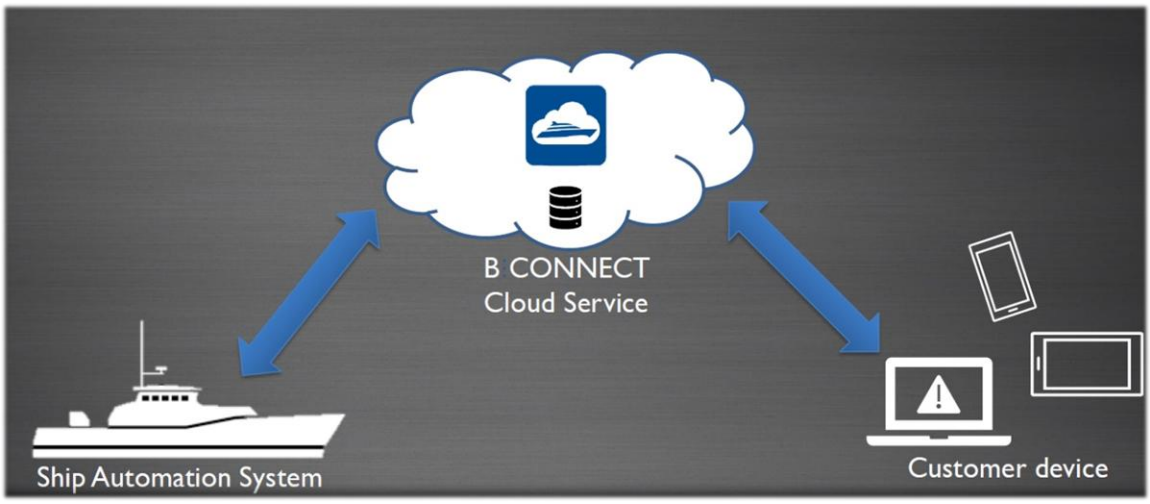


B:Connect
Gateway and Cloud Server Software

- ***Visualization of vessel data on a PC or smartphone***
- ***Data transfer via a secure Internet connection***
- ***Complete system consisting of a gateway/wireless modem, cloud server, and visualization tool***

The B:Connect system consists of a cloud server with configurable visualization software and a high-performance gateway / wireless modem.

The gateway can be integrated into any Böning AMCS and transmit vessel data via the Internet to the B:Connect cloud server.

The cloud server software includes an integrated visualization tool.

A project-specific configuration is used to select all vessel data to be displayed on the PC or smartphone.

Once the connection to the cloud server has been established, all the data released via the configuration can be accessed and displayed in graphical or tabular form on various pages.

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1 Hardware

1.1 Gateway / Wireless Modem

The B:Connect Gateway is a wireless modem that connects BÖNING ship automation with a cloud server to enable data transfer via the Internet. If no connection is available through the onboard Internet router (via LAN / Wi-Fi), the gateway automatically establishes a mobile data connection with the best possible quality, depending on the current location and available providers.

The new modem hardware now covers all preferred areas of application worldwide (with the exception of a few special zones). The Böning B:Connect Cloud Server application is installed on the gateway, and its software license is included with the purchase of the hardware. All devices shipped are pre-programmed by BÖNING and ready for use.



Fig. Gateway
*Operation with a SIM card via a mobile data network **or** via an onboard Internet router via LAN*

1.2 Technical Specifications

Dimensions W x H x D	83 x 25 x 74 mm
Weight	125 g
Operating Temperature	-40°C … +75°C
Storage temperature	-40°C … +85°C
Relative humidity	10% to 90% (non-condensing)
Power Supply	9…30 V DC, max. 6.5 W
Protection class	IP30
Regions	Global (Worldwide)
Bands	**4G:** (LTE Cat 4 up to 150 DL/50 UL Mbps) **3G:** (up to 21 DL/5.76 UL Mbps) **2G:** (up to 236.8 kbps downlink/236.8 kbps uplink)
Interfaces	Power Connector (4-pin) 1 x Digital In 1 x Digital Out 1 x SIM slot (Mini SIM – 2FF) 1 x eSIM 2 x Ethernet RJ45 (LAN/WAN port 10/100 Mbps) 2 x Antenna (Mobile LTE) 1 x Antenna (Wi-Fi)
Installation	Top-hat rail mounting with included bracket
Item Number	25636

1.3 Operation via mobile data network (SIM card required)

The customer should provide a SIM card for the gateway well in advance, but no later than before the project goes live. The SIM card can generally only be set up by a Böning employee; this is usually done as part of the commissioning process.

For this purpose, the customer must have the following ready:

- SIM card and associated PIN
- Information about the mobile service provider and data plan

If no Böning employee is on site during commissioning, the SIM card for the gateway can also be set up **remotely**. This is always performed by an authorized Böning employee, subject to prior arrangement. By the agreed-upon date, the customer must make the following preparations:

- Have the SIM card and corresponding PIN ready
- Have information about the mobile network provider and data plan ready
- Provide a laptop (or PC) with an available network connection, a disabled firewall, and unrestricted administrative rights
- Ensure a stable internet connection
- Connect the gateway's network cable (LAN) to the vessel's alarm system
- Connect the cellular antenna to the gateway

The gateway is integrated into the ship alarm system's network and can now be put into operation via remote support.



NOTE!

A stable internet connection is an essential requirement for the setup process. If there is a connection interruption during the SIM card configuration, there is a risk of uncontrolled data loss.

In some cases, a reconfiguration of the entire gateway hardware may be necessary. If this is confirmed, the gateway must be returned to BÖNING and reprogrammed from there.

1.4 Operation via the Onboard Internet Connection

Alternatively, the gateway modem can also be connected to the onboard Internet. This is done using a LAN cable plugged into the gateway's "WAN" port. As with operation via the mobile data network, the gateway is integrated into the ship's alarm system network and, if desired, put into operation via remote support.

1.5 Replacement Parts

Each gateway modem is individually configured for its specific project. In the event of a malfunction, the necessary device replacement must generally be performed by BÖNING.

In connection with the cloud service contract, the correct gateway configuration and the setup of the new SIM card can only be performed by an authorized BÖNING employee.

2 Cloud Server Software

B:Connect is based on a cloud server that, using the installed cloud service software, provides convenient data access to ships via the Internet.

Using the B:Connect software, all desired ship automation data can be clearly displayed in graphical form across multiple pages of the end device. With a sufficiently fast data connection, measured values are visualized in real time and updated periodically. All received data is stored on the cloud server for a period of 36 months; data can be exported manually or automatically at any time.

2.1 User Data

The user data for all authorized individuals must be provided to Böning in writing. The following information is required for each project:

- Full name of the user
- Email address to be used as the username for the B:Connect Cloud Service
- Information regarding the access rights the user is to receive (see item 2.6 : "Designer," "Operator," or "Read-only access")

Any subsequent change requests can be reported to Böning through the project supervisor. Any changes to user rights or the deletion of a user account must be requested in written form.

All inputs and changes to user data will be carried out exclusively by qualified Böning employees with "administrator rights".

2.2 Account Registration

Access to the B:Connect Gateway software is activated by a Böning employee as soon as the necessary project configuration is complete. The customer receives an invitation link via the previously provided email address, which must then be confirmed. After setting an individual password, the user can log in for the first time on the B:Connect website.

Any subsequent logins must be made via https://connect.boening.com/ using the selected password. The software may be used only within the scope of the respective authorized access level (see item2.6).

In the event that the password is lost, a “Forgot Password” feature is available. This allows you to reset your password if necessary



NOTE!

The number of users per ship is limited. A maximum of 20 people can be registered and granted access to a project’s ship data.

2.3 Activation

Once the project is complete, a Böning employee will set up and activate it on the B:Connect cloud server. By default, "normal" mode is enabled, allowing the B:Connect software to be used to its full extent within the assigned permission levels. Accordingly, the contractual monthly fees will apply starting at this time.

At the customer's request, the project can initially be activated in a restricted commissioning mode. Use in this mode is free of charge; however, the data can only be read (see item 2.6 , "read-only access").



CAUTION, PLEASE NOTE!

The commissioning mode is primarily intended only for setting up the system and not for data recording.

All data generated in commissioning mode will be irrevocably deleted from the cloud after switching to "normal" mode and cannot be recovered. The same applies if the project is switched back to commissioning mode after a prolonged period of operation (for example, as part of a sale or other options).

Commissioning mode can be switched to "normal" mode at any time upon request. However, the system automatically switches to this mode no later than six months after activation, at which point monthly fees will apply.

The fees consist of a minimum turnover and additional costs based on storage volume. The latter are only due from the time the first data is stored, provided that the minimum turnover volume is exceeded (see contract details).



NOTE!

If the vessel is sold, the customer must terminate the service contract. Failure to do so will result in fees being charged to the previous owner even if he or she is no longer the owner of the vessel.

2.4 Fleet Overview

To manage fleet data, BÖNING can create a fleet overview page. All associated vessels are displayed on this overview page. Embedded links lead to the respective projects, allowing you to access the corresponding vessel data directly.

2.5 Usage

For optimal use of the B:Connect Gateway software, we recommend using a PC or laptop with a sufficiently high resolution. Alternatively, a web app for mobile devices (Apple or Android smartphones) is available, which can be installed directly on the home screen via a button in the web browser .

The B:Connect Gateway software is intended solely for the analysis and evaluation of vessel data and does not replace the monitoring and control functions installed on the vessel.

Remote acknowledgment and operation of safety-critical functions are not permitted. If a safety-critical function is enabled through a subsequent modification of the AMCS configuration, all claims against BÖNING for damages resulting from improper operation via the cloud server functions shall be waived.

2.6 Authorization Levels

Depending on their authorization level, users can view the entire project, export recorded vessel data, or design page layouts. There are five distinct levels or categories in total:

- Administrator
  - Unrestricted access and administrative rights for the project (access at this level is reserved exclusively for qualified Böning employees)
- Designer
  - Independent creation, editing, and saving of custom page layouts for the individual visualization of vessel data via the B:Connect Cloud software
  - Remote control of all enabled, non-safety-related functions via configured screen buttons
  - View project and ship data
  - Export saved ship data
- Operator
  - Remote control of all enabled non-safety-related functions via configured screen buttons
  - View project and vessel data
  - Exporting saved vessel data
- read-only access
  - View project and ship data
  - Export saved vessel data
- Access restriction active
  - If access has been blocked, the user's permissions for the project have been revoked. In this case, the user can still log in via B:Connect, but can no longer access any data. If access has been blocked in error, please contact BÖNING for further clarification.

2.7 Data Transfer

In general, only data that was enabled for display and storage on the cloud server during the configuration of the AMCS vessel automation system can be transmitted. This must be defined accordingly when the project is created.

All data received from the B:Connect cloud server is real-time data. The display and updating of vessel data are only possible with a sufficiently fast data connection. Based on experience, the gateway's wireless modem should be connected to at least a "3G" cellular network. With slower cellular networks, the data connection may be completely lost, which will also interrupt data storage on the cloud server.

If no current data is available after logging into the cloud server or after a later page switchover, each affected value will be marked with a red circle and exclamation mark. The same applies if the displayed data fails to update.



The absence of data or its failure to update can have the following causes:

- Data connection is too slow
- Connection interruption
- The data requested by the visualization page is
  is not currently being sent by the ship's network because the associated unit (for example, the main engine) is shut down.
- The gateway has been shut down on the ship
- The ship-side AMCS is turned off
- Gateway blocked due to suspected hacker attack

If the interruption persists, please proceed as follows:

- Contact the ship
- Check the antenna and network signals at the gateway (are the connections and functionality correct?)
- Check the system's operational status (are all required ship automation components powered on?)

2.8 Automatic Gateway Lockout

If connection problems occur frequently and cyclically, the gateway may be temporarily locked due to a built-in security algorithm. Frequent changes in connection status and disconnections may, under certain circumstances, be interpreted as a hacker attack, triggering the lock.

In this case, please contact BÖNING. An authorized employee will check the gateway and unblock it as soon as possible.

2.9 Notifications

The user can configure custom notifications for selected events.
This allows important statuses, threshold violations, or other alarms to be reported directly to a destination address. The text message is created individually for each event; the following notification methods are available:

- Push notification (local alert via a new pop-up window)
- SMS message
- Email
- Automatic phone call

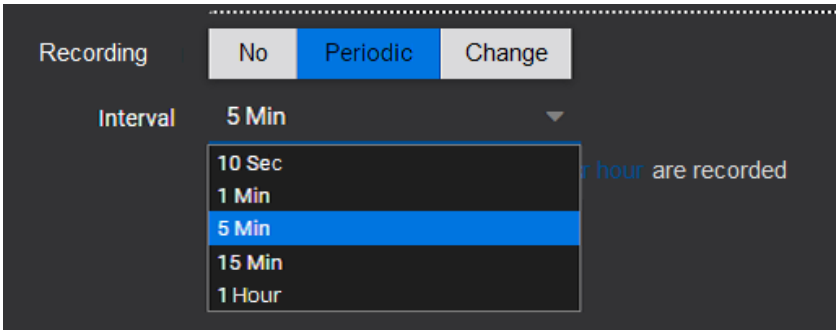
Please note that for each forwarded message (SMS, email, or phone call), standard contract fees as well as any additional costs for the end device may apply.

2.10 Data Storage

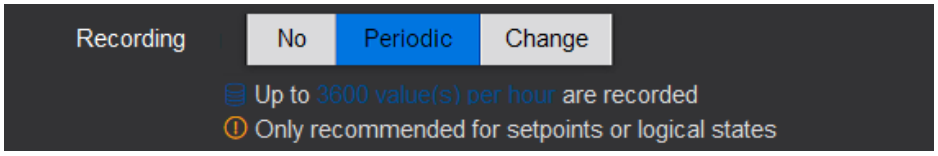
Data received by the B:Connect Gateway can be stored on the cloud server under various conditions. The mode can be selected individually for each data channel. Please note that standard contract fees apply depending on the storage frequency and data volume.

The following storage parameters can be selected:

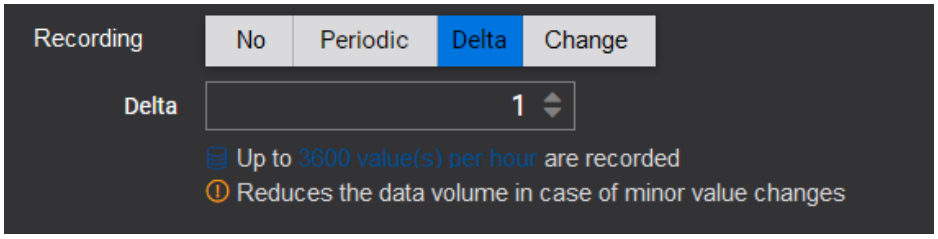
- Periodic
  Data is stored in fixed time intervals.
  The cycle can be chosen from five options (10s, 1min, 5min, 15min, 1h).



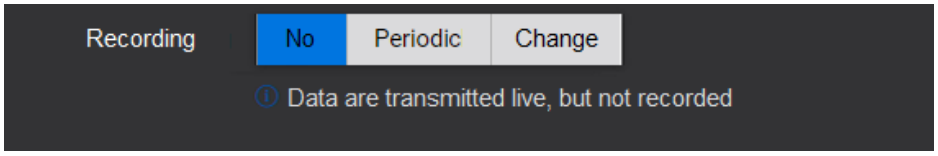
- On Change
  Data is stored when a state or value changes.
  (This option is recommended for binary channels)



- Delta
  Data is stored when a predefined value change occurs. The storage is triggered when a change reaches or exceeds the specified delta value.
  (This option is recommended for analog channels)



- No storage



2.11 Data Export

All received data is generally stored on the B:Connect cloud server for a period of 36 months. The integrated export function allows you to download data to a local computer for backup at any time and is available to users at all permission levels. The following functions are available:

- Manual download as a PDF
  Only the data on the currently displayed page is saved.
- Recurring automatic download as a PDF
  Only the data from the pages for which a recurring download has been set up is saved. The download can be scheduled to occur “daily,” “weekly,” or “monthly.”
- Manual download as an Excel spreadsheet
  Only individually selected data is saved (freely configurable)
- Recurring automatic download as an Excel spreadsheet
  Only selected data is saved; the download can be scheduled to occur “daily,” “weekly,” or “monthly.”



NOTE!

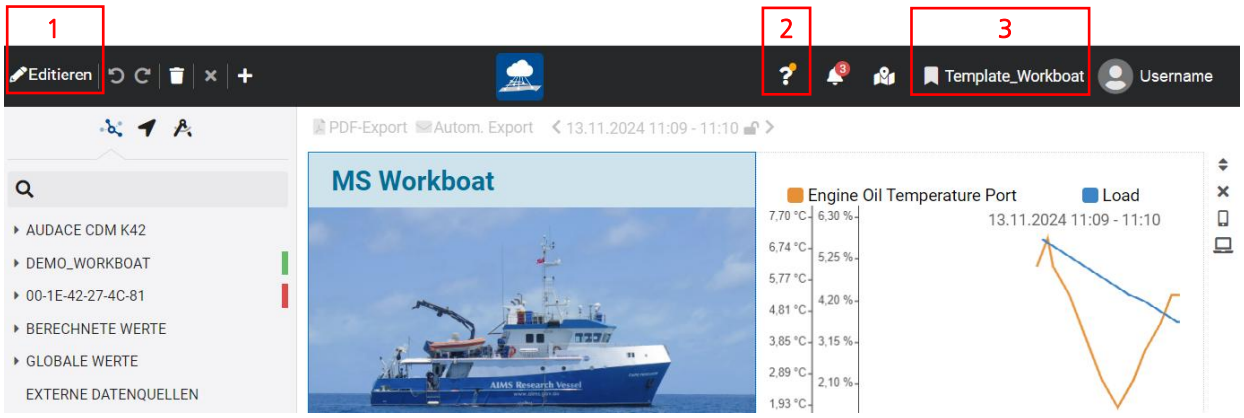
If the periodic data backup is not possible at a specific time due to an interruption, the data generated will be temporarily stored in the gateway until the connection is reestablished. The export will take place immediately afterward.

Since storage in the gateway is limited, depending on the amount of data, only a period ranging from a few hours to a maximum of a few days can be covered.

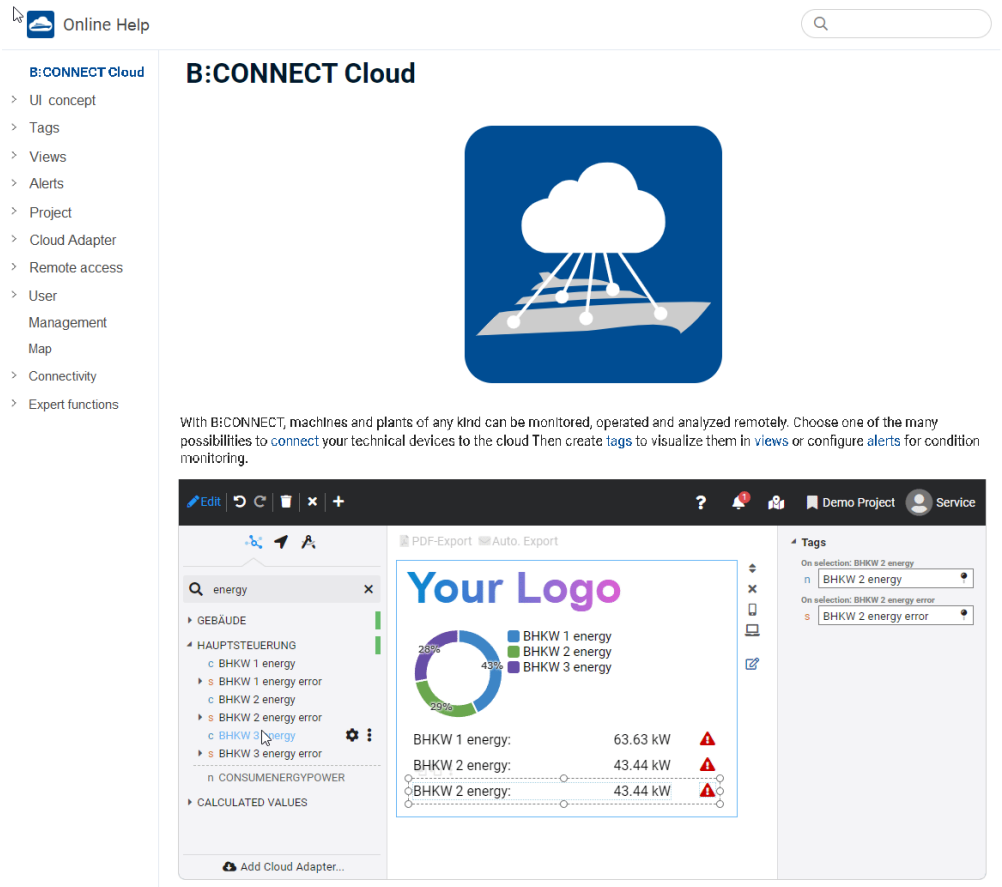
3 View and modify the visualization

After logging in to the B:Connect cloud server (https://connect.boening.com/), the home screen displays the most recently opened project. If you have the necessary access rights, you can select a different project by clicking the project name (3); the relevant projects are displayed in a separate window.

If the "Designer" permission level has been granted, you can modify the visualization for the project by clicking Edit (1). In editor mode, the button turns blue.
The built-in online help can be accessed via the "?" button (2).



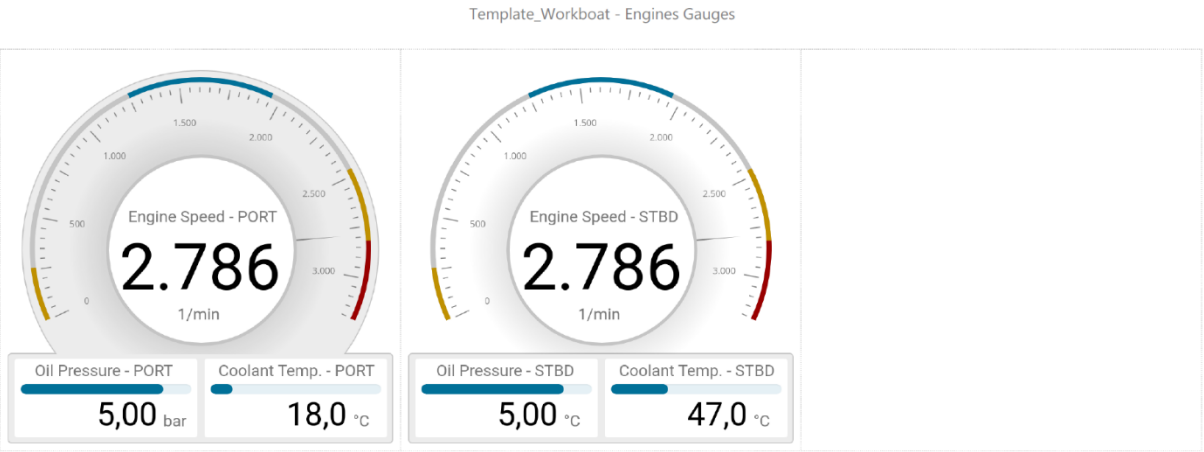
Start screen after logging in (view of the most recently opened project)



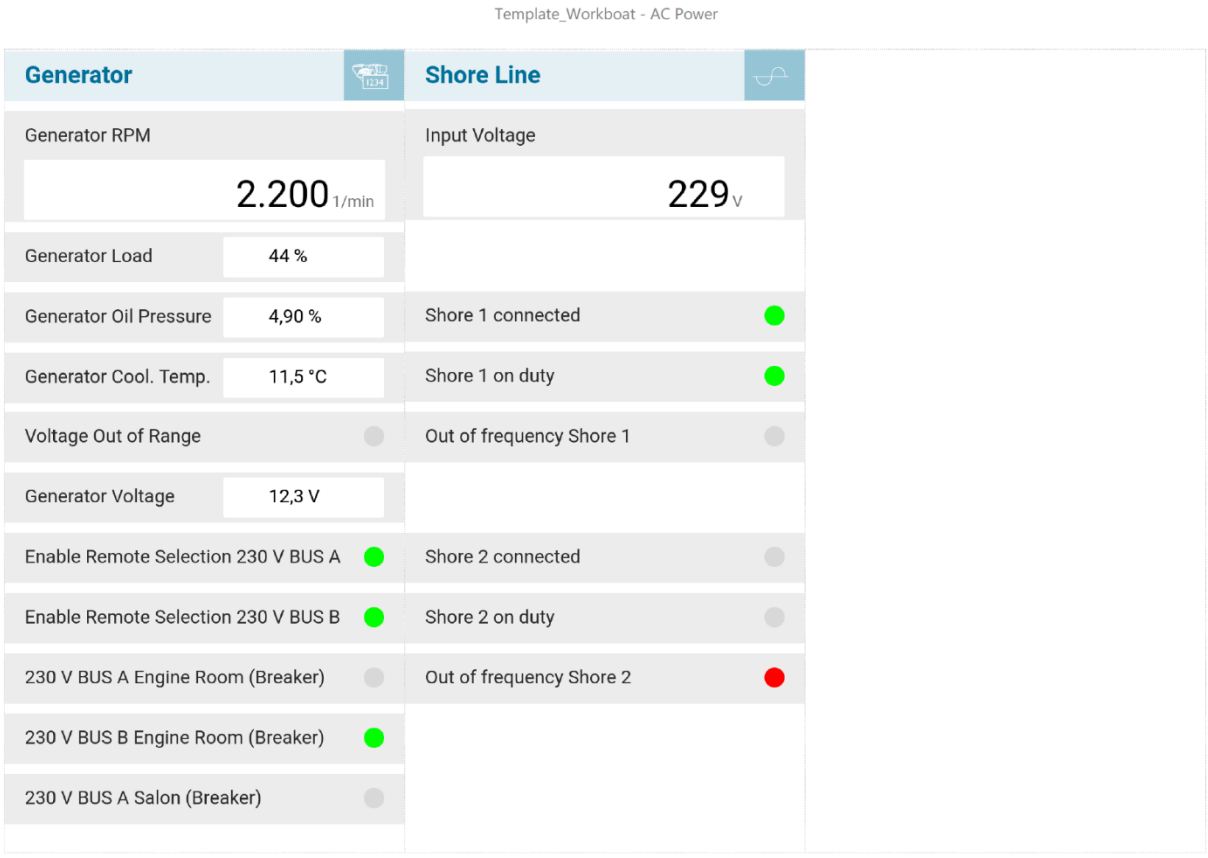
Accessing Online Help

3.1 Visualization Examples

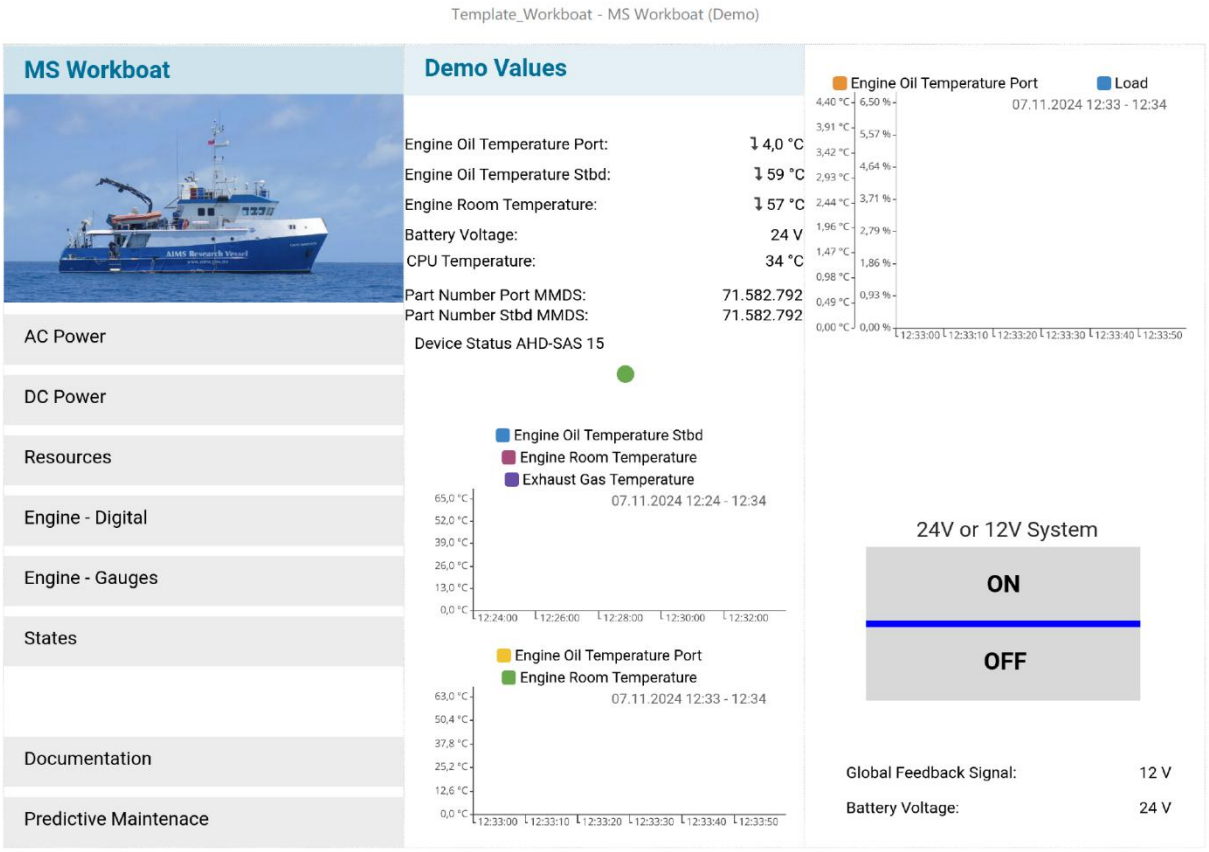
The following images show configured examples of the visualization of selected ship data:



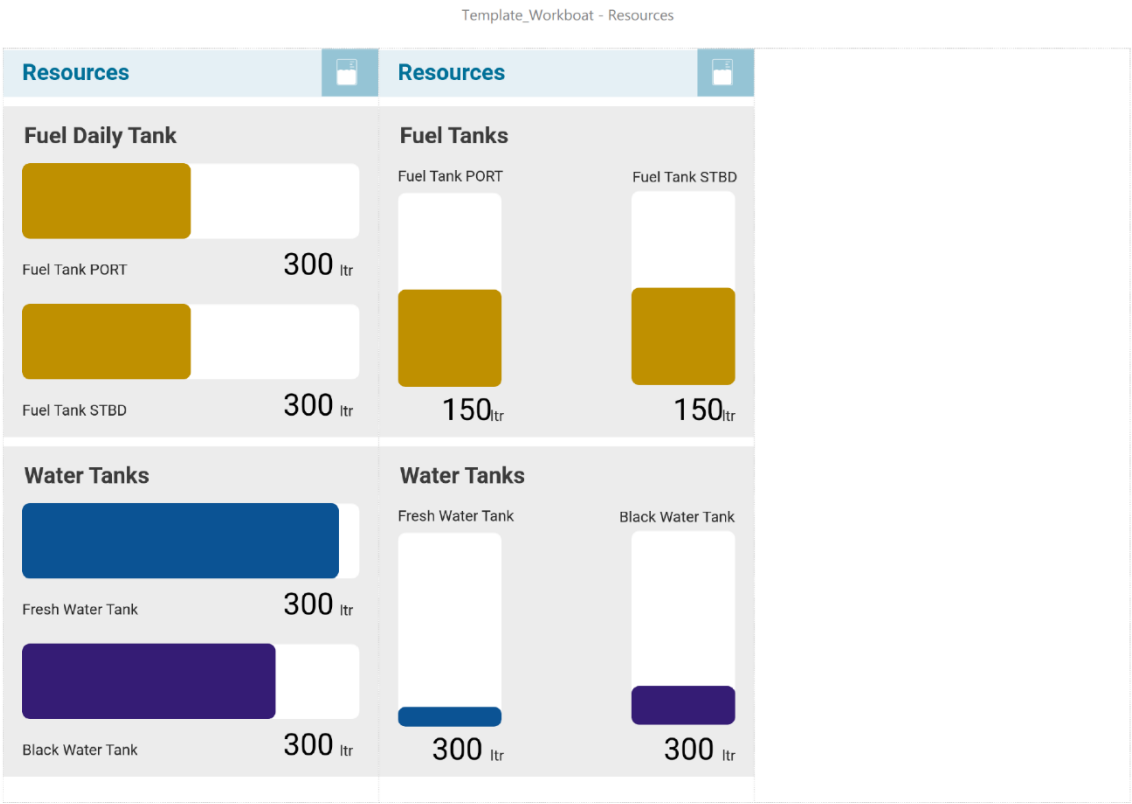
Template_Workboat - Engines Digital



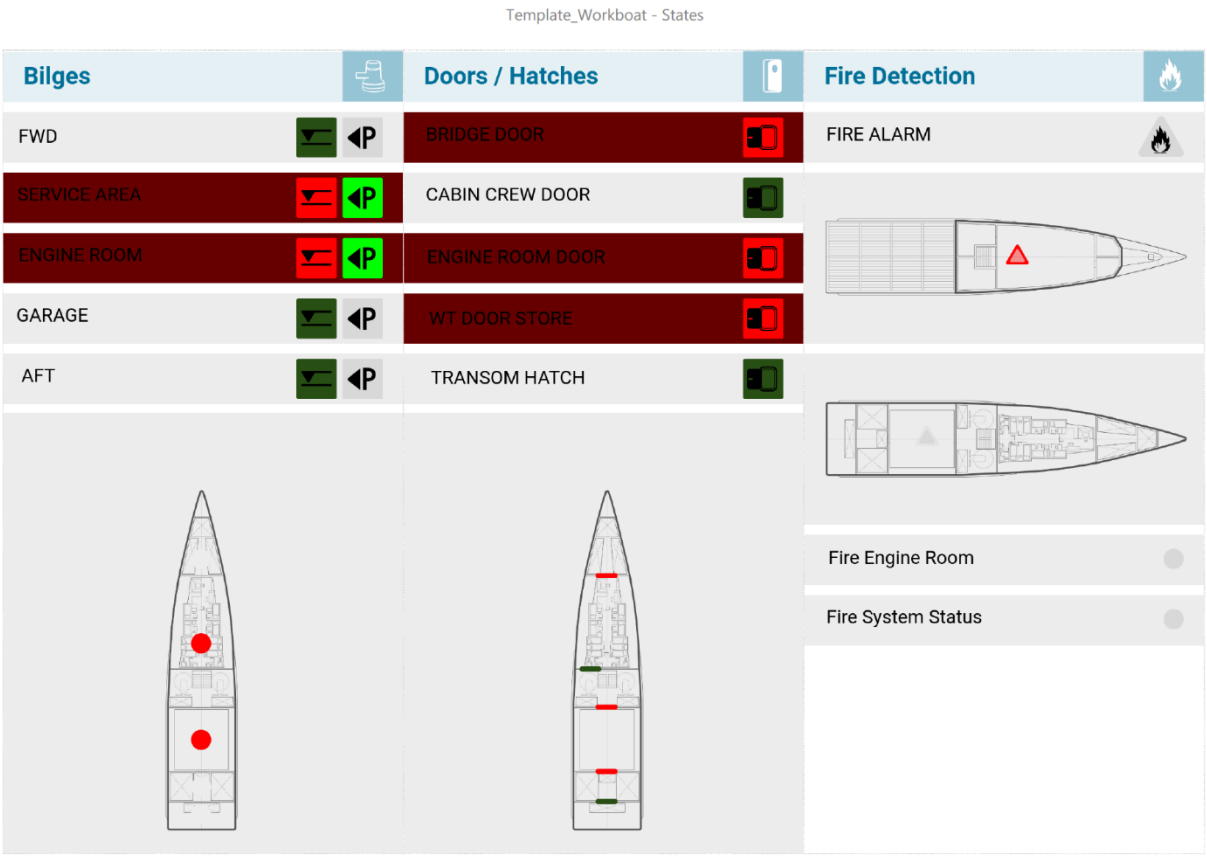
Template_Workboat - AC Power



Template_Workboat - MS Workboat



Template_Workboat – Resources



Template_Workboat – States