or press any button on the control panel.

Alarms

The following table lists all critical alarms and gives recommendations on what to do when the corresponding alarm occurs.

Alarm Name	Description	Action
Autopilot connection lost	The connection to the autopilot was interrupted (Trackpilot serial only).	• Switch off immediately. • Check correct function of all devices. • Contact customer service.
Collision ahead: Take control	An imminent collision was detected.	• Acknowledge alarm by switching to manual steering. There is no other way to acknowledge the alarm. • Steer manually to avoid any collision. • If the alarm is incorrect, check the argoLaneWarning settings.
End of track reached: Take control	The ship is very close to the end of the track. After reaching the end the track control system cannot continue steering.	• Immediately switch to manual steering • Choose new track
I/O: Error - Contact support	There is an error in the input/output module of the Trackpilot (Trackpilot classic only).	• Switch off immediately. • Check correct function of all devices. • Contact customer service.
Lock ahead: Take control	The TrackPilot warns of a lock that is less than 500 m away, even if the estimated time to reach the lock is still more than 5 minutes.	• Acknowledge alarm. Can only be done by deactivating the Trackpilot. • Continue manually.
Position unusable: Take control	Error detection of GPS sensor found a problem like a big change in position or heading angle, probably caused by crossing beneath a bridge.	• Acknowledge alarm by switching to manual steering. There is no other way to acknowledge the alarm. • Wait until state of track control system returns to „READY“. • Check in ECDIS if ship position on map and reality match. • Switch on track control system • Increase attention
Rudder change too large: Take control	Fast change in rate of turn command to autopilot. The command has not been sent to the autopilot to prevent a dangerous maneuver caused by too large rudder change. Could be caused by an undetected error of the GPS sensor.	• Acknowledge alarm by switching to manual steering. • Wait until state of track control system returns to „READY“. • Check in ECDIS if ship position on map and reality match. • Switch on track control system • Increase attention
System Error 001 - Contact support	There is a serious exceptional error.	• Switch off immediately. • Contact customer service.

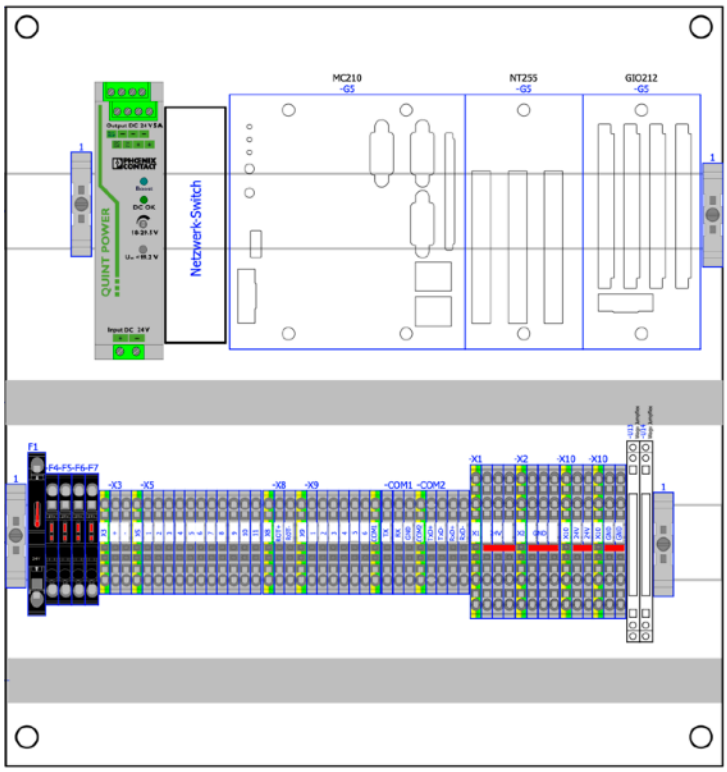
Alarm Name	Description	Action
System Error 002 - Contact support	There is a serious exceptional error.	• Switch off immediately. • Contact customer service.
System Error 003 - Contact support	There is a serious exceptional error.	• Switch off immediately. • Contact customer service.
Target lost: Take control	The information about the selected target has not been updated for too long.	• Acknowledge alarm by switching to manual steering. There is no other way to acknowledge the alarm. • Steer manually. Deactivate argoTargetPilot or select another AIS target.
Target too close: Take control	The distance to the selected AIS target is too short. The behavior of the Trackpilot is too strongly influenced by possible course fluctuations from the AIS target.	• Acknowledge alarm by switching to manual steering. There is no other way to acknowledge the alarm. • Steer manually. Deactivate argoTargetPilot, increase the distance to the selected AIS target or select another AIS target.
Track too far away	The cross track error to the parallel line is too large.	• Switch to manual steering • Check if the correct track has been chosen • Choose another line closer to the current position
Turn too sharp: Take control	The currently chosen track contains an error like high curvature.	• Switch to manual steering • Check track for errors (points very close together) • Choose new track
Watch alarm: Take control	The watch alarm watchdog hasn't registered any input for the set period of time allthough there has already been a warning.	• Switch the Trackpilot off to acknowledge the alarm. You can switch the Trackpilot on again.

10. argoTrackPilot – Overview

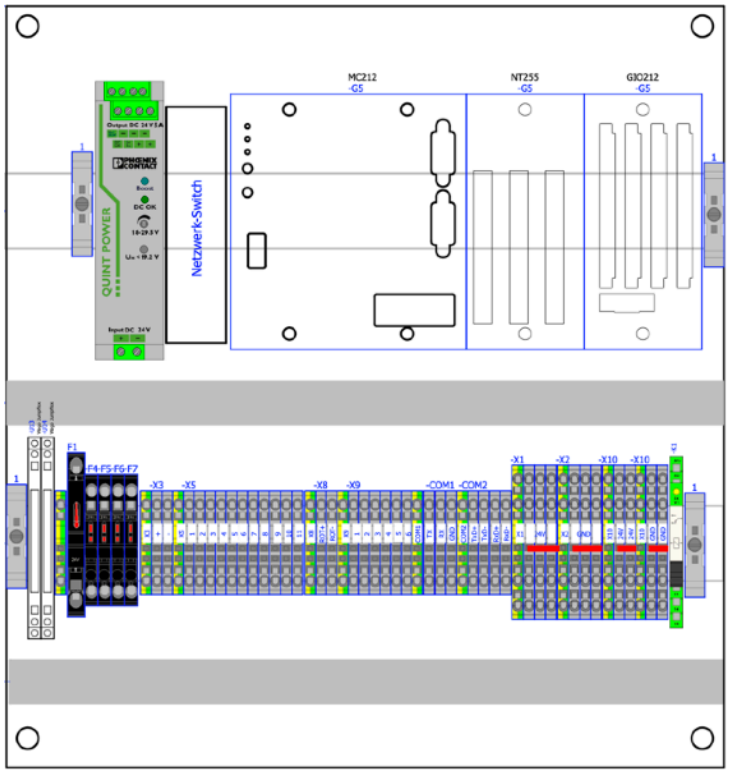
10.1. argoTrackPilot classic

The following graphics shows the layout of the control cabinet.

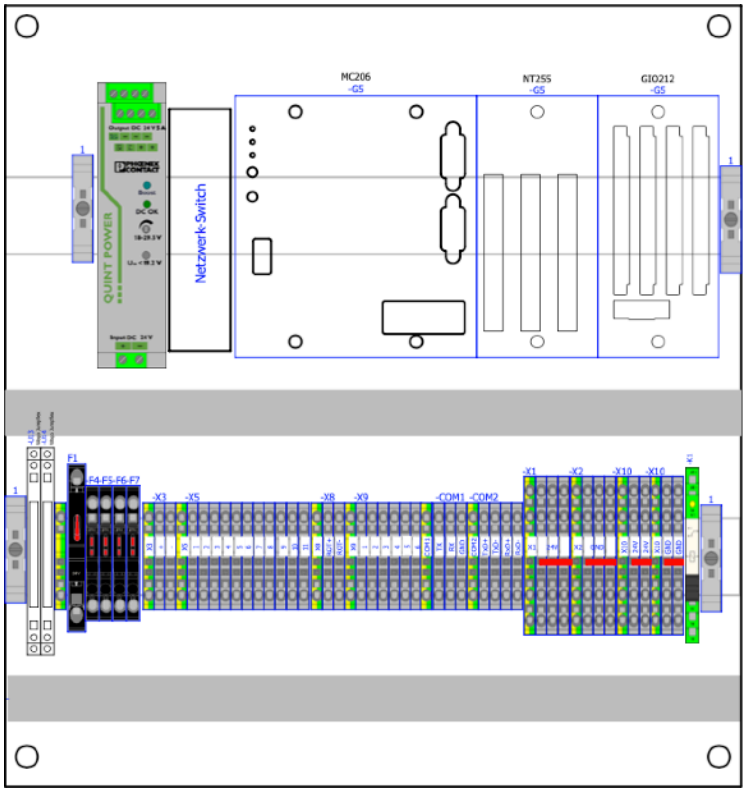
Hardware Version 2:



Hardware Version 3:



Hardware Version 4:



10.2. argoTrackPilot serial

11. Notes

Serial number of the Trackpilot:

PIN for the Trackpilot:

Technician:

Date of installation:

Miscellaneous