# Maritime Information Systems AS

## CONNING DISPLAY
## INSTALLATION AND SET UP
## QUICK GUIDE

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## DOCUMENT STATUS

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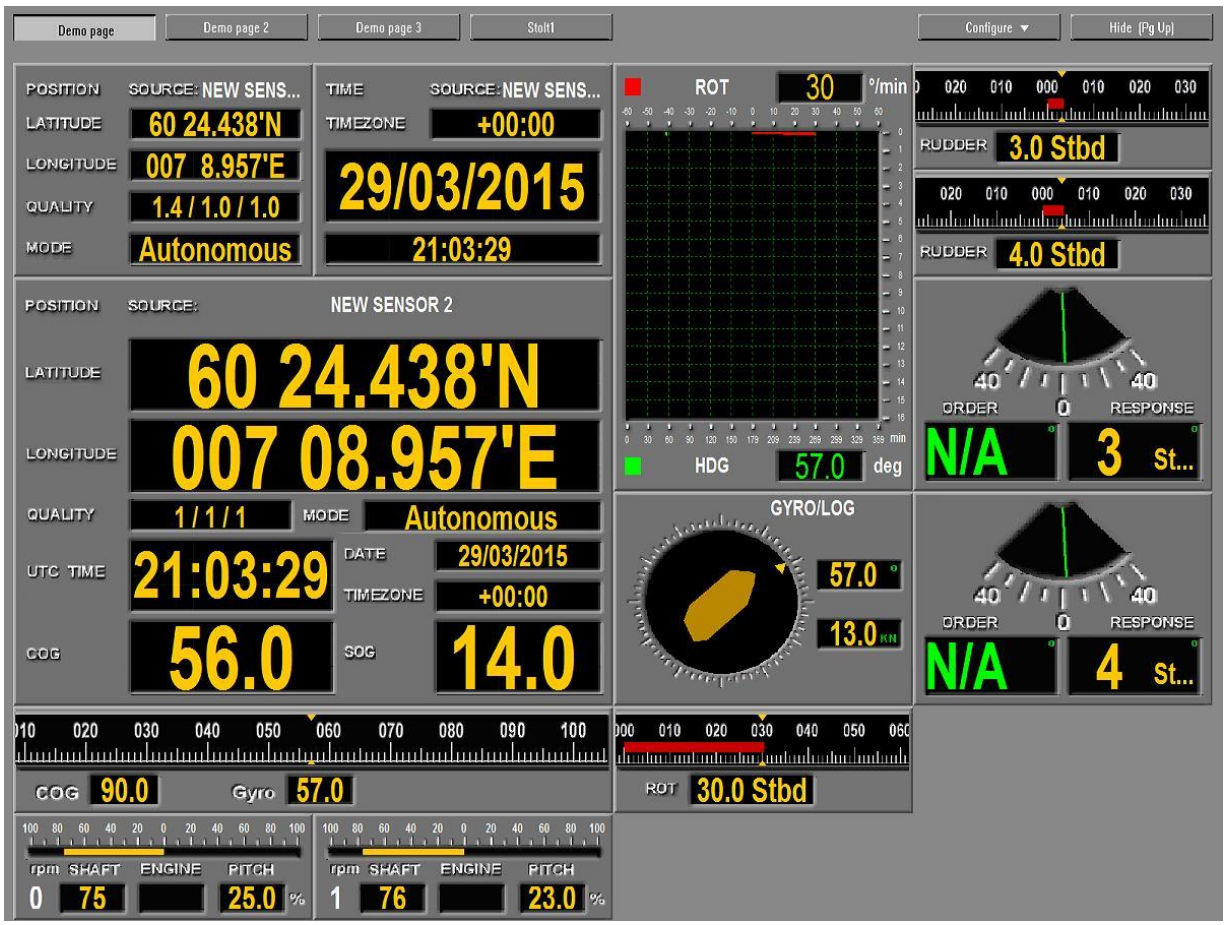
# 1. GENERAL

MARIS Conning display is a software application running on one of the ECDIS900 workstation.
The Conning application is displayed either on the main ECDIS screen or, when the ECDIS900 is equipped with a second screen, on the second screen.

The dual screen installation is recommended when Conning Display is running on ECDIS900 Monitoring station Installation.




# 2. CONNING DISPLAY

## 2.1 Installation

The Conning Display SW is delivered with an installer called: ConningDisplaySetup.exe".
Double click on the exe file and follow instructions.

- By default the application is installed in the folder: "Program File/MARIS/Conning Display"

- Conning Display Layout is empty and you have to create one by Ticking ON the CheckBox “Create simple default layout” in the appropriate page.

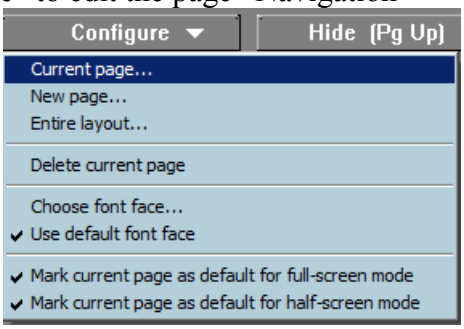
- Enter the name for the layout. For example “Navigation”.
- Run the Conning Display in configuration mode in order to edit the layout.

Conning Display application requires SMonitor application to work on the LAN. For detailed description of SMonitor refer to user manual.

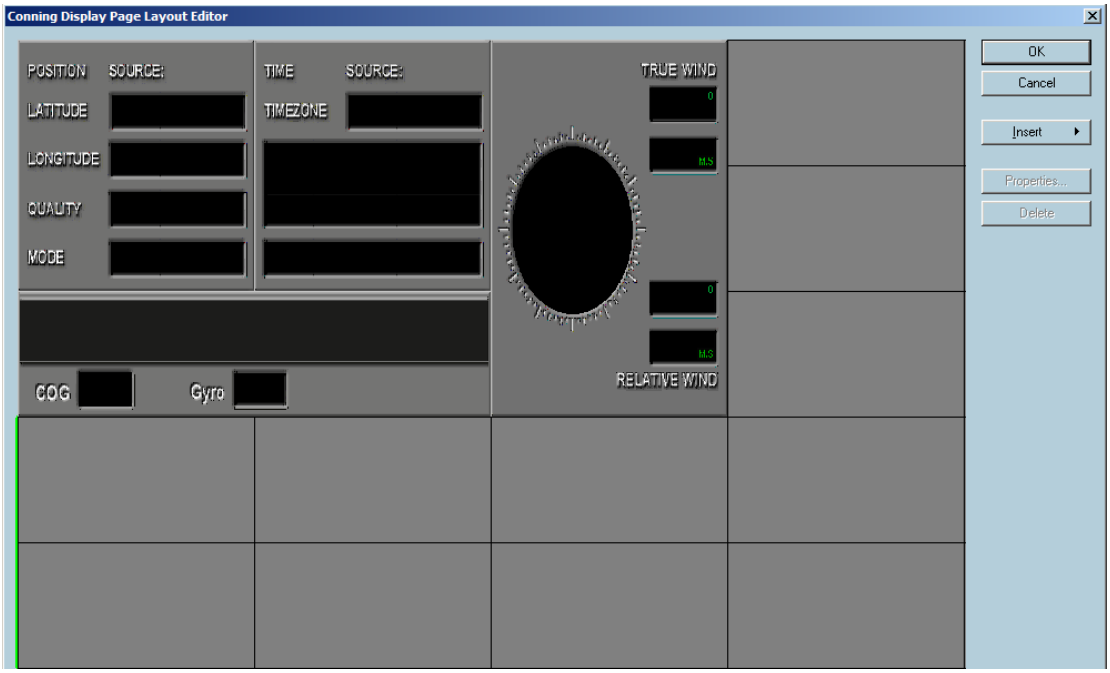
## 2.2 Configuration of the page “Navigation”

Conning Display starts with a single page called “Navigation”.
Top right of the application the pop up menu “Configure” allows editing the layout of the Conning Display page but also adding new page to the layout.

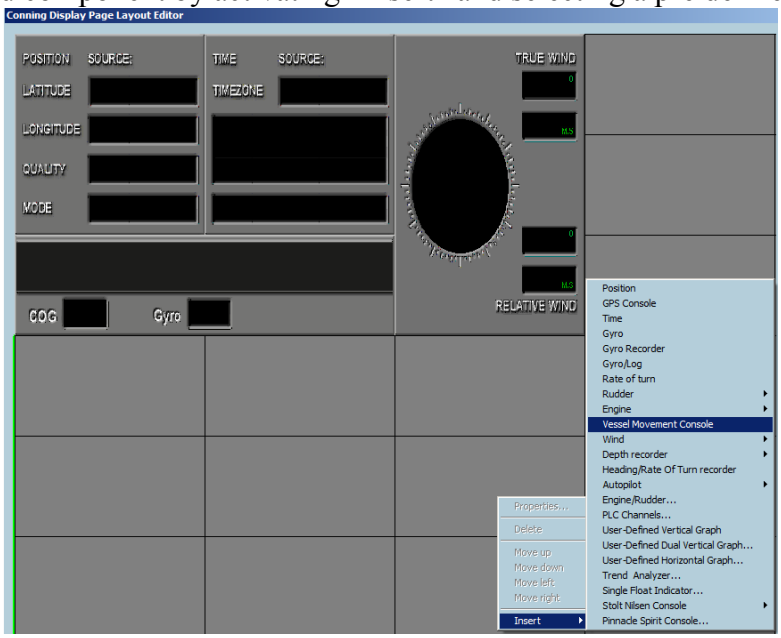
Select “Configure Current Page” to edit the page “Navigation”



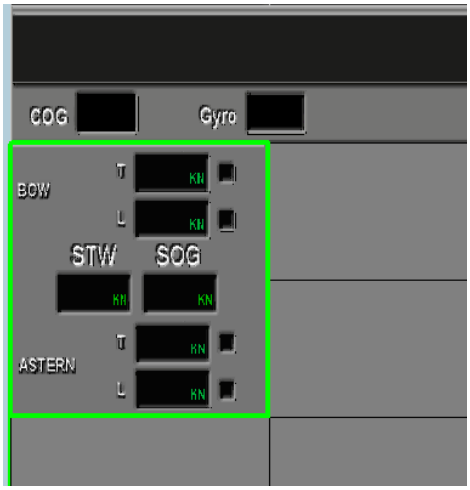

The page “Navigation” is opened for edition




It is possible to add component by activating “Insert” and selecting a pre defined component:



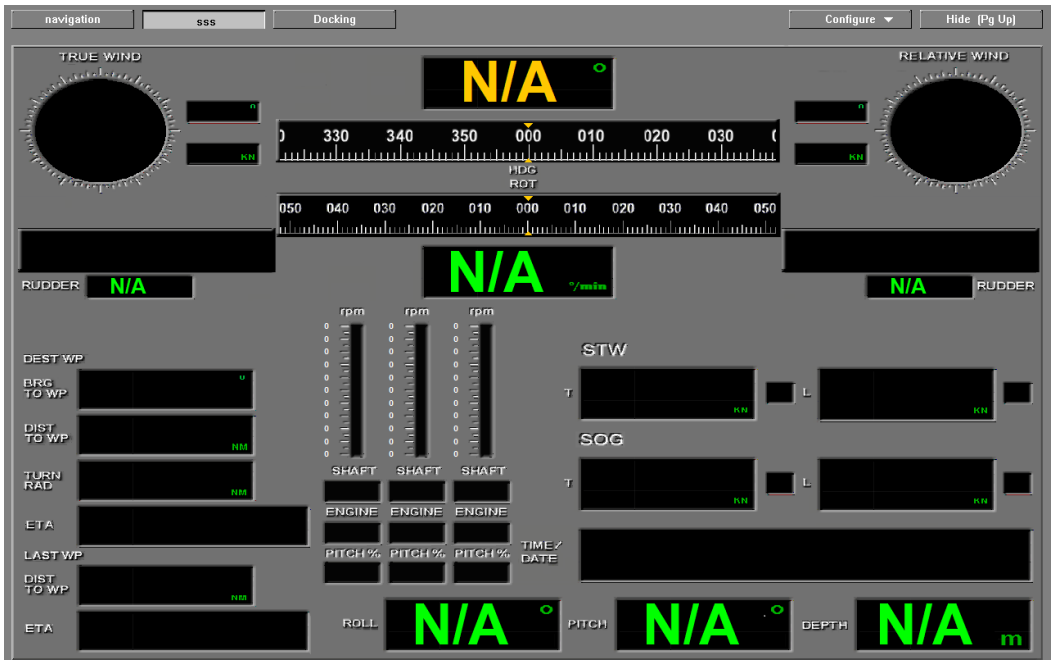

The new component is added and it is possible to move it by simple click and move




When all components are added and move to the selected place Press OK to save the page "Navigation".

## 2.3 Adding other pages

In the Configure menu select New page and as described above edit the page




*Configuration with three pages.*

# *3. COMPONENTS SET UP*

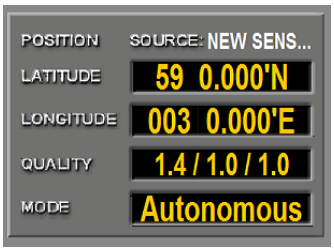
## 3.1 List of components

| Console type | Which data are shown |
|---|---|
| Position | Lat, Lon, GPS quality indicator, PS mode indicator |
| GPS console | Lat, Lon, GPS quality indicator, PS mode indicator, UTC, date, TZ, COG, SOG |
| Time | TZ, date, UTC |
| Gyro | HDG, COG |
| Gyro recorder | HDG, ROT |
| Gyro/Log | HDG, STW |
| Rate of turn | ROT |
| Rudder (wide scale) | Rudder sensor angle feedback (one instrument shows the only rudder; you need two instruments to show two rudders if there are two of them) |
| Rudder (angle scale) | Rudder sensor angle order (if present) and feedback (one instrument shows the only rudder; you need two instruments to show two rudders if there are two of them) |
| Engine indicator | Engine shaft or engine RPM, propeller pitch (one instrument shows the only engine; you need two instruments to show two engines if there are two of them) |
| Telegraph | Lever position pitch (one instrument shows the only engine control lever; you need two instruments to show two engines if there are two of them) |
| Power meter | Torque, thrust, power, RPM, total energy, total revolutions (one instrument shows the only engine; you need two instruments to show two engines if there are two of them) |
| Fuel meter | Fuel consumption, temperature and counter (both volumentaric and mass). |
| Vessel movement console | Transverse and longitudinal SOG and STW (the final data layout depends on speedlog settings) |
| Wind | There are several wind instruments. All of them show wind direction and speed. The difference is that following kind of data might be shown:<br>• true or relative wind<br>• speed measured in knots or m/s<br>There is also switcheable instrument that could be set up dynamically. |
| Depth recorder | One of depths (DBK, DBS, DBT) |
| Autopilot | CTS, HTS, turn rate, origin and destination waypoints, destination waypoint range (from origin and from present point), destination waypoint bearing (from origin and from present point), present position, destination position, GPS mode, autopilot status, Loran-C status |
| Engine/Rudder | Shaft or engine RPM, propeller pitch, SOG, COG, longitudinal and transverse speed, rudder sensor angle. Instrument may show data from one or two engines and one or two rudders. |
| PLC channels | Some number of engineer data (as well discrete as analog) such as temperatures, current, voltage etc. These data might be obtained from PLCs, NMEA XDR sentences, MODBUS/TCP devices and so on. |
| User-defined vertical graph | Any generic data or analog PLC channel value |
| User-defined dual vertical graph | Any two generic data or analog PLC channel value |
| User-defined | Any generic data or analog PLC channel value |

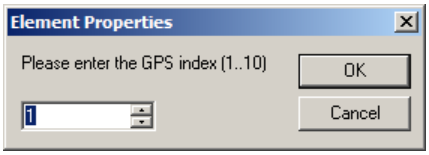
| | |
|---|---|
| horizontal graph | |
| Single float indicator | Any generic data |
| Predefined layouts | See below |

## 3.2 Set up

### 3.2.1 Position instrument configuration

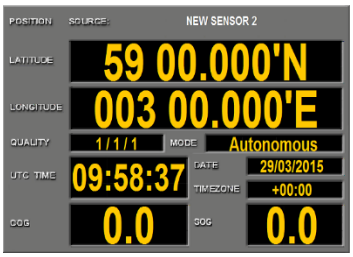



Right click on the console in the layout editor to activate context menu, then select Properties. Configuration dialog will be shown.



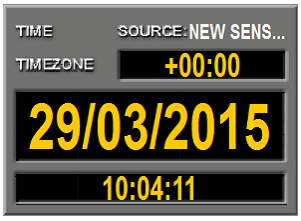

The only setting is a number of GPS that will be shown by default in case of several position sources. Note that during the normal run you can switch to another position source, just click on white text that shows position source sensor name, then Conning Display will switch to the next position source. This switch works as a loop, i.e. after last position source Conning Display will switch onto first one.

### 3.2.2 GPS Console configuration




The configuration is fully equal to Position instrument.

### 3.2.3 Time instrument configuration

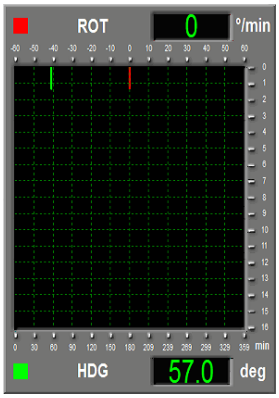



The configuration is fully equal to Position instrument.

### 3.2.4 Gyro instrument configuration

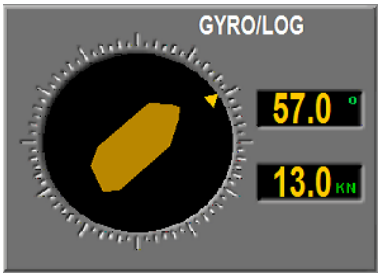
This instrument has no configurable parameters.

### 3.2.5 Gyro Recorder configuration




This instrument has no configurable parameters.

### 3.2.6 Gyro/Log instrument configuration




This instrument has no configurable parameters.

### 3.2.7 Rate of turn instrument configuration

This instrument has no configurable parameters.

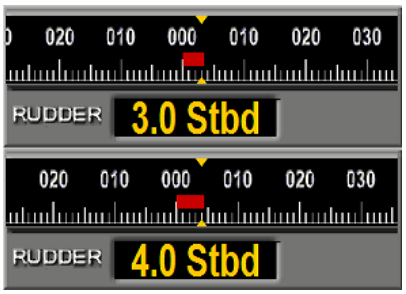
### 3.2.8 Rudder (wide scale or angle scale)

***Note:*** *one instrument shows the only rudder; you need two instruments to show two rudders if there are two of them.*

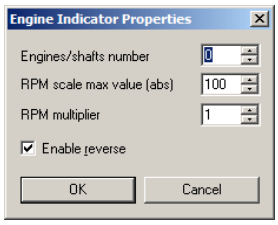
Right click on the console in the layout editor to acitivate context menu, then select Properties. Configuration dialog will be shown.

The only setting is a number of rudder sensor that will be used (i.e. number of the physical rudder). One is starboard rudder (or single rudder if the only rudder exists); two is port rudder.

Example for two rudders (starboard rudder sensor shows 3 deg stbd, port rudder sensor shows 4 deg stbd)



### 3.2.9 Engine indicator configuration



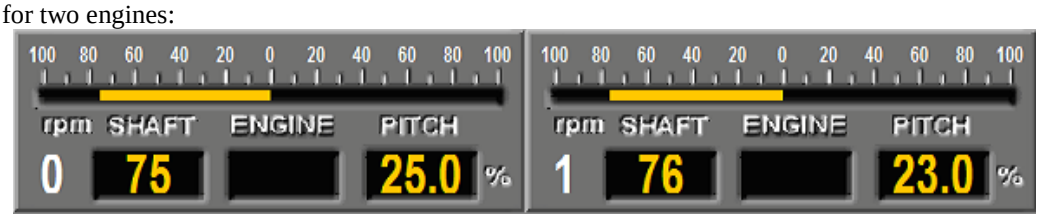

***Note:*** *one instrument shows the only engine; you need two instruments to show two engines if there are two of them.*

Right click on the console in the layout editor to acitivate context menu, then select Properties. Configuration dialog will be shown.

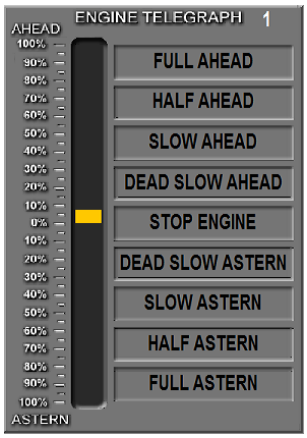
Please specify the following data:

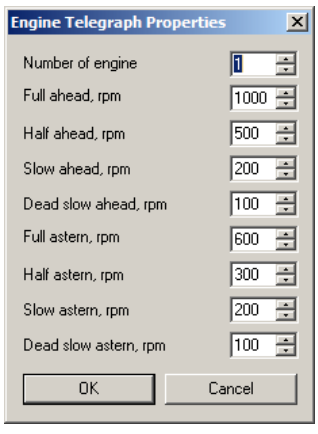
- number of engine (this depends on Sensor Monitor configuration; numbers are zero-based)
- maximal absolute RPM value (needs to graduate the scale; it is recommended to put this value slightly bigger than actual max revolutions); please note that if machine has reverse revolutions, this value will be used to both sides, that means, instrument will show for example revolutions from -100 (astern) to 100 (ahead) RPM.
- RPM multiplier (some sensors present revolutions reduced to 10 or 100)
- tick *Enable reverse* if machine has reverse (negative) revolutions for astern movement

Example for two engines:




### 3.2.10 Telegraph configuration



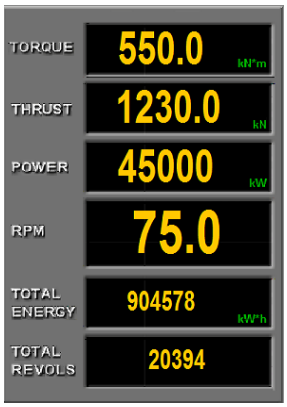



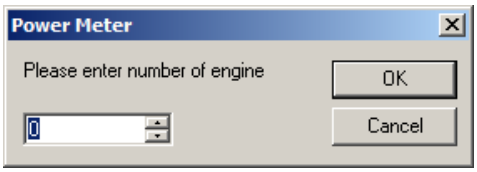
***Note:*** *one instrument shows the only engine; you need two instruments to show two engines if there are two of them.*

Right click on the console in the layout editor to activate context menu, then select Properties. Configuration dialog will be shown.
Specify RPM limits for each lever position. For astern revolutions you should specify absolute value; the negative sign will be added automatically.

Number of the engine depends also on Sensor Monitor settings.

### 3.2.11 Power meter configuration



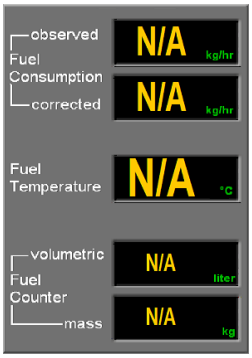




***Note:*** *one instrument shows the only engine; you need two instruments to show two engines if there are two of them.*

Right click on the console in the layout editor to acitivate context menu, then select Properties. Configuration dialog will be shown.

The only setting is a number of the engine that will be used (as written above, you should refer to Sensor Monitor configuration to obtain it; numbers are zero-based).

### 3.2.12 Fuel meter configuration

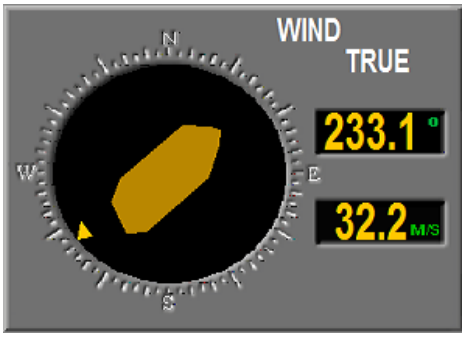


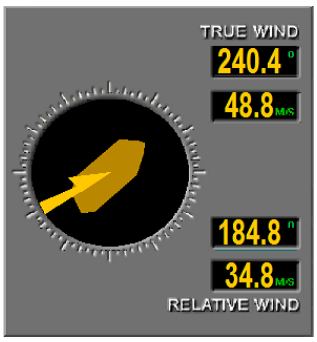

This instrument is under development now.

### 3.2.13 Vessel movement console configuration

This instrument has no configurable parameters.

### 3.2.14 Wind instruments configuration



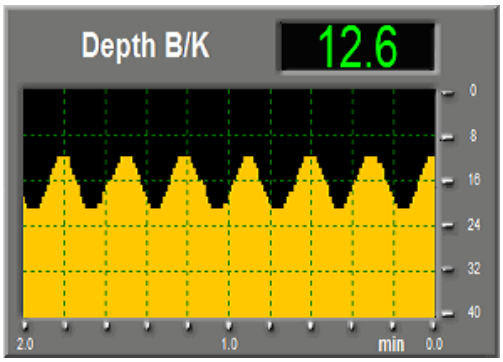

All these instruments have no configurable parameters:

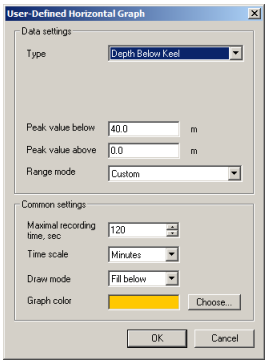
- true wind (m/s)
- true wind (kn)
- relative wind (m/s)
- relative wind (kn)
- universal wind (m/s)
- universal wind (kn)

Universal wind instrument might be dynamically switched from relative mode to true mode by clicking on wind type. Note that true wind could be shown only when it could be calculated from the relative wind which is normally delivered by Sensor Monitor. That means, COG and SOG is required.

There are also two combined instruments (m/s and kn) which show both true and relative winds at the same time.

### 3.2.15 Depth recorder configuration




Right click on the console in the layout editor to activate context menu, then select Properties. Configuration dialog will be shown.

The following parameters should be specified:

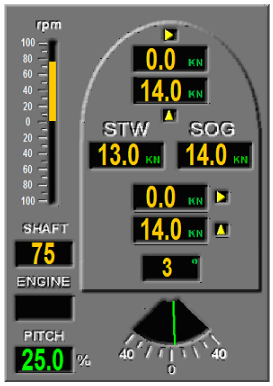
- data type (actually, you can select here any data type from the suggested list; but for the wind you should select one of three depth types)
- peak value (max graduated depth) below and above
- range mode (keep Custom for depth)
- max recording time (in seconds); data older than specified time will be moved out of the display and lost
- time scale (seconds/minutes/hours/days)
- draw mode (fill above/fill below/draw line only)
- graph color

Universal depth recorder could switch dynamically between depth types when user clicks on depth type.

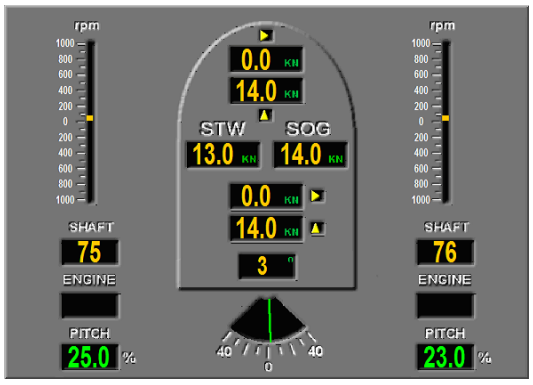
### 3.2.16 Autopilot configuration

This instrument has no configurable parameters.

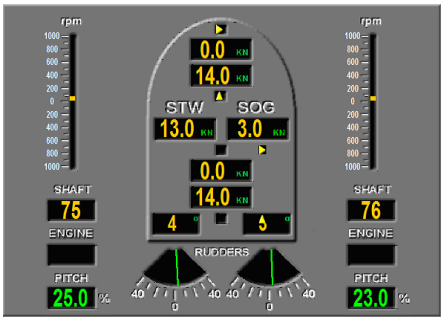
### 3.2.17 Engine/Rudder configuration



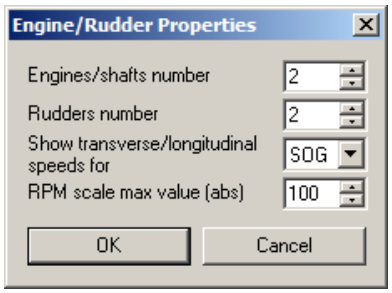

One engine, one rudder




Two engines, one rudder




Two engines, two rudders



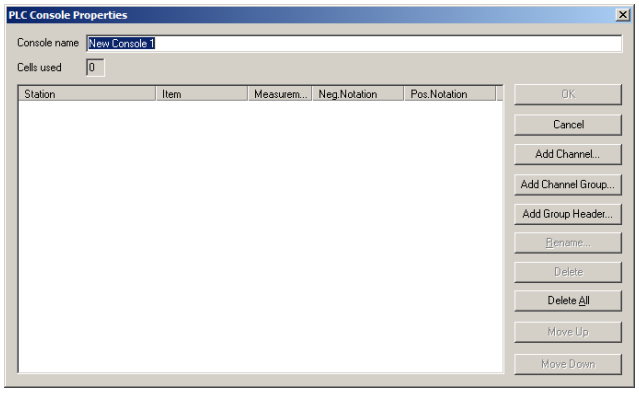

Right click on the console in the layout editor to acitivate context menu, then select Properties. Configuration dialog will be shown.

You should specify the following data:

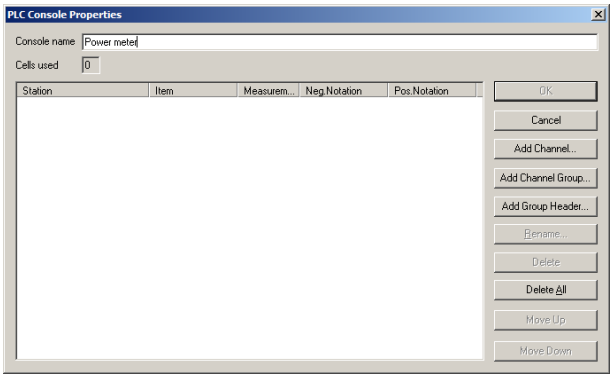
- number of rudders
- number of engines
- which speed should be used to split to longitudinal and transverse speeds (SOG or STW)
- max RPM scale (see comments to Engine instrument)

### 3.2.18 PLC channels

When you are going to insert PLC channels instruments you will see the dialog box and you should create the configuration first.

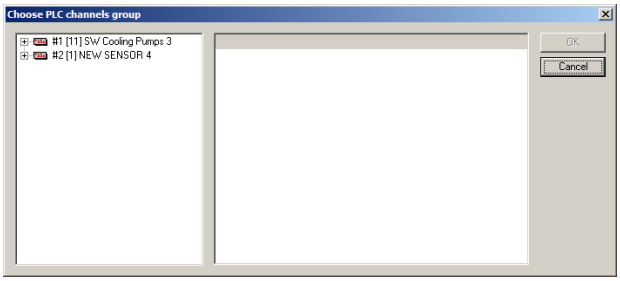



Enter first a name of console to be created.

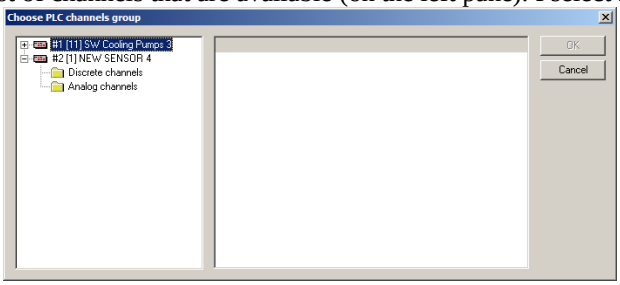



Then you should create one or more channels. Channels could be "orphaned" or could belong to some groups. Press *Add Channel group* button to create a group, or press *Add Channel* button to create an orphaned channel.

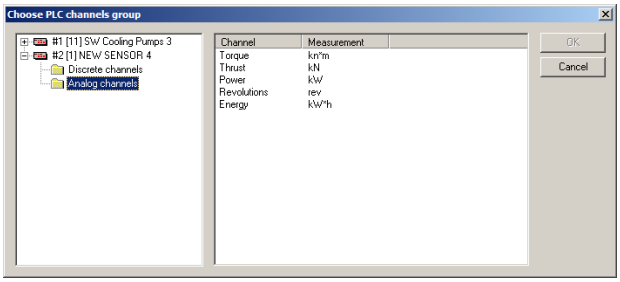
An example.
I create first channel group "Power meter"



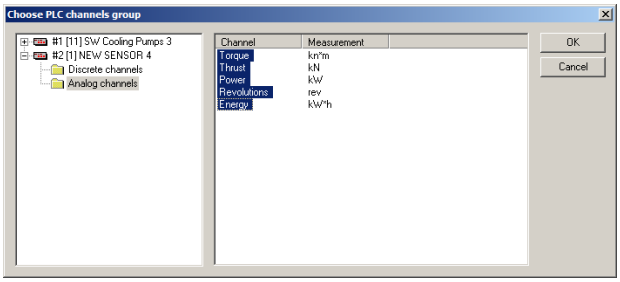

In this dialog you can see a list of channels that are available (on the left pane). I select sensor.



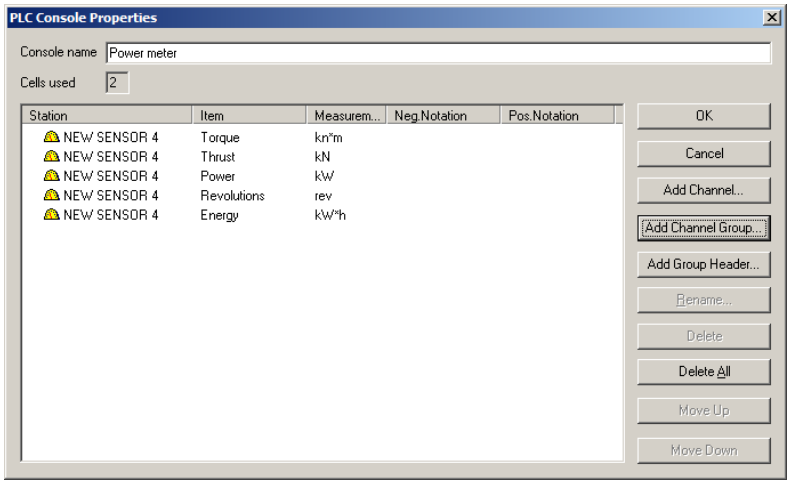

Then I select analog channels.



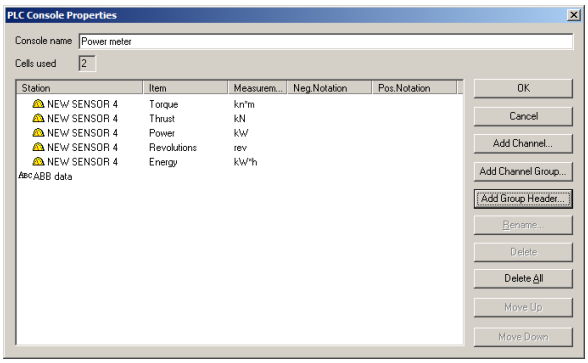
I select one or more channels to be used.



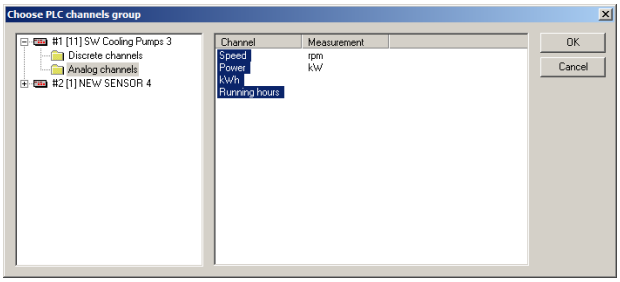

Then I press OK.

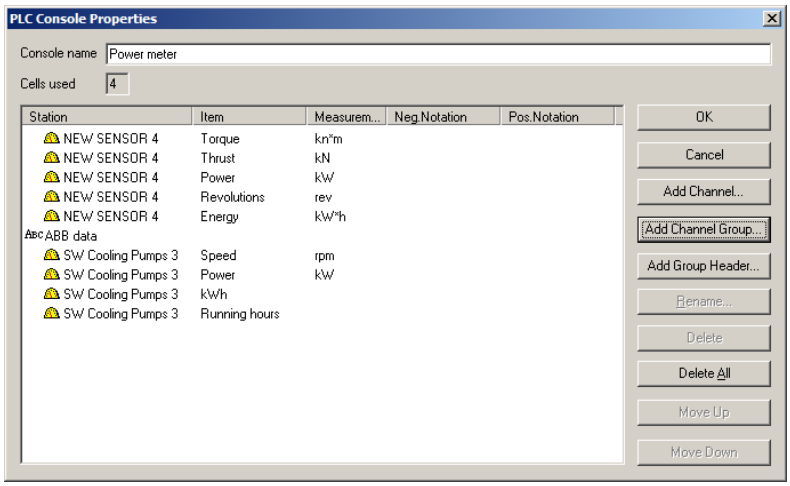



Note that I can add first group header to make group more readeable. Press *Add Group Header* button to do it.

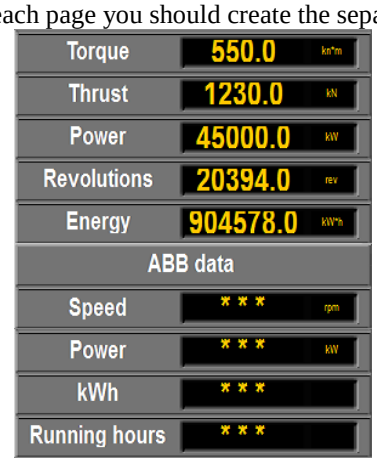



Then you can add other channels if needed.



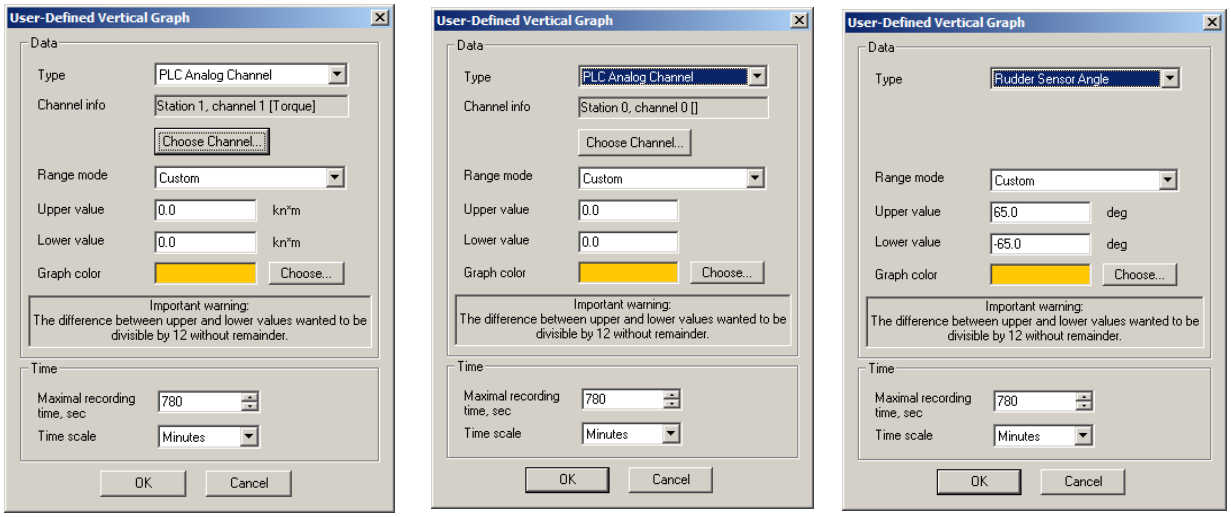

You can repeat this procedure but be aware that screen size is limited. If you have too many channels it's better to use several pages to fit all of them. For each page you should create the separate console.



### 3.2.19 User-defined vertical graph configuration

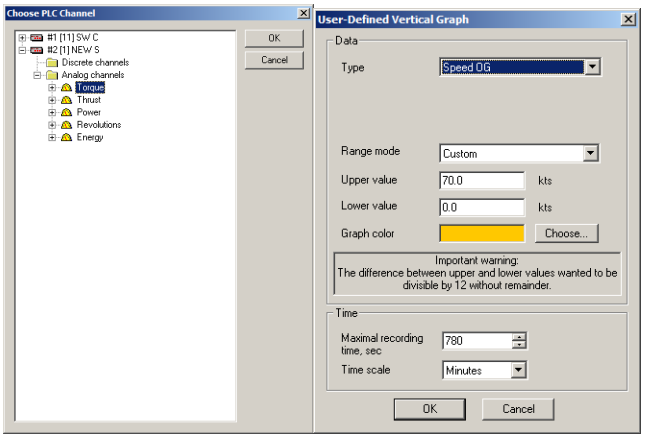
User-defined vertical graph is a vertical recorder that records one data that user has selected.
It might be a generic data like heading or speed, or any analog PLC channel.

When you are going to insert this graph the configuration dialog will be shown

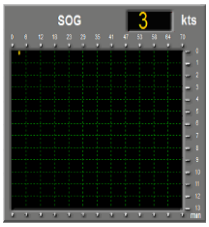



First you should select data type. If you select PLC channel you will see also controls to select a PLC station and a channel.

Press *Select channel* button to choose a channel to be recorded.



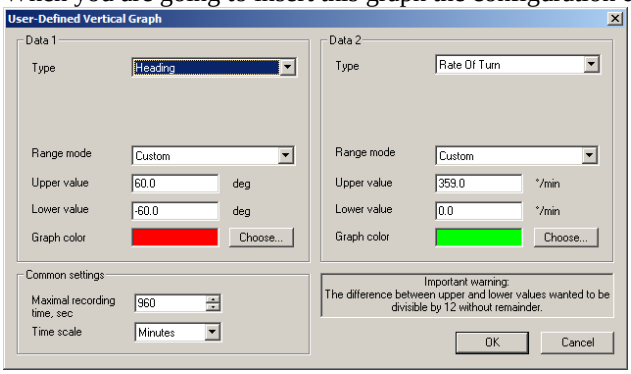
Now you should select range mode, upper and lower value on the scale and graph color (you can refer to Depth Recorder configuration description for more details). In addition, you should select maximal recoding time (after this time data will be moved out and lost) and time scale (seconds/minutes/hours/days).
The same procedure is to use some generic data, for example, SOG. Note that max and min values for generic data are filled in automatically.

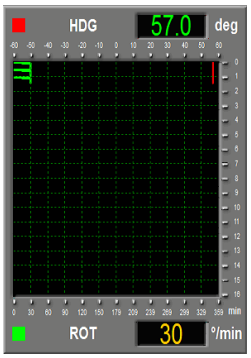



## 3.2.20 User-defined dual vertical graph configuration

User-defined dual vertical graph is identical to the regual user-defined vertical graph but it records two different data types on the same "paper".

When you are going to insert this graph the configuration dialog will be shown

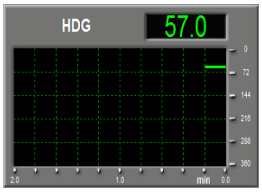



The configuration is fully identical to the regular user-defined vertical graph but the user must complete all fields twice, for each of two data types.

## 3.2.21 User-defined horizontal graph configuration.

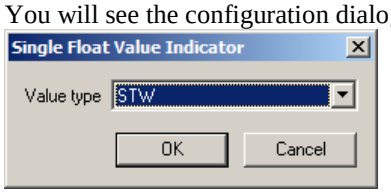
This instrument is fully identical to User-defined vertical graph. The only difference is the recording direction. The instrument has exactly the same configuration dialog and the configuration procedure is completely the same.



### 3.2.22 Single float indicator configuration

This instrument is intended to show some scalar parameter value (it should be any of generic data; it is not possible to show PLC channel value here).

You will see the configuration dialog first



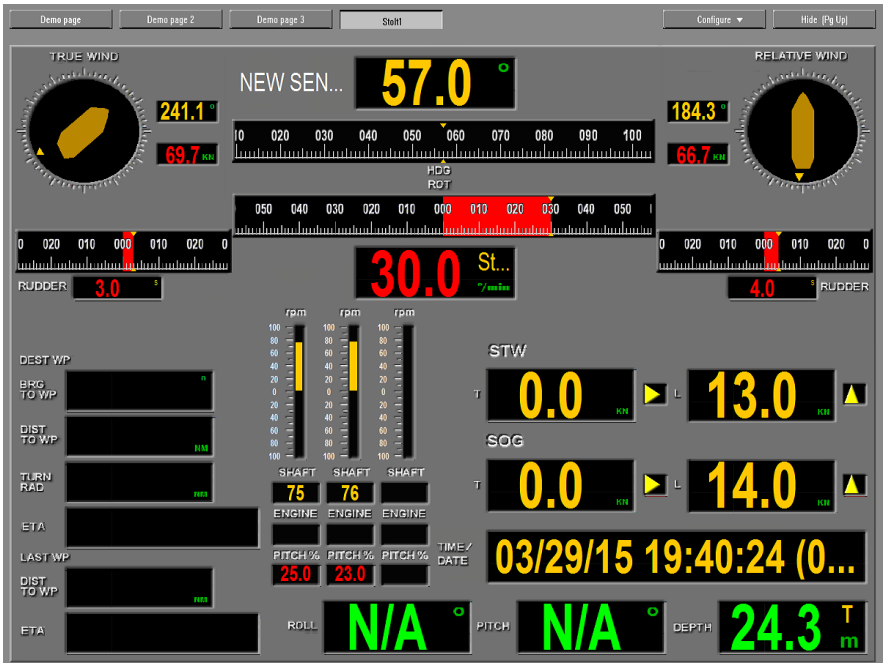
### 3.2.23 Predefined layouts

Conning Display includes also few predefined instruments that take either the whole page or one half of it. Each of them contains a lot of different data.

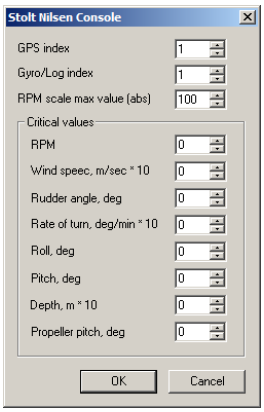
The speciality of most of predefined layouts is that it is possible to follow up ECDIS selection of master GPS and master gyro.

Here is a brief preview of each of them.

### 3.2.24 Stolt Nielsen full console

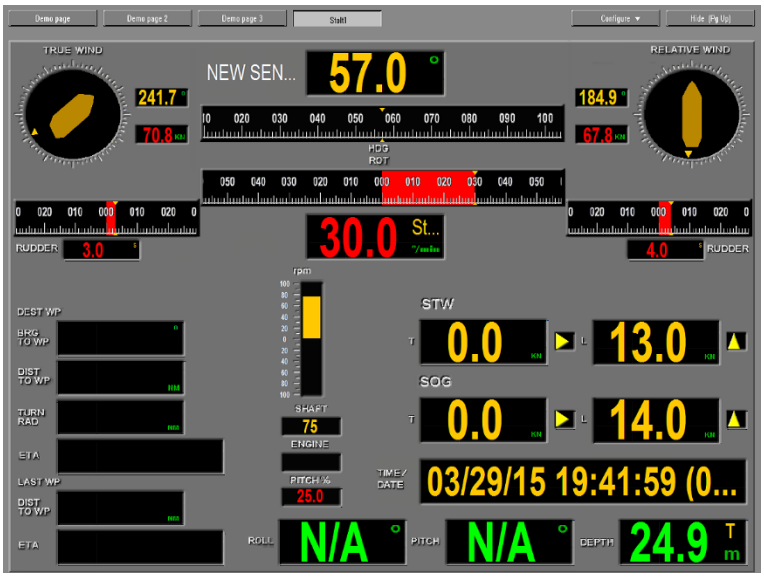


Configuration dialog (activates with context menu by right click on the console in the Layout editor, then select *Properties*)



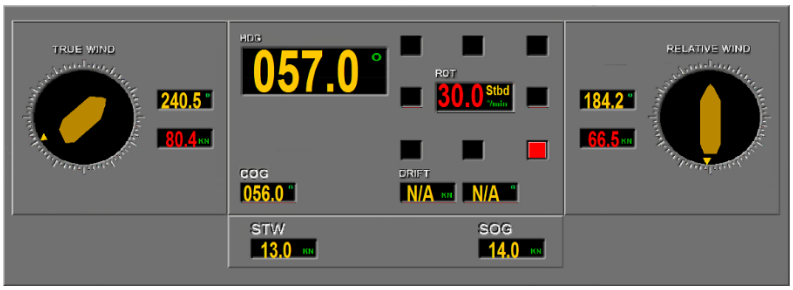

It is important only to select GPS anf gyro index (they could be switched dynamically as it is described in GPS instrument) and the maximal RPM value; critical values are not important.

### 3.2.25 Stolt Nielsen full console with one engine only

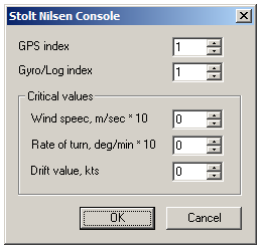



Configuration dialog is the same as for the previous predefined layout.

### 3.2.26 Reduced Stolt Nielsen console (takes just top half of the screen)

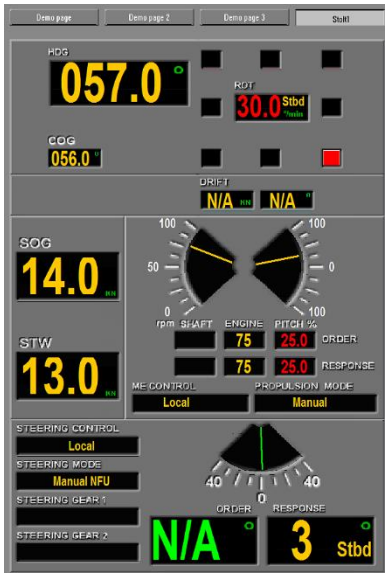


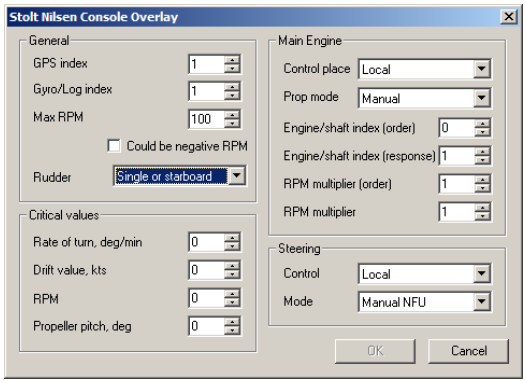

Configuration dialog (activates with context menu by right click on the console in the Layout editor, then select *Properties*)




It is important only to select GPS and gyro index (they could be switched dynamically as it is described in GPS instrument); critical values are not important.

### 3.2.27 Stolt Nielsen overlay console



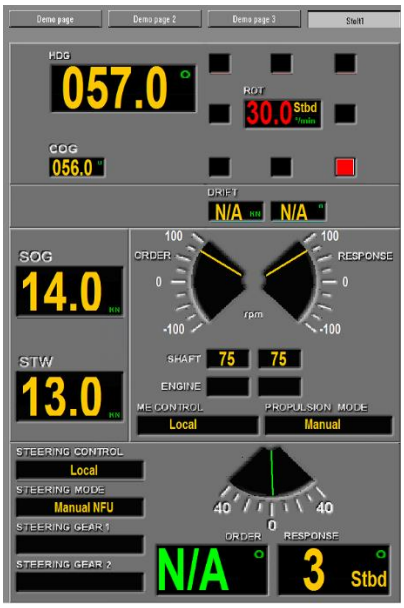
Configuration dialog (activates with context menu by right click on the console in the Layout editor, then select *Properties*)

Please specify the following parameters:

- GPS index
- Gyro/Log index
- maximal RPM value
- tick *Could be negative RPM* if machine has reverse revolutions
- rudder type (single/starboard or port)
- control place/site (local/ECR/wing etc.)
- propulsion mode (manual/combinator/fixed RPM)
- engine/shaft response index
- engine/shaft order index (if present)
- RPM multiplier for order and response (if applicable)
- steering control site (local/bridge main/wing)
- steering mode (manual NFU/manual FU hand-wheel/AP heading/AP course/AP track)

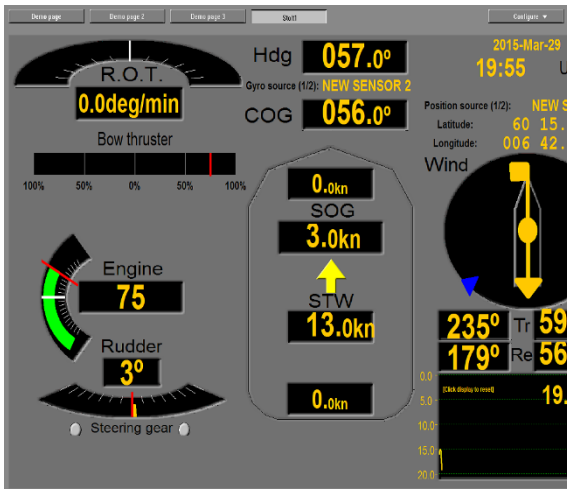
Critical values are not important.

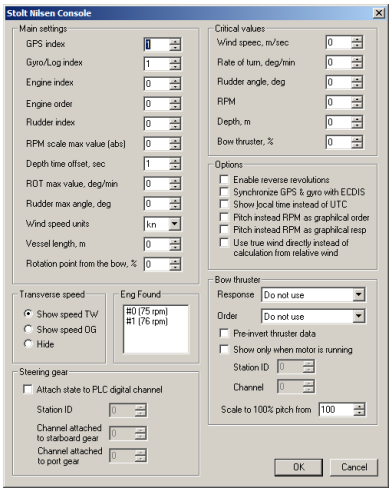
### 3.2.28 Stolt Nielsen overlay console without propeller pitch




Configuration dialog is the same as for the previous predefined layout.

### 3.2.29 Stolt Nielsen "final" console




Configuration dialog (activates with context menu by right click on the console in the Layout editor, then select *Properties*)

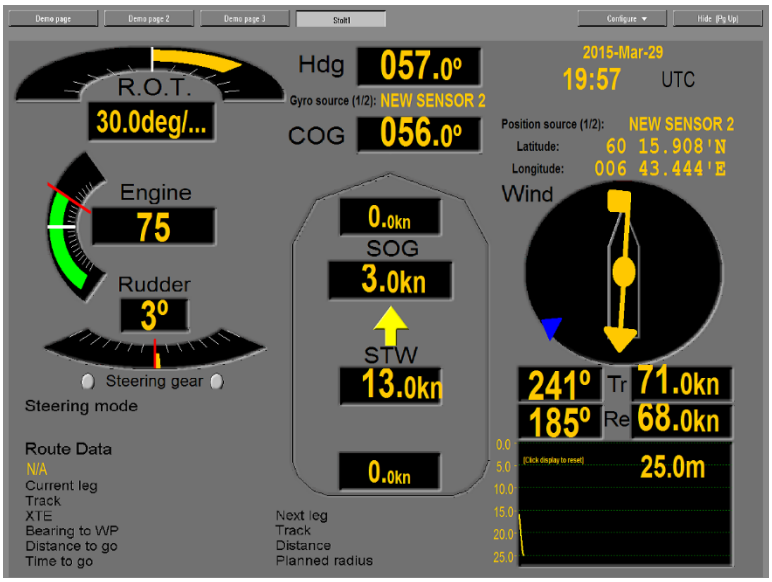
Please specify the following parameters:

- GPS index
- Gyro/log index
- engine both order and response indexes (if applicable) - see Sensor Monitor configuration for further information
- rudder index (0 for single or starboard, 1 for port)
- max RPM scale value (if reverse revolutions present, the same absolute maximum will be used for sailing astern)
- depth time offset (for the recorder)
- ROT maximal value in degrees per minute
- rudder sensor maximal angle (it is recommended to specify slightly bigger angle than could be physically)
- wind speed units (knots/m/s)
- vessel length and approximate turn point in percents to length - for draft calculation of ROT and transverse speed when data are not coming from the HW)
- how to calculate transverse speed (use SOG/use STW/do not calculate)
- show steering gear state according to one of digital PLC channels (should be specified station ID and channels attached to starboard and port steering machines). Refer to Sensor Monitor configuration for the further information.
- tick *Enable reverse revolutions* if needed
- tick *Synchronize GPS and gyro to ECDIS* if needed; when ticked, Conning Display will follow Monitoring ECDIS changes
- tick *Show local time instead of UTC* if needed
- tick *Pitch instead of RPM in graphical order* and *Pitch instead of RPM in graphical response* if needed; this is useful for fixed RPM machines (pitch-controlled with no combinator)
- tick *Use true wind instead of calculation from relative* if Sensor Monitor provides true wind itself (normally it does not)

- specify fake engine data number for bow thruster order and response if this information is present (Sensor Monitor transfers bow thruster power order and response as a fake RPMs, normally number 2 and 3, respectively, but it depends on the certain Sensor Monitor configuration)
- tick *Pre-invert thruster data* if needed (some versions of Valmarine send thruster power with negative sign for starboard and with positive sign for port)
- tick *Show only when motor is running* if one of PLC digital channel is connected to bow thruster pump; then you have to specify station ID and digital channel number
- change *Scale to 100% pitch from* field if the system sends information multiplied to or divided by some factor (for example when for 100% power the system sends 50% instead); this option is to be used very seldom

Critical values are not relevant.

### 3.2.30 Stolt Nielsen "final" console with track steering




Configuration dialog is the same as for the previous predefined layout.

### 3.2.31 Pinnacle Spirit console

Configuration dialog is the same as for the previous predefined layout.