

Table of content

1. User description	4
2. Installation	5
2.1 Installation of Hardware – unit	5
2.2 Installation of OCS	5-6
2.3 Use of the application the first time	7
2.4 Add new user	8
2.5 Authentication	8
2.6 Update	9
2.7 CAN settings	9
3. Menu system	10
3.1 New configuration	10
3.2 Save configuration to file	10
3.3 Import of saved configuration file	10
3.4 Programming	11
3.5 Settings	11
3.6 CAN logger	11
4. Definitions	12-13
5. General procedure	14
5.1 System setups	14
5.2 Configuration process	15
6. Connection to OCS	16
7. Choice of system	17

8. D3-system	18
8. 1 Choice of D3-system	18
8. 2 Allocation of functions	19
8.3 Editing allocated functions	20
8.4 Extra 2	20
9. Loader crane systems	21
9.1 Import of confirmation	21
9.2 New configuration	22-23
9.3 Allocation of function	24
9.4 Create own function texts	25
10. Valve package	26
10.1 Choice of valve block	26
10.2 Positioning of valve block	26
10.3 Editing valve block	27
10.3.1 Move of valve block	27
10.3.2 Deletion of valve block	27
10.4 Positioning of function	28
10.5 Positioning of function – controller	29
10.6 Allocation of a function to a valve section	30
10.7 Editing of allocated functions	30
11. Extra valve block	31

12. DA-modules	32
12.1 Typing – definition	32
12.2 Typing setups	32
12.3 Connection of DA-modules	33
12.4 Import of connected DA-modules	34
12.5 Positioning of DA-modules	35
12.6 Editing of positioned DA-module	36
12.6.1 Move of DA-module	36
12.6.2 Deletion of DA-module	36
12.7 Typing	37
12.7.1 Setup 1	37
12.7.2 Setup 2	38
12.7.3 Setup 3	39
13. DA26	40
13.1 Configuration	40
13.2 Configure	40
14. Programming and configuration	41
13.1 D3-system	41
13.2 Loader crane system	41
13.3 Configuration completed	42
15. D3-Setting possibilities at SERVICE	43
16. System diagnostics	44
17. Error codes shown in the Display box	45
16.1 D3 Joysticks	45
16.2 PBF – Power Box	46
16.3 DA-modules/DA26	46

1. User Description

The software OCS offers the user the ability to configure its crane control system according to its own preferences. OCS can be used for the configuration of both the D3 system and a loader crane system .

OCS also gives the user access to a system diagnostic function enabling to enable overall load they system parameters are continuously monitored during operation.

Important aspects to consider before deploying a configuration:

- The functions must be positioned according to the intended directions of movement of the D3 levers/ levers.
- The functions must be positioned correctly on the valve with regards to A- respectively B-side.
- At configuration of single DA-modules it is of great importance that they are mounted on the valve in the same position as they are configured (typed) in the OCS.
- At configuration of DA-modules already mounted on a valve package the positioning must be correct – the positioning of the DA modules in the OCS must correspond to the positioners on the actual valve package.
- The hydraulic tubes should be connected to respectively valve section in a way that correspond to the system configuration in the OCS.

The recommendation is to read the user manual before work with OCS system in order to be able to navigate easily through the information and quickly find the chapters that are relevant during the work.

2. Installation

The installation procedure consists of (2.1) driver installation for the enclosed CAN / USB device and (2.2) installation of Olsbergs Configuration Software, the OCS .

2.1 Installation of hardware– CAN/USB-unit

Connect the CAN/USB-unit to any USB-port on the computer. This initiates the installation of the hardware.

When the installer asks if it should search Windows Update then select *No, not this time* . Then select *install automatically*. It may happen that during installation certification boxes appear, then *press Continue*. A total of two installation processes must be performed to install the hardware. The application is now installed and ready to use.

When the installation is complete, which may take a few seconds , a window opens that says that the installation is complete .

2.2 Installation of OCS

Insert the USB stick into your computer's USB port. The installation program starts automatically. If installation does not start, open the file manager, navigate to the USB drive and then double-click the file *SetupOCS.exe*

If NET 4.0 is not installed on the computer, an error message appear when the installer tries to start , see Figure 1.

If this dialog is appear NET 4.0 must be installed on your computer. This is done by double clicking on the file *dotNetFx40_Full_x86_x64.exe* in the file manager on the USB stick. Follow the instructions to install .NET.

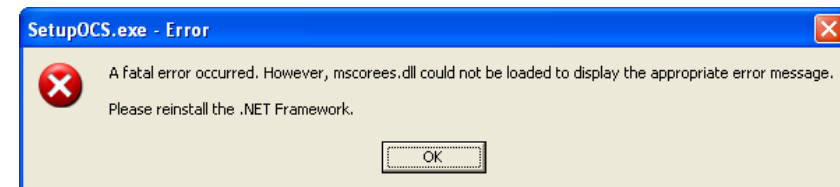


Figure 1. Error message indicating that .NET 4.0 is not installed on the computer.

When the installer starts, a menu box appears as per figure 2.

Click on *Install Olsbergs Configuration software*, this will start up the installation of OCS.

The user is given the possibility to choose where on the hard drive the program shall be located and if the installation is available for the actual user or multiple users on the computer. It is recommended to install the program on the pre-set folder, see figure 3.

Click on Next to install the program.

Click on *Install Drivers* to install the driver for the CAN/USB-unit and register program components. Go through the installation by Clicking on *Next*.

Click on *Install Adobe Acrobat Reader* and follow the instructions on the screen.

Click on *Exit* to close the installation program.

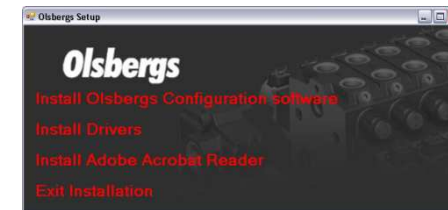


Figure 2. Menu for installation of OCS.

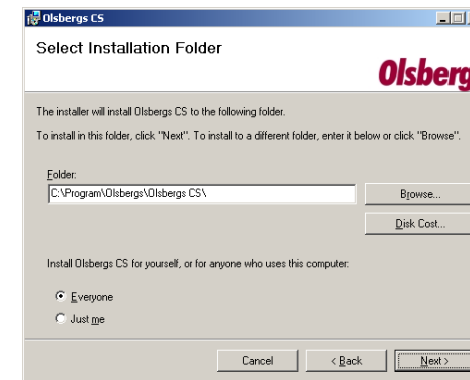


Figure 3. Installation folder

2.3 Use the application for the first time

When OCS is started for the first time, an authentication key is to be entered along with the name of the company for which the OCS license apply. The user data is provided by Olsbergs and is sent separately in conjunction with the ordering of the OCS and should be entered as specified according to Figure 4. Click on *Validate*.

When the authentication code is validated it is possible to add a new user, see Figure 5.

Fill in User Name, Password and Language and click on *Add User*.

Note: It is not allowed to use blanks in the *User Name*

Characters and figures and/or blanks that are not allowed to use are indicated with a question mark in the box *User Name*.

Note: The *Password* is not written in plain text. The entered characters/figures are shown as black dots. See Figure 5.

There is no request to re-enter the password in order to confirm it.

Important: make sure to enter the password correctly.

Each time the OCS is started the program will ask for user name and password.(See Figure 6). The User Name and Password that was created in Figure 5.

If the box *Remember Me* is clicked the system remembers the Login and the user need not enter the login at each login. However this makes it possible for anyone with access to the computer to login to the OCS.

Figure 4. Validation of authentication code.

Figure 5. Add new user.

Figure 6. Login

2.4 Add new users

The application can handle multiple users.

To add a new user go to *Tools* and choose *User*, see Figure 7.

Here it is possible to create a new user by filling in the fields user name, password and choose language.

Click on *Add*.

It is also possible to delete a user by clicking on *Delete*.

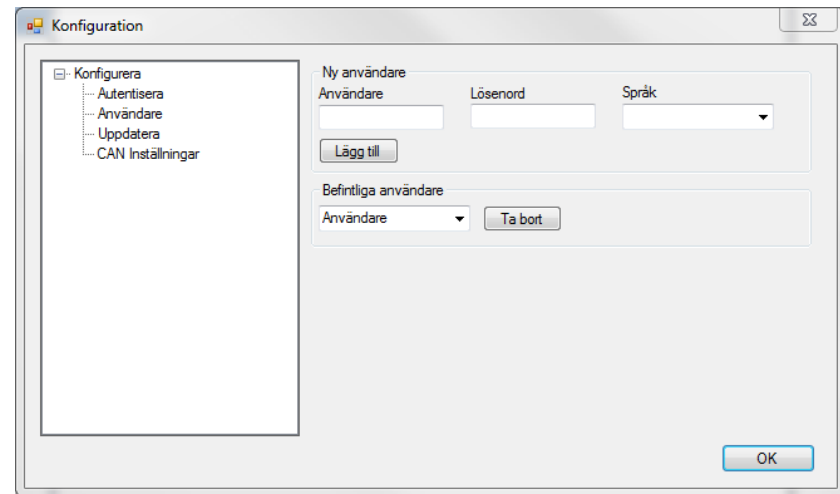
The screenshot shows a dialog window titled 'Konfiguration'. On the left is a tree view with 'Konfigurera' expanded, showing sub-items: 'Autentisera', 'Användare', 'Uppdatera', and 'CAN Inställningar'. The main area is divided into two sections. The top section, 'Ny användare', contains three input fields: 'Användare', 'Lösenord', and 'Språk' (a dropdown menu). Below these is a 'Lägg till' button. The bottom section, 'Befintliga användare', contains a dropdown menu for 'Användare' and a 'Ta bort' button. An 'OK' button is located at the bottom right of the dialog.

Figure 7. Dialog window for creating a new user.

2.5 Authenticate

Under the menu the user can authenticate the application in the case multiple companies should be added , see Figure 8.

Fill in the field and click on *Validate*.

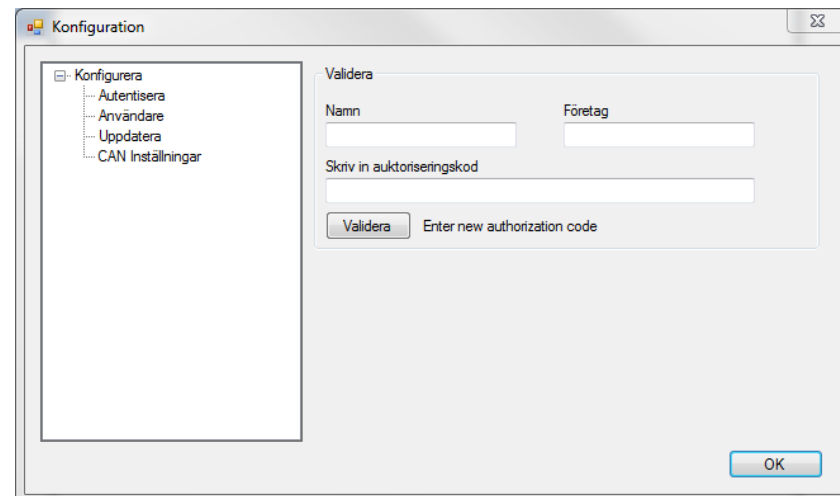
The screenshot shows the same 'Konfiguration' dialog window, but with the 'Validera' section active. The tree view on the left remains the same. The main area now has two input fields: 'Namn' and 'Företag'. Below them is a larger input field labeled 'Skriv in auktoriseringskod'. At the bottom of this section is a 'Validera' button and the text 'Enter new authorization code'. An 'OK' button is at the bottom right.

Figure 8. Dialog window for authentication.

2.6 Update

The application makes use of a large document library. This can be updated in the OCS under the Update tab, see Figure 9.

Information about updates is obtained by Olsbergs or left untouched in other cases. In cases when Olsbergs information about software updates, enter or pointing out the path to the update file obtained by Olsbergs, then press the Update button.

The program will then ask if the user wants to restart the program or not. A reboot is required for updates to be performed. When the program is restarted, a message appears telling you that the program is updated. Component Library is updated and a new message appears when the update is complete.

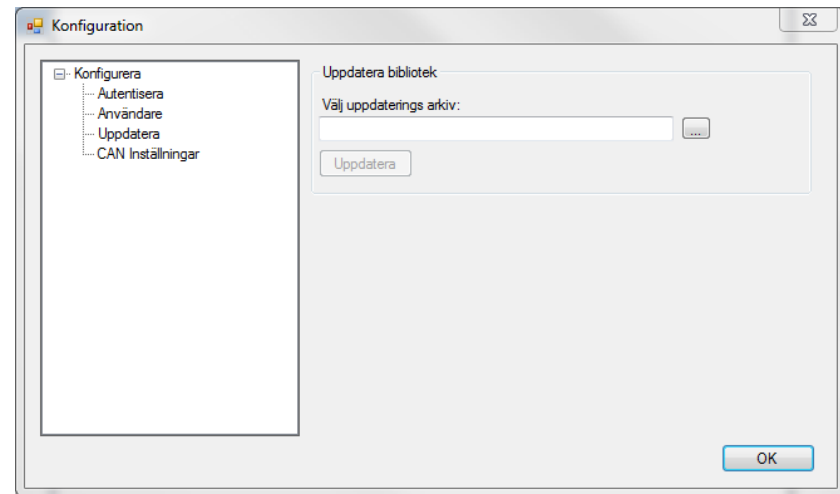


Figure 9. Dialogue window for updating the application.

2.7 CAN settings

Under the CAN settings, you can control and check if the CAN / USB unit is working properly.

Depending on which system, D3 or Loader Crane, OCS should be connected to, the communication speed might need to be changed.

The D3 system communicates with a baud rate of, 50kpbs and Loader Crane system communicates in general with the baud rate of 125 kbps (kilo bit per second), see Figure 10, red box.

It is possible to close and open the port. It is also possible to make a reset in order to remove potential errors. Close the window and confirm the changed settings by clicking on OK. In general these settings are not changed.

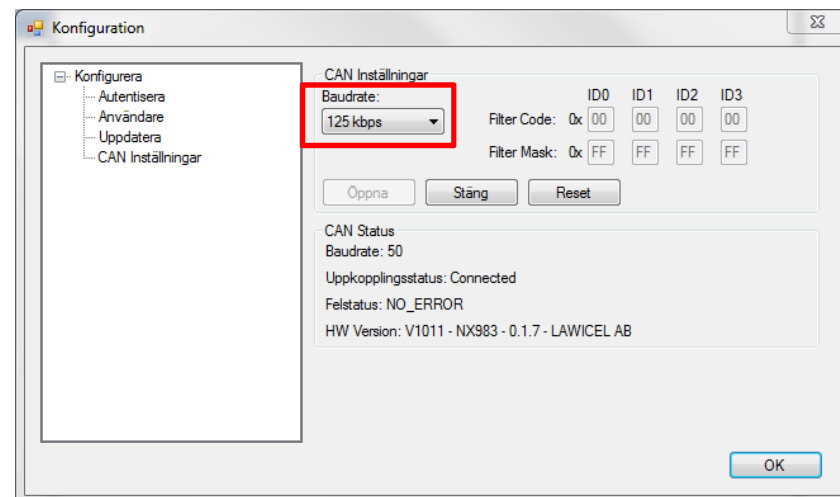


Figure 10. . Dialogue window for updating the CAN/USB-unit's communication speed.

3. Menu system

OCS menu system is handled either by using the pre-sets in the form of icons or via the tabs File, Tools and Help and sub-menus, see Figure 11.

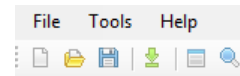


Figure 11. Menu system

3.1 New configuration

To start over with a new configuration, press the icon with a blank sheet alternatively File, then New, see figure 12 red box.

If changes have been made to the previous configuration, a dialog will appear asking if the changes should be saved.

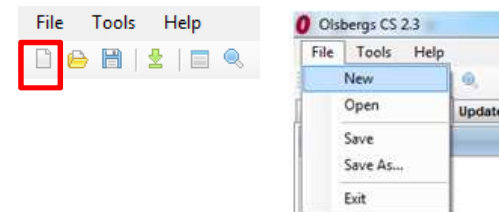


Figure 12. New configuration.

3.2 Save configuration to file

It is possible at any time during the configuration save the work in a file.

Click the save icon at the top right of the program window alternatively on *File*, then *Save As*.

In the new window, select where to store the file and name the configuration. See Figure 13 red box.

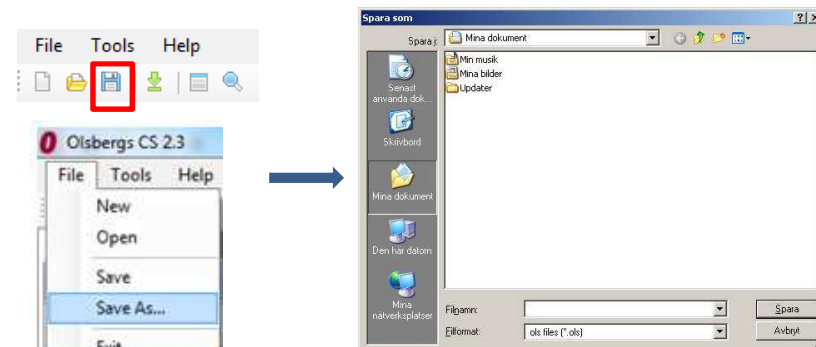


Figure 13. Save to file.

3.3 Import of saved configuration file

Click on *File*, at the top right of the program window and then *open*.

In the new window the search path for the saved file should be specified.

Mark the file and click Open.

See Figure 14 red box.

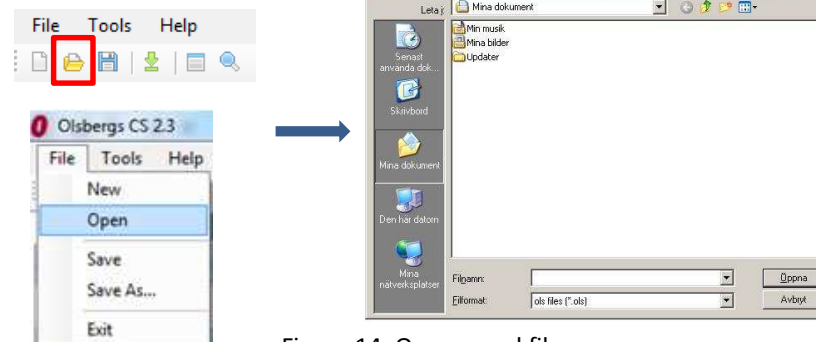


Figure 14. Open saved file.

3.4 Program

During programming of the placed DA modules can symbol marked by the red box in Figure 15 (green arrow) be used alternatively *Tools* and then *Program*.

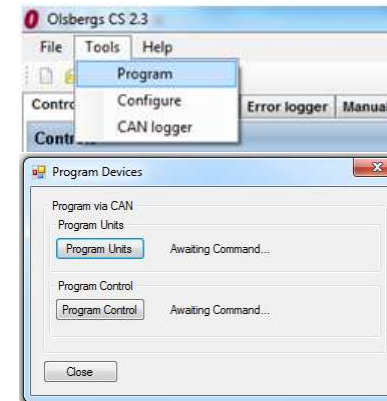
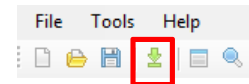


Figure 15. Programming units.

3.5 Settings

To change settings in OCS, e.g. communication speed, click either on the symbol marked with a red box in Figure 16 alternatively *Tools* and then *Configure*.

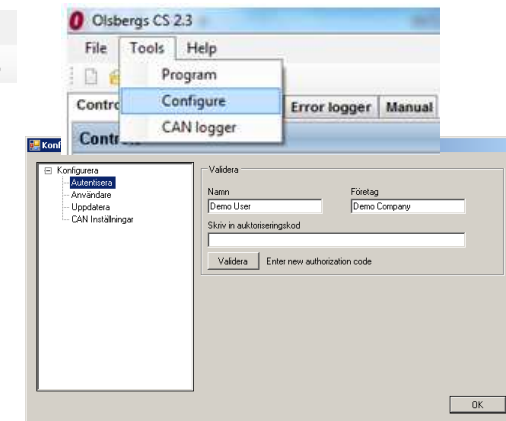
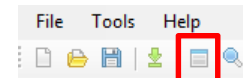


Figure 16. Change settings.

3.6 CAN logger

OCS provides the possibility to log the CAN-traffic and to save it in an encrypted file.

Click either on the symbol marked with a red box in Figure 17 alternatively *Tools* and then *CAN logger*. The information in the saved file can then be analysed by an authorized technician. Created Log-files are automatically saved at %PROGRAMFILES%\Olsbergs\Olsbergs CS\Log\, where %PROGRAMFILES% is the program catalogue. See Figure 17.

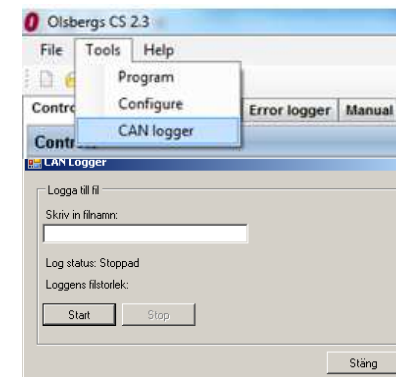
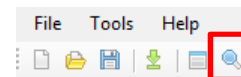


Figure 17. CAN logger.

4. Definitions

In the manual the following definitions will be used.

Area: A specific part of the user interface in OCS which contains a certain functionality. The name of the area is shown in the blue frame top right, see Figure 18, Area Functions.



Figure 18. Area functions.

The areas under the hydraulic Tab are the following , (see Figure 19):

- 1: DA-modules
- 2: Valves
- 3: Functions
- 4: Working area (the name depends on what is place in the area)
- 5: Properties

In the centre of the OCS window you find the area called **working area** where levers/controllers and valve block are placed in order to be configured with different functions. The names on the Tabs above the working area indicates which menus and valve block that have previously been chosen. In Figure 19 a valve block has been placed on the working area. When the name on the working area, tab name, changes depending on what is placed on it, the area will continuously be referred to as working area.

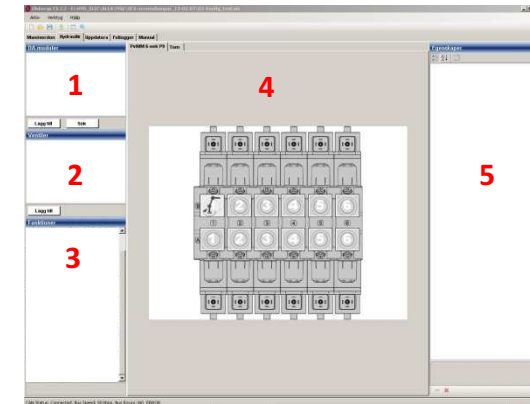


Figure 19. Areas under Tab Hydraulics.



Figure 20. A function symbol.

Function: A specific movement/function e.g. extension. The different functions are represented by symbols which are used to configure the system. See Figure 20.

Position: The position on a D3 lever, e.g. the trigger or a specific lever on a controller where the function is positioned, see Figure 21.

Section on a valve block: Part of a valve block that has been configured with a function, see Figure 22.

Italic is used to clarify that the word is a text, an area or a choice in the OCS. E.g. a reference to area Functions is written *Functions*



Figure 21. Placed function on a position.

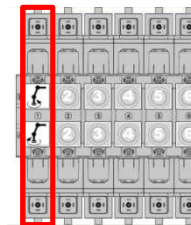


Figure 22. A section of a valve block.

5. General procedure

The approach to the configuration of a system differs depending on which parts of the crane control system are connected to the OCS. The main differences are; where the DA modules receive their power from and the handling of the DA modules at the so-called typing.

A system is in its simplest form, a PDB / PDF, D3 levers or controller and a DA module.

5.1 System setups

1. Only DA-modules connected to OCS and powered by means of the provided power supply adapter.
2. A system is connected to OCS, however the DA-modules **are not** mounted on a valve block.
3. A system is connected to OCS and the DA-modules **are** mounted on a valve block.

5.2 Configuration procedure

The configuration of a system can be divided into the following steps.

See Figure 23 for illustration of the below procedure.

1. Connect the DA-modules/the system with the supplied CAN/USB unit to the computer with OCS installed and activate DA-modules/the system. A connected D3 system must be set in CRANE mode. At configuration of a controller, the controller shall be connected to the system and the emergency stop button to be released.
2. Selection of controller and specification of any extra menus.
 - *D3-system.
 - *6 –or 8 levers controllers.
3. Placing and allocation of functions to D3 levers/controller basic positions and any extra menus.
4. Selection of valve block (e.g. crane valve) or multiple valve blocks (crane valve and e.g. stabilizer valve)
5. Placing of the function to a specific section on the valve block.
6. Import of serial numbers of the DA modules to be configured.
7. Placing of the imported DA modules on the valve block in OCS = typing.
8. Programming of DA modules and/or the controller.

The procedure in step 7 varies depending on which parts of the system that have been connected to OCS. At any time during the configuration procedure it is possible to save the configuration in a file. To save the configuration file see chapter 3.2.

If not requested that the DA-modules/system are programmed directly after the completed configuration, a configuration file can be made. The programming of the DA modules/ system can be done at a later occasion. Step 1 is then dismissed and only step 2-5 are done. Finalise the procedure by saving the configuration to a file.

The final steps 5-7 can be done at a later occasion, provided the system has been connected according to step 1 and that the saved configuration file have been imported. For import of saved configuration file see chapter 3.3

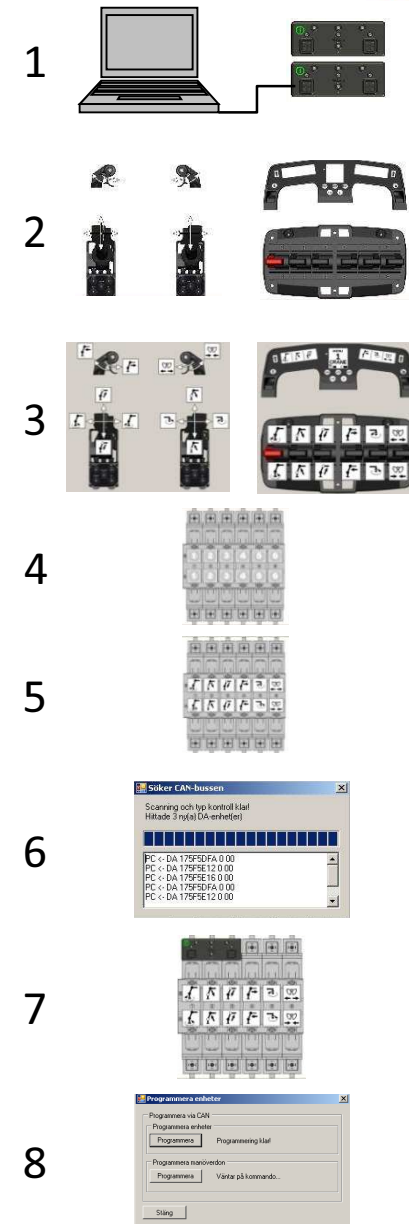


Figure 23. Configuration procedure.

6. Connection of OCS

Before OCS can communicate with and configure the DA-modules/system they must be activated – have power supply and be connected to the computer. The connection to the computer is done with the supplied CAN/USB-unit. Connect the unit's USB connector to a USB port on the computer. See Figure 24 for CAN/USB-unit and Figure 25 for Power supply adapter.

Check that the communication speed that is pre-set in the OCS is correct for the connected system.

For D3 system the baud rate should be set to 50kbps.

For Loader Crane system in general the baud rate should be 125kbps.

See chapter 2.6 CAN setting - for how to change speed.

Only DA-module/DA-modules

Connect CAN/USB-unit to a CAN connector on a DA module.

Connect the power supply adapter to a wall socket and connect its CAN connector to a CAN connector on a DA module. Note: the DA module/DA modules will not light up any of the LEDs. See Figure 26 - DA module connected to CAN/USB-unit and power supply adapter.

System

Make sure that the DA module/DA-modules are connected to the system.

Connect the CAN-connector on the supplied CAN/USB-unit to a CAN-connector on the system with the supplied CAN cable. Start up the PDB/PBF.

D3 system:

Set the system in CRANE mode. Attention. If the configuration to be made on a complete system with the DA modules mounted on a valve block be careful as the crane is active and will respond to movement of levers.

Loader crane system:

If the controller is to be configured it must be connected and activated. Press the crane button on the PDB and release the emergency stop on both PDB and controller.



Figure 24 CAN/USB-unit.



Figure 25. Power supply adapter.



Figure 26. DA module connected to CAN/USB-unit and power supply adapter.

The cable between CAN/USB unit and DA module can be ordered separately if needed.

7. Choice of system

In OCS it is possible to configure both D3 system using D3 levers and a Loader Crane system using a controller. See Figure 27 for D3 system with D3 levers and Figure 28 for the controller to a Loader Crane system.

The configuration procedures vary for the two systems and are described in two separate chapters.

Configuration of D3 system is described in chapter 8 and Loader Crane system in chapter 9.

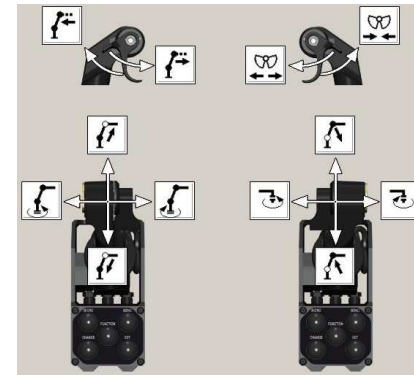


Figure 27. D3 levers in the D3 system.

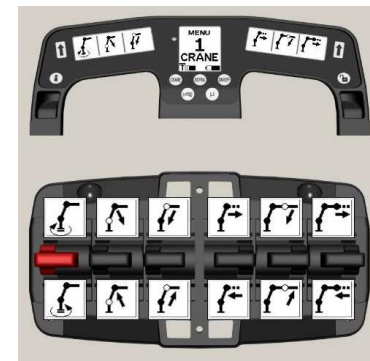


Figure 28. Controller in a Loader Crane system.

8. D3 system

8.1 Selection of D3 system

Select Tab *Controls*.

Click on *Add Control* in area *Controls*.

Window in Figure 29 shows up.

In the drop list (1), called model, choose *D3-Lever*.

The D3-system allow only one *Crane* and one *Extra* menu to be configured.

This is pre-set and cannot be changed.

By marking and deleting the pre-set name *D3 Lever*, see Figure 30 (2) it is possible to change to an own name.

Confirm the selection of model by clicking on *OK* (3).

The button *Auto Detect* is not used in the configuration of a D3 system.

In the *working area* there is now two D3 levers where each position is represented by a number between 1-6. See Figure 31.

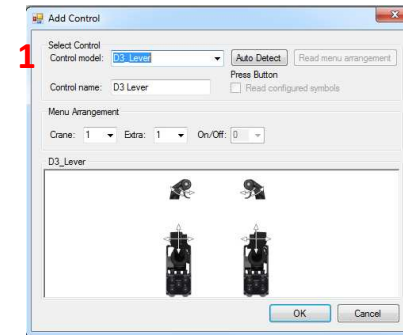


Figure 29. Add Controller.

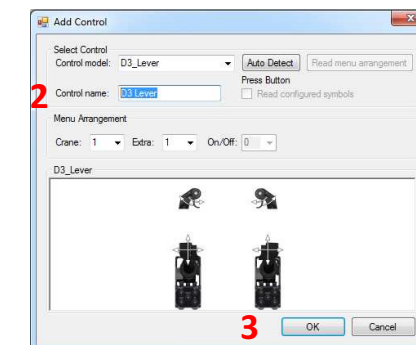


Figure 30. Change of name.

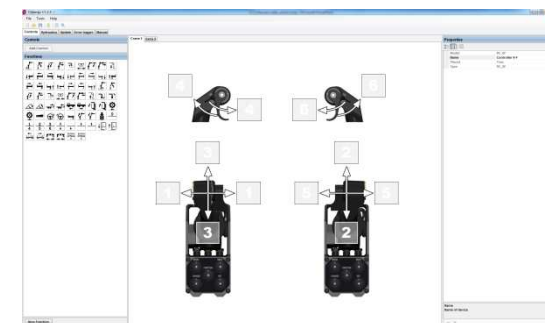


Figure 31. Working area with D3 levers

8.2 Allocation of functions

Configuration of a function on a D3 lever is done according to the following, see Figure 32:

1. Put the cursor on the symbol of the chosen function in area *Functions* (1) to the left of the *working area*.
 2. Press and hold the left mouse button.
 3. Move the cursor, without releasing the left mouse button, to the position (the box with a number between 1-6) in the *working area* where the chosen function shall be activated.
 4. Release left mouse button and the function is shown in the box.
- The reverse movement of the allocated function is allocated automatically.
(2) Show how the trigger function is allocated.

The allocated function/functions is/are indicated in the area *Functions* by the background of the symbol turns green. See Figure 33.

Repeat the procedure until all positions have been allocated with a function, see Figure 34.

Be careful in which boxes on the D3 levers the functions are placed in order to be consistent with how the crane will respond to movements of the D3 levers, see Figure 35.

The button *New function*, beneath the area *Functions*, is not in use for the D3 system. This function only works together with controller 6F or 8F and gives the user the possibility to write own texts to be shown in the controller displays.

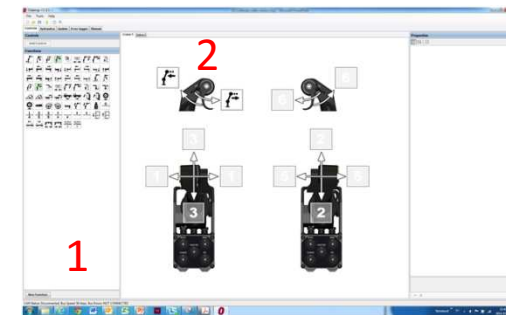


Figure 32. Allocation of functions.



Figure 33. Allocated functions are indicated with a green background.

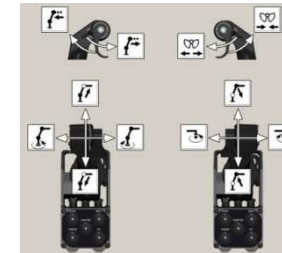


Figure 34. All position are allocated with a function.

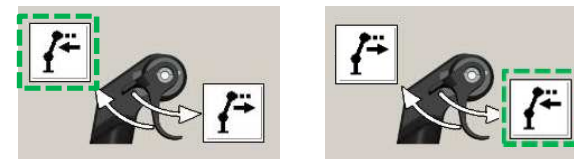


Figure 35. Allocated function, green box, and direction of motion.

8.3 Editing of allocated functions

If a function is wrongly allocated (or a correct function, but at wrong position) this is changed by doing the following in the *working area*:

1. Place the cursor on the symbol of the wrongly placed function.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the mouse button – The symbol with the function can now be dragged to the area called *Functions*.
4. Release left mouse button.

The function will disappear on the *working area*.

The function symbol is back in area *Functions* and the background of the symbol has turned white showing it is no longer allocated.

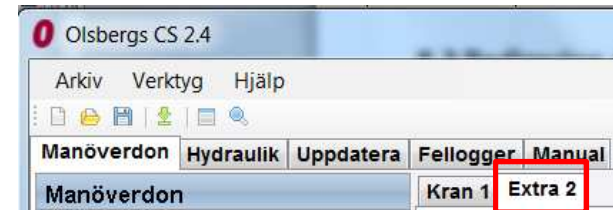


Figure 36. Tab for configuration of menu Extra 2

8.4 Extra 2

Menu *Extra 2* can be used for e.g. controlling the stabilizer valve including lifting and lowering the cabin.

The allocation of function to the different positions in menu *Extra 2* is done by marking Tab *Extra 2*, see Figure 36.

A new *working area* with two non-configured D3 levers are shown, see Figure 37.

The allocation of a function to a position is made in the same way as previously described in chapter 8.2.

This is repeated until all required positions on the D3 levers have been allocated a function.

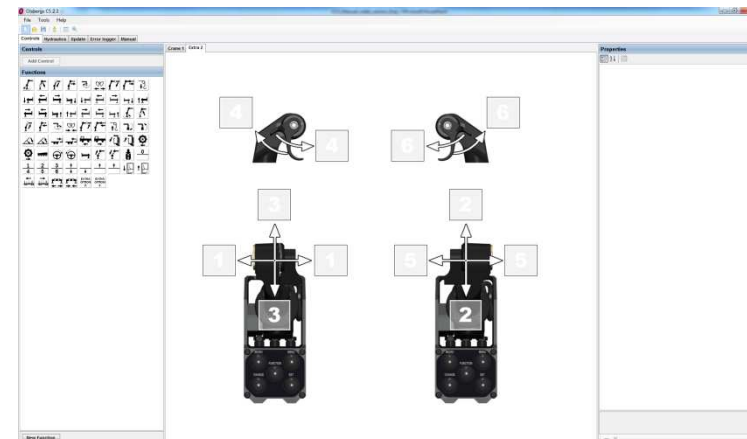


Figure 37. Tab Extra2 with non-configured D3 levers.

9. Loader Crane Systems

9.1 Import of configuration.

Make sure the system and the controller are started and connected to OCS.

Select Tab *Controls*.

Click on *Add Control*.

Press on *Auto Detect*, see Figure 38 and red box.

A failed detection of the controller is indicated with the text *Detecting...Failed*, see Figure 39 and green underlining.

Check that the system and the controller are connected correctly and started and make a new search by clicking on *Auto Detect*.

In the example a controller of type 6F was used.

A successful search is indicated with the text *Search...Detected RC_6F* alternatively *Search...Detected RC_8F* when the connected controller is detected, see Figure 40 green underlining.

Click on *Read menu arrangements*, see Figure 40 and red box.

When the import is ready the text beneath is changed to *Search...Menu arrangements detected*, see Figure 41 green underlining.

Click *Ok* to close the window.

In the *working area* a controller with the imported configuration will be shown, see example Figure 42.

Before any changes are made it is recommended to save existing configuration to a file. Thus is it possible to retrieve the information about how the system was configured originally before it was changed.

Thereafter it is possible to change existing configuration, if desired.

See the next following pages for instructions how to do it.



Figure 38. Detect controller.

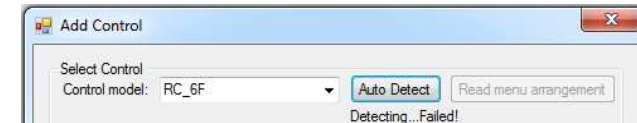


Figure 39. Controller not detected.



Figure 40. Controller detected, green underlining.
Import of menu arrangements, red box.



Figure 41. Import ready – menu arrangements detected.

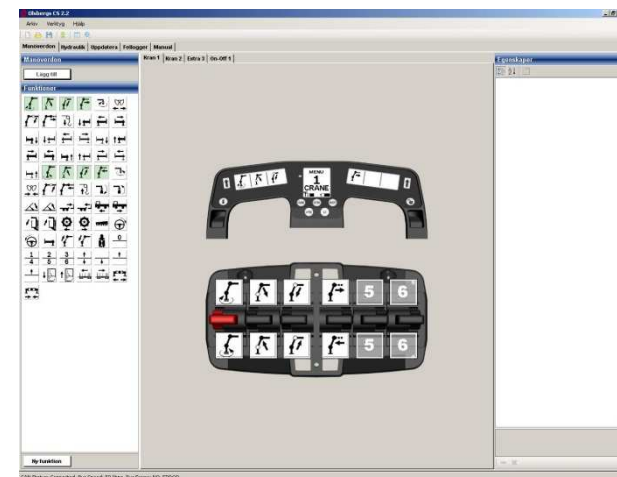


Figure 42 Controller with imported configuration.

9.2 New configuration

Select Tab *Controls*.

Click on *Add Control*, the menu window in Figure 43 will show up.

In the drop list (1), called *Control model*, the type of controller to be configured is selected. In order to make the configuration a complete system must be connected to the OCS and it must be started up. The power box PDB started and the controller connected with the emergency button released. In the configuration example a controller of type RC_6F was chosen.

By marking and deleting the pre-set name Controller 6-F it is possible to rename the controller with an own name, see Figure 44 (1).

It is possible to extend the menu system with multiple function menus called *Crane*, *Extra* and *On/Off*, see Figure 44 (2).

Menu *Extra* can be used for e.g. a valve block connected to stabiliser and menu *On/Off* to control the functions in a relay box. Is a valve with eight sections used together with a controller with six functions, the last two sections in the valve block are controlled from menu Crane 2.

In total it is possible to choose four menus of type *Crane* and *Extra* and four menus of type *On/Off*. If four menus of type *Crane* is used there is no *Extra* menu and vice versa. A combination of the two types is possible but the total number of menus is limited to four. The selection of menu is made in the drop lists *Crane*, *Extra* and *On/Off*, see Figure 45. The choice of controller and the made settings are confirmed by clicking on *OK*.

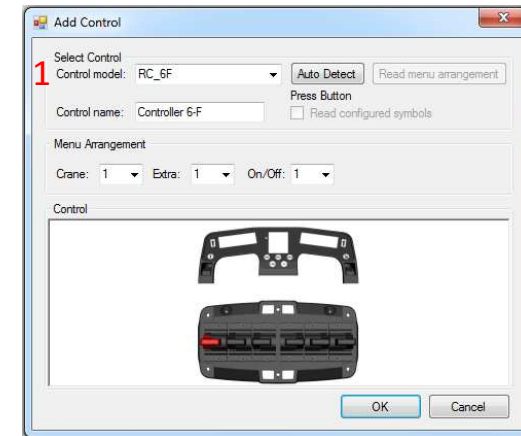


Figure 43. Choice of controller.

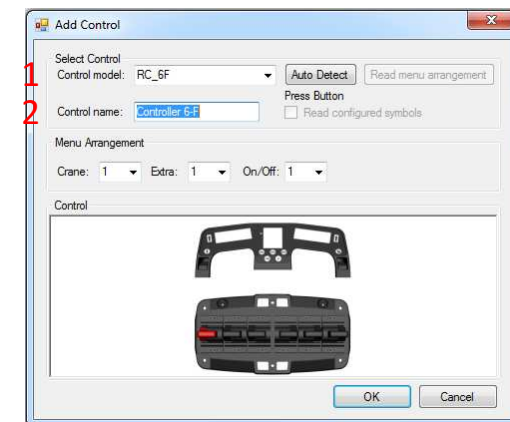


Figure 44. Change name.

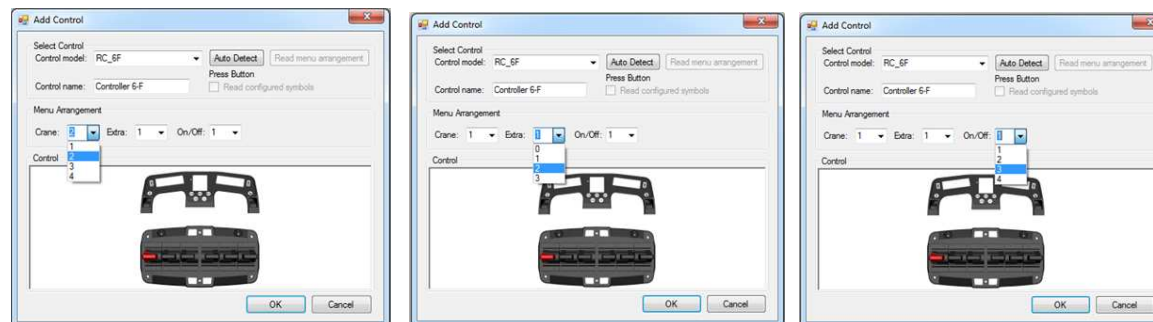


Figure 45 Selection of number of *Crane*, *Extra* and *On/Off* menus.

When the selection of control model and menu arrangements has been made the controller is shown on the *working area*, see Figure 46.

The menus *Crane*, *Extra* and *On/Off* are represented in Tabs above the *working area* see Figure 46 red box and Figure 47 for a close up.

In the example two *Crane*-menus, two *Extra* menus and maximum number of four *On/Off*-menus, were selected.

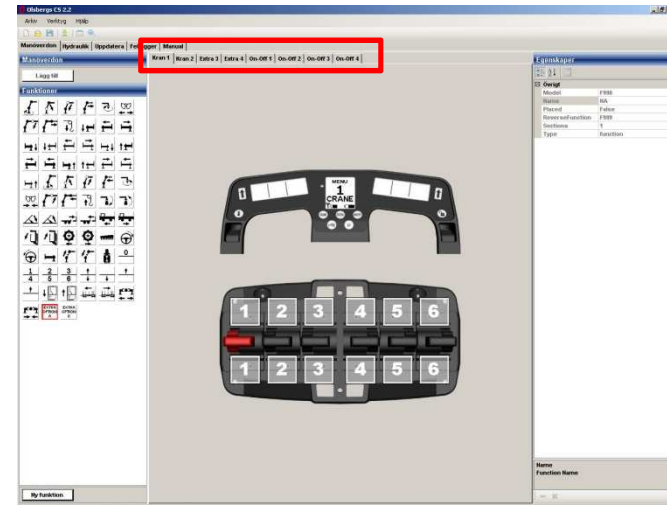


Figure 46. The controller is placed on the working area. The Tabs with selected menus indicated in the red box.

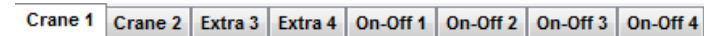


Figure 47. Chosen menus.

9.3 Allocation of functions

Configuration of a function of a lever is done as follows:

1. Place the cursor on the symbol of the function in the area *Functions* (1) to the left of *working area*.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the left mouse button, to the position on the front row of numbered functions on the controller where the selected function should be activated, see red box, Figure 48. A symbol showing the selected function is moving along with the cursor.

4. Release the left mouse button and the function is shown in the square, see Figure 49.

The reverse movement of the function is automatically positioned.

The function/functions allocated are indicated in the area *Functions* by means of the background of the corresponding symbol turns green, se Figure 50.

Be careful in which box and in which motion direction, the function is placed.

It is the symbols of the functions which are placed in the front row of numbered functions on the controller that will be shown in the displays on the display handle.

See Figure 51 for allocated symbol - green box and what is shown in the display – red box.

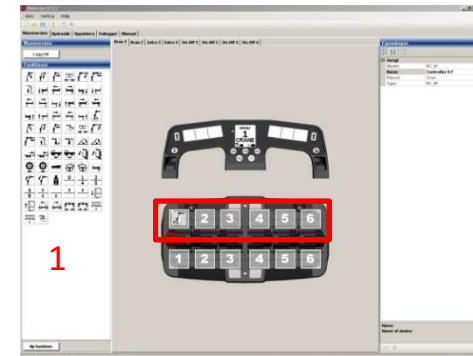


Figure 48. Placing of a function.

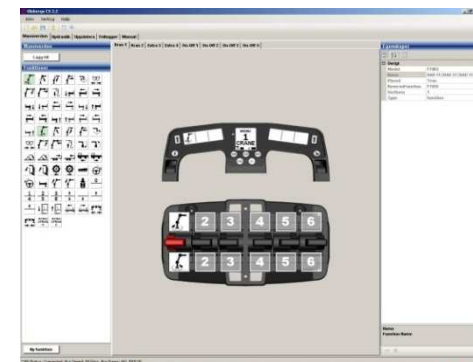


Figure 49. Function allocated.



Figure 50. Allocated function - green background.

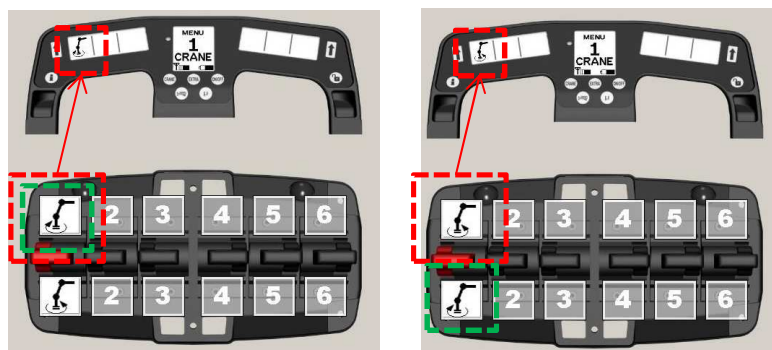


Figure 51. Function allocated – green box.
Motion direction shown in the display - red box.

9.4 Create own function texts

It is possible to define own function texts instead of the pre-defined texts that are available at the area Functions.

Press the button *New function* under the area *Functions*.

The window Create text symbol type 3 in Figure 52 shows up.

It is also possible to define a specific text on the lever's opposite movement direction by clicking the box *Reverse*, See Figure 52 (1).

New reversed function will then be possible to fill in.

It is also possible to replace the pre-defined names with own names, see Figure 53 (1 and 2).

Write the own text to be shown in the display in the boxes under *Write in text*.

It is possible to have up to four rows with own text with maximum eight characters per row. If more the eight characters are filled in an exclamation mark will show up next to the box.

In the example in Figure 53 texts are filled in at all eight possible positions. The placing of the text are made in the same way as for a pre-defined function.

Place the lines with texts, to be shown in the display handle display, in the front row of the numbered boxes, see Figure 54 red box.

The text that was entered in the reverse function window will automatically show up in the second box, see Figure 54 green box.

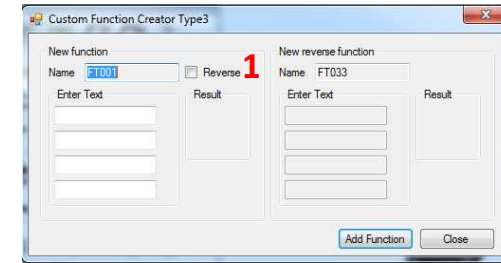


Figure 52. Create text symbols

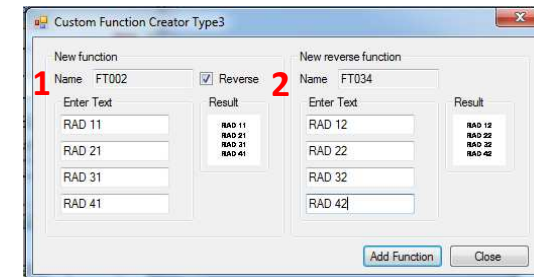


Figure 53. Name change and maximum number of characters per field.

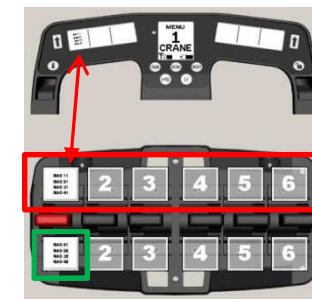


Figure 54. Placing of the text function.

10. Valve block

10.1 Select valve block.

Select tab *Hydraulics* in the tab system.

Press the button *Add* in the area *Valves*.

It is possible to select a valve block either by marking the requested valve block in the drop down list with valve models, see Figure 55 (1) or by writing in the description in the box Filter, see Figure 55 (2). Note the filter function is sensitive to how upper and lower case are used.

A filtering on e.g. the name *P9 Pv90m 6-sek P9* (error marked red) will not work as the letter *m* is not written with upper case (correct valve name: *Pv90M 6-sek*).

By marking and delete the predefined name that will be shown when a valve has been selected, see Figure 55 (3), it is possible change it with an own name.

Press *OK* to confirm the made selection/ changes.

In the example a valve block with description *Pv90M 6-sek P9* was selected.

The selected valve block is now represented as a figure in area *Valves*, Figure 56.

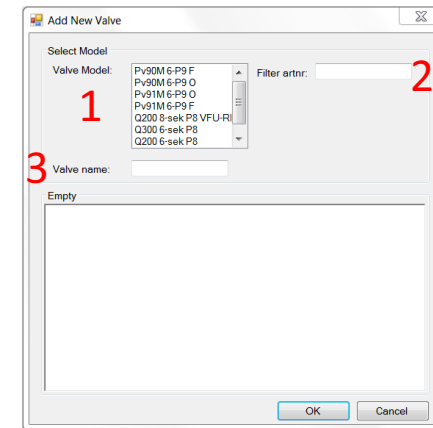


Figure 55. Select valve block.

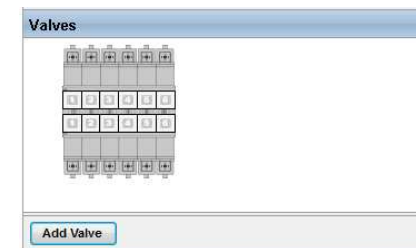


Figure 56. Selected valve block is shown in area *Valves*.

10.2 Placing of valve block.

Place the valve block in the working area to the right by:

1. Place the cursor on the figure of the valve block.
2. Press and hold down the left mouse button.
3. Move the cursor, without releasing left mouse button, to the *working area*- a larger figure of the valve block will show up.
4. Release the mouse button and the valve block is placed on the *working area*, see Figure 57.

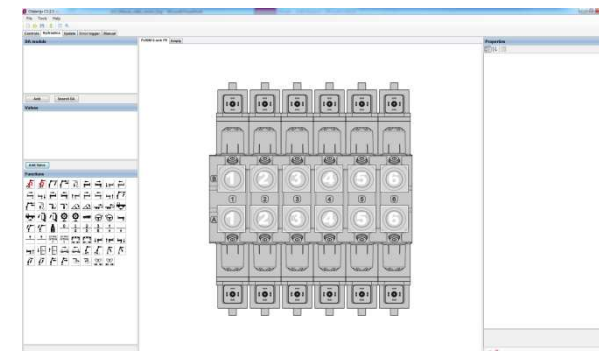


Figure 57. The valve block is placed in the working area.

10.3 Change valve block

The valve block can either be deleted from the area or be moved back from the *working area* to the area *Valves*.

10.3.1 Move the valve block

Movement of a valve block from the *working area* to the area *Valves*:

1. Place the cursor on the valve block to be moved back to area *Valves*.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the left mouse button, to the area *Valves*.
4. Release the mouse button and the valve block will show up in area *Valves* and can be placed again.

10.3.2 Deleting a valve block

If wrong valve block was selected it is possible to delete it.— Mark the valve block by placing the cursor on it and click the left mouse button, a red box will show up around the valve block.

Click on the red cross in the left lower corner of the area called *Properties*, see Figure 58. The valve block disappears from the area *Valves*.

The same procedure can be used on a placed valve block, see Figure 59.

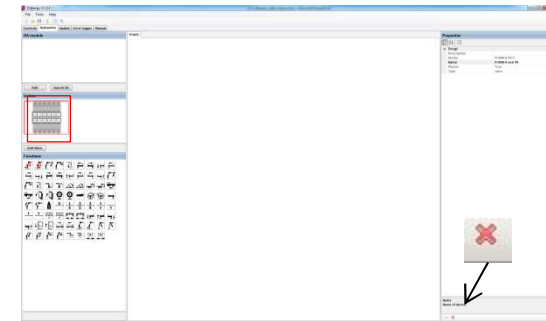


Figure 58. Delete valve block from area *Valves*.

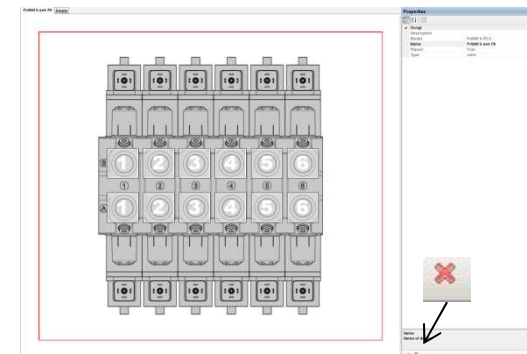


Figure 59. Delete placed valve block.

10.4 Allocation of function.

The valve sections of the valve block are numbered as per Figure 60 (1). The previously selected functions are marked with a green background on the area *Functions* see Figure 60 (2).

The functions shall be allocated on the valve block according to desired configuration.

At the configuration it is important to check which side is A- respectively B-side on the valve block, see Figure 61. This side indication is also marked on corresponding position on the physical valve block.

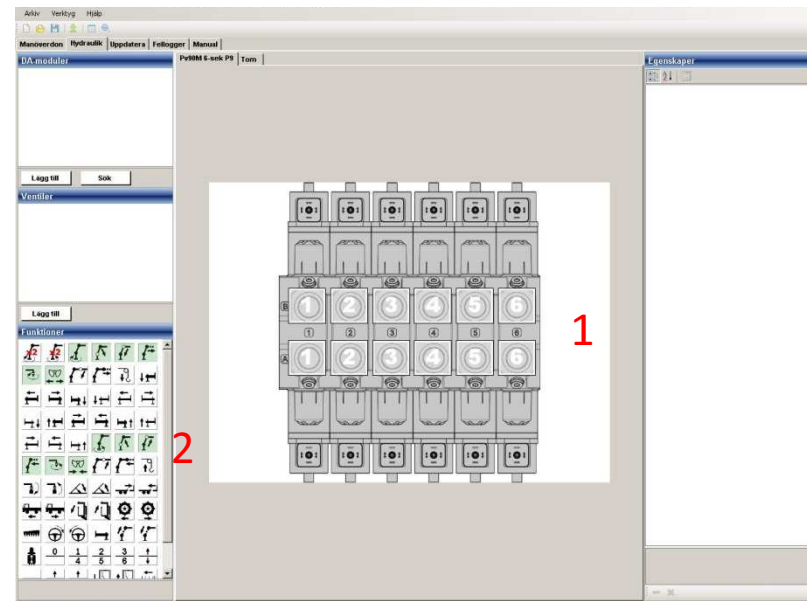


Figure 60. The valve block placed in the working area.

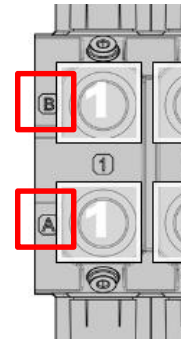


Figure 61. Side indication on the valve block.

10.5 Allocation of functions - controller

At configuration of a system using a remote controller it is crucial to check which side is A- side respectively B-side on the valve block, see Figure 61 on the previous side, and which side they are corresponding to on the controller.

The functions which have been allocated on the A-side on the controller shall be allocated on the A-side on the valve block for accurate function, see Figure 62.

Function allocated on the A-side of the controller will be indicated on the displays on the display handle. They are the functions that are activated when the levers are moved forwards. The side indication on the valve block in OCS corresponds to the marking of A- and B-side on the physical valve block.

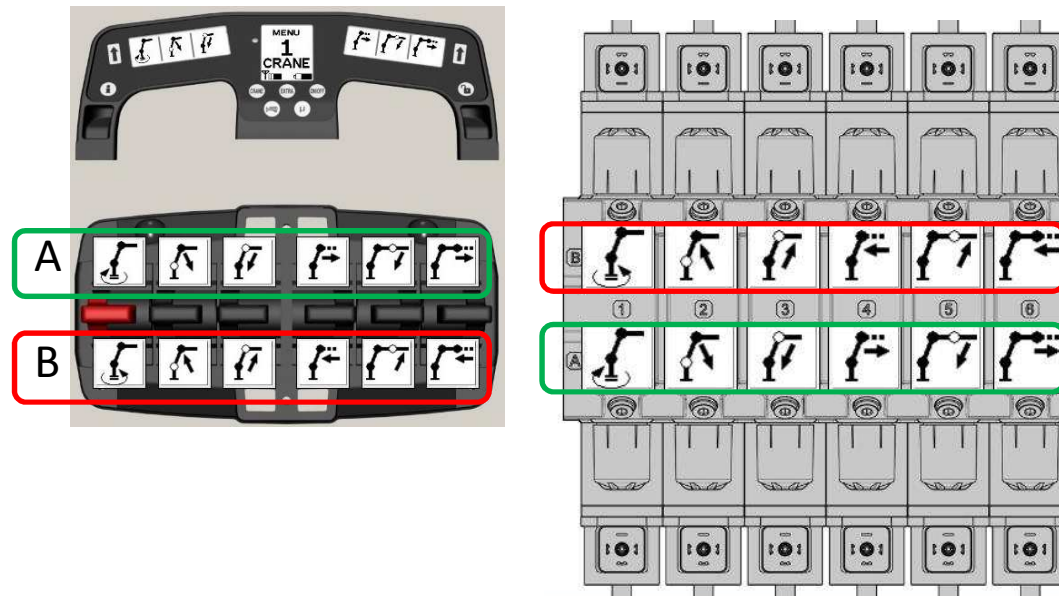


Figure 62. Side indication on the controller and on the valve block and the functions allocated.

10.6 Allocation of a function to a section

1. Place the cursor, in area *Functions*, on the function to be allocated.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the mouse button, to the destined position on the valve block, see Figure 63.
4. Release the mouse button and the function will be allocated to its position on the valve block, see Figure 64.

The reverse function is automatically allocated to the reverse side of the section of the valve block, see Figure 64.

When all functions are allocated the valve block could look as the example in Figure 65.

The functions which now are allocated on the valve block have disappeared from the area *Functions*.

10.7 Editing of allocated functions

If wrong function is placed on the valve block or a correct function is placed on the wrong position on the valve block this can be easily by adjusted :

1. Place the cursor on the wrongly placed function symbol on the valve block.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the mouse button , to somewhere on the area called *Functions*. The figure with the function symbol will follow
4. Release the mouse button.

The function is removed from the valve block and is available again in the area *Functions*.

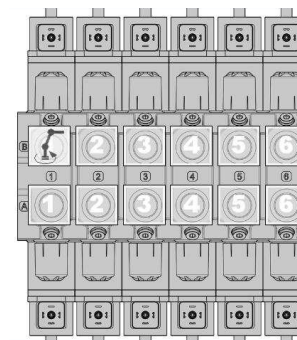


Figure 63. Allocation of function.

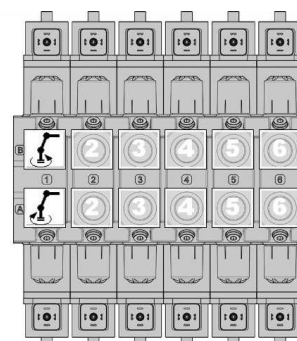


Figure 64. Function allocated on its position on the valve block.

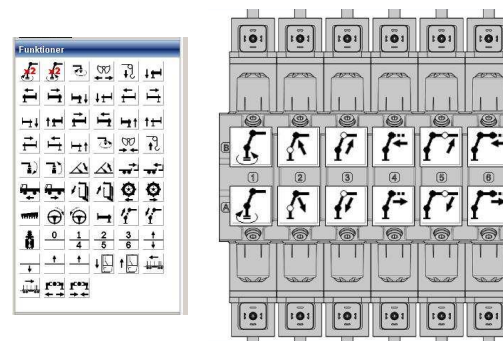


Figure 65. All functions allocated on the valve block

11. Extra valve block

A hydraulic system consisting of more than one valve block e.g. a valve block for the crane and one for the stabilizers, all valve blocks must be configured.

Choice of valve block is made in the same way as previously described.

In the example a valve block selected was called Pv91M 4-sek P9.

Click on the tab with the name *Empty* which is located next to the tab with the previously added valve block, see Figure 66

Place the valve block, available in the area *Valves*, on the *working area* called *Empty* by:

1. Place the cursor on the figure of the valve block.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the left mouse button, to the *working area* –a larger figure of the valve block will show up.
4. Release the mouse button and the valve block will be placed on the *working area*, see Figure 67.

Allocation of a function to a section on the valve block is made in the same way as previously described.

Note: make sure which side is A-side respectively B-side on the valve block.

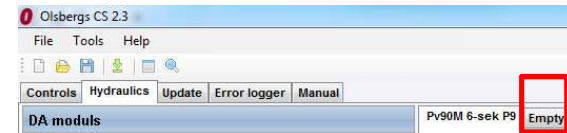


Figure 66. Choice of tab for adding an extra valve block.

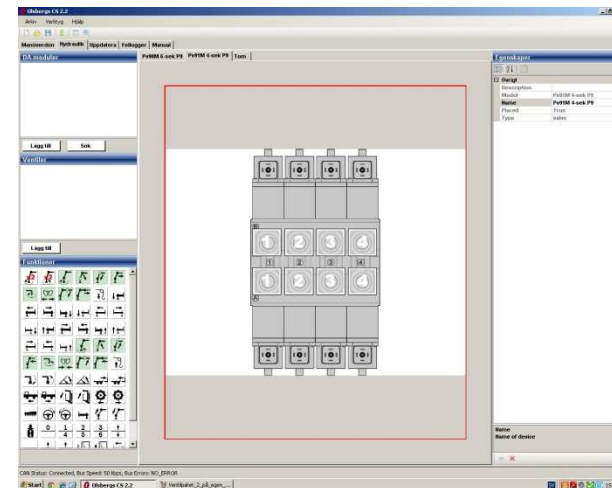


Figure 67. Valve block placed in the *working area*.

12. DA-modules

The DA-module is the unit that receives commands from either a D3 lever or a controller and ensures that the valve is controlled in relation to the user's desire. There are two models, DA-13 and DA-14. DA-13 has the capacity of controlling three valve sections and DA-14 four sections, see Figure 68 for an example of a DA-13.

12.1 Typing - definition

Typing indicates which position the DA-module has on the valve block.

The typing is defined according to Figure 69.

To program the DA-module and give it a so called typing number it must be placed on designated position on the valve block..

Which type a specific DA-module has been given can be read by marking the DA module. The type number is indicated in the area *Properties*, field *DAType*, see Figure 70 red box.

The typing methods are different depending on how big part of the total system has been connected to the OCS.

12.2 Typing setups

1. Only DA-modules connected to OCS and powered by means of the power supply adapter.
2. A complete system is connected to OCS, but the DA-modules **are not** mounted on the valve block.
3. A complete system is connected to OCS, but the DA-modules **are** mounted on the valve block.

Common for the three setups is the loading of connected DA-modules and placing of the DA-modules on the valve block.

Select which of the three setups that corresponds to what has been connected to the OCS and follow the described procedure on the following pages to implement the typing of the DA-modules..



Figure 68. DA-13 unit.

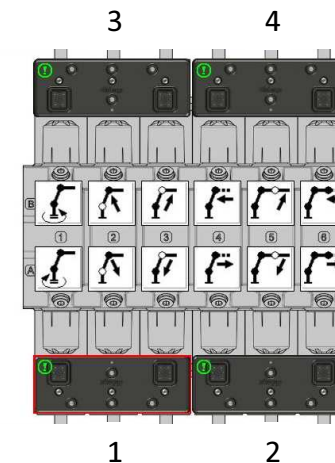


Figure 69. The DA-modules type numbers.



Figure 70. Type number of a specific DA module

12.3 Connection of DA-modules

The DA-modules must be connected to OCS in order to be programmable.

To be able to communicate with the DA-modules they must be connected to OCS and be powered.

The connection with OCS is made with the supplied CAN/USB-unit which is connected to a CAN-connector in the system and to a USB-port on the computer.

The DA-modules are powered either by the supplied power supply adapter or they are connected to a active system.

If the power supply to the DA-module/modules is done via the power supply adapter the green LED on the module will not be lit during the connection to OCS.

If the DA-modules are connected to a complete and active system the green LED will be lit/blink and can be used to identify a specific DA-module.

Before the next step is started – control that the D3-system is in CRANE-mode
alternatively

the emergency stop on the eventual controller is released.

12.4 Loading of a connected DA-modules

In order for the OCS to know how many DA-modules are connected a scanning must be made.

Click on the button *Scan* under the area *DA-modules* in order for the OCS to load the serial numbers on the connected DA-modules.

If no DA-modules are detected due to they are not correctly connected/powered or the connected system is in standby-mode Figure 71 is shown.

At a successful loading of the connected DA modules the serial numbers for the DA-modules are shown, see Figure 72.

Each DA module is represented by two number series. When it stated *ready* in the dialogue window, Figure 72 green box, close the scan window by clicking on the cross in the upper right corner.

The detected DA-modules show up on the working area *DA-modules*, see Figure 73.



Figure 71. Scanning after DA-modules ready – no DA-modules detected.

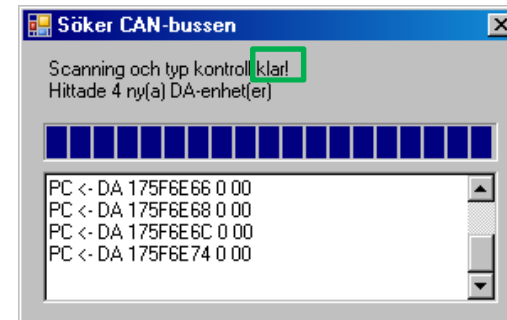


Figure 72. Scanning after DA-modules ready .



Figure 73. Result of the Scan in the area *DA-modules*.

12.5 Placing of DA-modules

The method for how the DA-modules are placed on the valve block on the *working area* do not differ for the different typing set-ups described earlier.

1. Place the cursor on the DA-module, in the area *DA-modules*, which shall be placed on the valve block.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the left mouse button, to the designated position on the valve block – a larger grey semi-transparent figure of the DA-module shows up, see Figure 74.
4. Release the mouse button and the DA-module are placed on the valve block, see Figure 75.

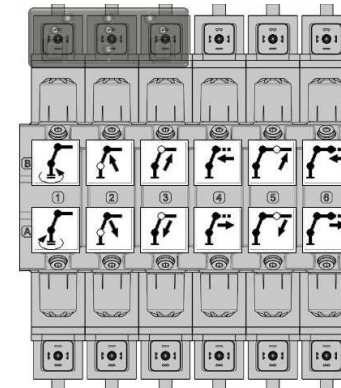


Figure 74. DA-module in progress to be placed.

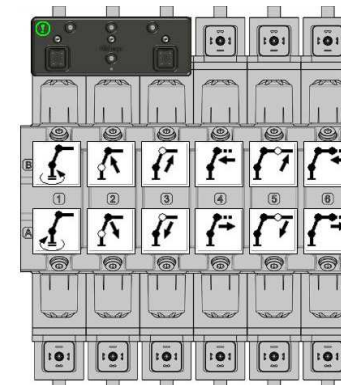


Figure 75. DA-module placed.

12.6 Editing a deployed DA-module.

The DA-modules can either be deleted from a area or be removed to the area *DA-modules*.

12.6.1 Movement of a DA-module.

Remove a DA-module from the valve block to the area *DA-modules*:

1. Place the cursor on the DA-module which should be moved back to the area *DA-modules*.
2. Press and hold the left mouse button.
3. Move the cursor, without releasing the left mouse button, to the area *DA-modules*.
4. Release the mouse button and the DA-module appears again in the area *DA-modules* and can be placed again.

It is also possible to move a DA-module from a position to another on the valve block provided the new position is empty. This is made in the same way as moving back a DA-module to the area *DA-modules*, however the DA-module is instead placed at a empty position on the valve block.

12.6.2 Deleting a DA-module

The DA-module to be moved must first be marked by placing the cursor on it and pressing the left mouse button. A red box is marked round the DA module, see Figure 76.

Click on the red cross at the bottom of the right hand are called *Properties*, see Figure 77.

This is possible to do on both the DA-modules in the area *DA-modules* and on a DA-module placed on the valve block.

If the modules are deleted they must be added again by doing a search a new search on connected DA-modules.

The deleted DA-module will be available again after the search in the are *DA-modules*. DA-modules which are moved back from the valve block to the area *DA-modules* is still available to be placed again without doing a new search.

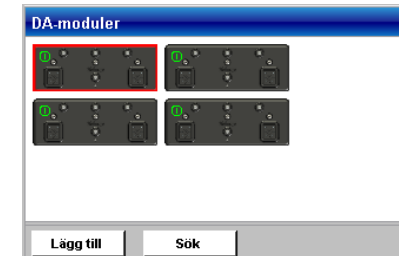


Figure 76. Marked DA-module.

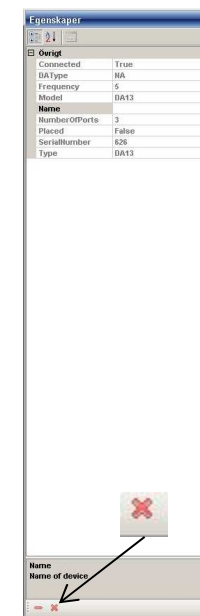


Figure 77. Area *Properties* – Delete DA-module

12.7 Typing

Select the set up corresponding to what is connected to the OCS.

12.7.1 Setup 1

Only DA-modules connected to OCS and powered by means of the supplied power supply adapter.

To program a DA-module to a specific type it must be placed on the specific position on the valve block.

Placement of the DA-modules on the valve block is made according to the method described earlier.

The DA-modules do not lit the LEDs when they are marked in the OCS.

The actual coupling between the DA-modules in the OCS and the physical DA-modules must be made by using the DA-modules' serial numbers.

The serial number for a specific DA-module is obtained in the OCS by:

- Marking a placed DA-module by placing the cursor on it and press the left mouse button.
- A red box is indicated around the DA-module, see Figure 78.
- In the area *Properties*, to the right of the *working area*, the serial number for the marked is indicated, see Figure 79 red box.

Mark the DA-module which have this serial number on the label on the underside of the DA-module, see Figure 80, with the number it was typed to. Repeat this procedure for all placed DA-modules.

The method should be used for eventual additional valve blocks coupled to the *Crane-* and *Extra menus*.

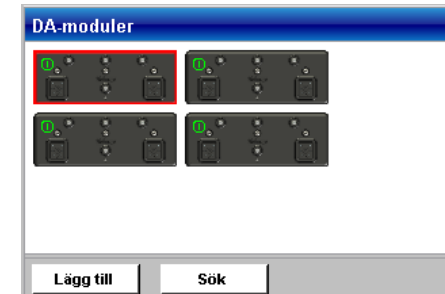


Figure 78. Marked DA-module.



Figure 79. Serial number for the marked DA-module.



Figure 80. Serial number on the physical DA13-module.

12.7.2 Setup 2

A complete system is connected to the OCS, but the DA-modules are not mounted on a valve block.

The DA-modules indicate they are active through the blinking green LEDs.

To program a DA-module to a specific type it must be placed on the specific position on the valve block.

Place the DA-modules on the valve block according to the method described earlier.

Mark a DA-module on the valve block by placing the cursor on it and press the left mouse button.

Corresponding physical DA-module will respond by the green LED on the DA is lit up with a steady shine.

Check in OCS which position it is placed on, which type it is, and note this on the DA-module in order to facilitate the correct placing on the physical valve block.

Repeat this procedure until the typing of DA-modules are noted.

The method is applicable on eventual additional valve block coupled to *Crane-* and *Extra menus*.

12.7.3 Setup 3

A Complete system connected to OCS and DA-modules mounted on the valve block.

The DA-modules indicate they are active through the blinking green LEDs.

Mark a DA-module on the area *DA-modules* by placing the cursor on it and press the left mouse button.

Corresponding physical DA-module will respond by the green LED on the DA is lit up with a steady shine.

Place the marked DA-module on the same position as it is actually placed on the valve block according to the method described earlier.

Check that the position is correct by verifying that the placing of the DA-module in OCS and the placing of the DA-module on the physical valve block is the same.

Repeat the procedure until all DA-modules have been placed on the valve block in the OCS.

The method is applicable on eventual additional valve block coupled to *Crane-* and *Extra menus*.

13. DA26

DA26 is the unit that receives messages from either joysticks or a controller and control the valve functions based on the deviation of the levers.

DA26 top resp. bottom can control up to six valve sections each.

13.1 Configuration

The configuration sets which lever function each output on the DA26 shall control and in which menu.

The configuration is defined as per Figure 82.

To be able to configure DA26 the unit must be connected to OCS and the system must be activated.

Note: If not selecting any menu for an output the output will be disabled.

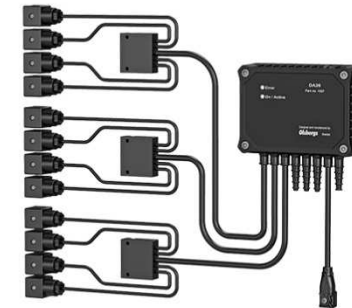


Figure 81. DA26 F incl. cabling.

13.2 Configure

1. Click on Tab Hydraulics in the OCS.
2. Click on Search under DA modules.
3. Choose which DA26 to be configured in the list if there are more than one DA26 in the system.
4. Configure each output
5. When the configuration is ready click on Send mapping to unit.
6. DA26 is now programmed with the new configuration.

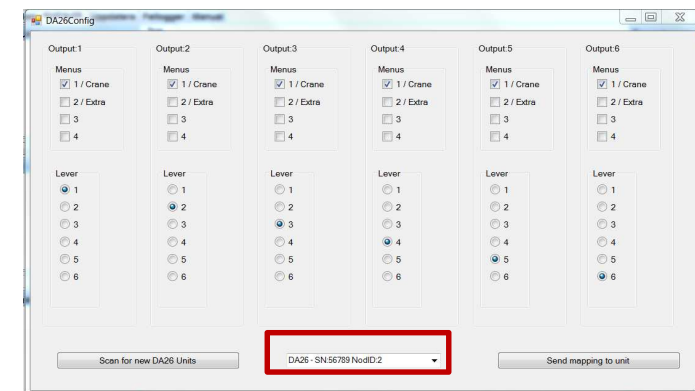
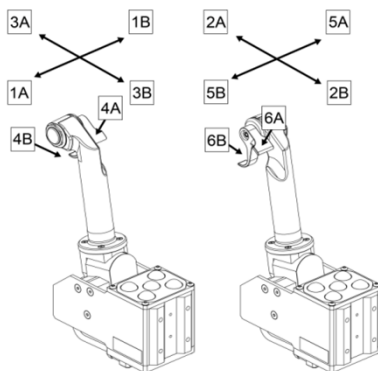


Figure 82. DA26 configuration matrix

14. Programming and configuration

When all loaded DA-modules have been placed on its designated position on the valve block/valve blocks they shall be programmed in order to get a permanent typing.

Click on the icon for programming alternatively on the tab *Tools* and then *Program*, see Figure 83.

Window *Program units* appears.



Figure 83. Menu selection- Program.

14.1 D3-system

Click on the button *Program* marked in Figure 84 to program the DA-modules.

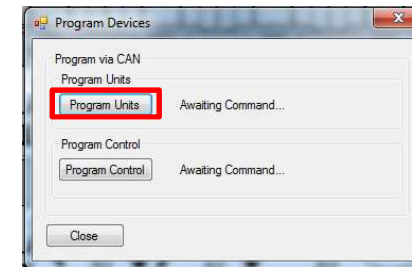


Figure 84. Programming of DA-modules in a D3-system.

14.2 Loader crane systems

Click on the button *Program units*, marked with a red box in Figure 85, to program DA-modules. Thereafter click on *Program controller*, marked with green box in Figure 85, to program the controller. If the configuration in the controller has been down loaded with the function *detect* and nothing has been changed since then it is not needed to reprogram the controller.

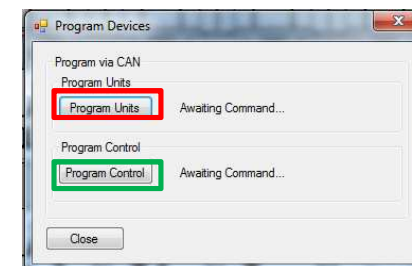


Figure 85 Programming of DA-modules and controller.

14.3 Configuration completed

When the programming is completed the text *Programming completed!* appears next to respectively button, see Figure 86.

Thereafter close the window, save the configuration if wanted, switch off the power supply to the DA-modules alternatively switch-off the system and shut down OCS.

The DA-modules are now typed and ready to be taken into operation.

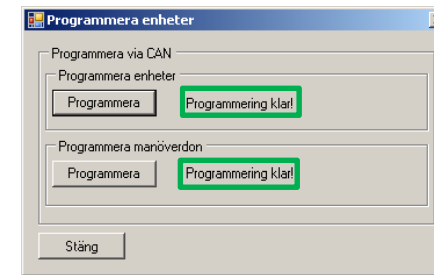


Figure 86. Programming completed.

15. D3 – Setting possibilities at SERVICE

In addition to the tuning that each operator can make, there are a couple of settings that a qualified service station should carry out.

SERVICE MODE - Changing directions of single function

1. Put the system in "CRANE" mode
2. Press both "CHANGE" and "SET" on the lever that is to be changed while changing to "STANDBY". (Picture 87)
3. Select driver (The same procedure as under TUNING)
4. Press "FUNCTION" to highlight "DIRECTON". (Picture 88)
5. Press "CHANGE".
6. Press "FUNCTION" to select which menu the function you want to change belongs to. (Picture 89)
7. Press "CHANGE". (Picture 90)
8. Move the lever in the direction corresponding to the function you want to change. (Picture 91)
9. Press "CHANGE" to reverse the function. (Picture 92)
10. Confirm by pressing "SET".

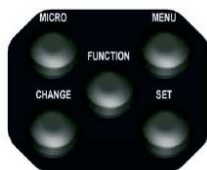


Figure 87

Figure 88

Figure 89



Figure 90



Figure 91

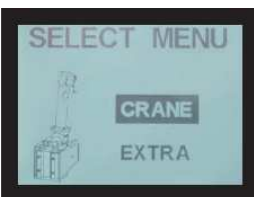
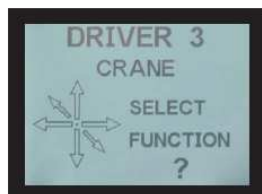


Figure 92



SERVICE MODE- Changing side

1. Put the system in "CRANE" mode
2. Press both "CHANGE" and "SET" on the lever that is to be changed while changing to "STANDBY". (Picture 93)
3. Press "FUNCTION" twice to highlight "POSITION". (Picture 94)
4. Press "CHANGE". (Picture 95)
5. Press "CHANGE" and select opposite lever. (Picture 96)
6. Confirm by pressing "SET". An error message will appear. (Picture 97)
7. Repeat steps 1-6 for the other lever.

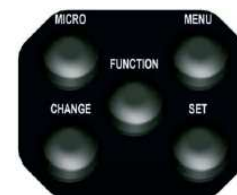


Figure 93

Figure 94

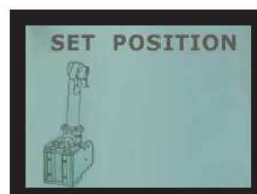


Figure 95



Figure 96

Figure 97



16. System diagnostics

This part of Olsbergs Configuration Software offers the user the possibility to download the system parameters that have been logged by the system during operation.

Open tab Error logs, see Figure 98 red box.

The different options available see Figure 98.

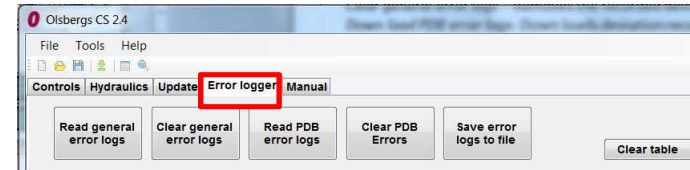


Figure 98. Choice of options

General error logs - Downloads deviation recorded by the units which is connected to OCS.

Clear general error logs – Removes the recorded deviations.

Download PDB error logs- Downloads deviation recorded by the PDB.

Clear PDB error logs-Removes the recorded deviations

Save error logs to file – Saves the error logs to one file.

Downloaded the general error logs from the units connect in the system which is connected to the OCS are presented as per the example in Figure 99

Information presented:

Device Type, SNR (serial number), Lever Pos., Number of Errors and Error Message, see Figure 99.

Depending on what the system has registered the information will look differently.

Device Type	SNR	Lever/Pos	Number of Errors	Error Message
RC_6F	7614	0	1	Inter
DA13	614	A1	2	Sol O
DA13	626	B2	1	Sol O
DA13	628	A5	1	Sol O
DA13	614	B3	2	Sol O
DA13	626	B1	3	Sol O
DA13	614	C0	1	Comm
DA13	628	C0	1	Comm

Figure 99. Example of down loaded error log

Interpretation and trouble shooting with guidance of the diagnostic functions are described in separate documentation.

17. Error codes shown in Display box – Display box with serial number from 853 an onwards

Olsbergs MultiDrive D3 system uses error codes in order to indicate if something is wrong or deviations have occurred in the system. The error code is displayed in the Display box. The letter in the error code indicates which module is not correct.

Error code ending with U relates to D3 levers and chassie
 Error code ending with R relates to PBF
 Error code ending with O,P relates to DA13 resp. DA14 modules
 Error code ending with I relates to DA2

16.1 – D3 Joysticks

Error code Error type

100U Right joystick out of position at start	200U Left joystick out of position at start
101U Right joystick out of position at start	201U Left joystick out of position at start
102U Right joystick out of position at start	202U Left joystick out of position at start
103U Right joystick out of position at start	203U Left joystick out of position at start
104U Right joystick not valid lever value	204U Left joystick not valid lever value
105U Right joystick not valid lever value	205U Left joystick not valid lever value
110U Right joystick out of position at start	210U Left joystick out of position at start
111U Right joystick out of position at start	211U Left joystick out of position at start
112U Right joystick out of position at start	212U Left joystick out of position at start
113U Right joystick out of position at start	213U Left joystick out of position at start
114U Right joystick not valid lever value	214U Left joystick not valid lever value
115U Right joystick not valid lever value	215U Left joystick not valid lever value
120U Right joystick trigger out of position at start	220U Left joystick trigger out of position at start
121U Right joystick trigger out of position at start	221U Left joystick trigger out of position at start
122U Right joystick trigger out of position at start	222U Left joystick trigger out of position at start
123U Right joystick trigger out of position at start	223U Left joystick trigger out of position at start
124U Right joystick trigger not valid lever value	224U Left joystick trigger not valid lever value
125U Right joystick trigger not valid lever value	225U Left joystick trigger not valid lever value
130U Right joystick Micro button short circuited/ pushed in	230U Left joystick Micro button short circuited/pushed in
131U Right joystick Menu button short circuited/ pushed in	231U Left joystick Menu button short circuited/pushed in
132U Right joystick Function button short circuited/pushed in	232U Left joystick Function button short circuited/pushed in
133U Right joystick Change button short circuited/pushed in	233U Left joystick Change button short circuited/pushed in
134U Right joystick Set button short circuited/pushed in	234U Left joystick Set button short circuited/pushed in

Correct errors in D3 levers/buttons

Joystick out of position - Secure that joystick including trigger is in neutral position at start (Transition Standby to Crane).

Not valid lever value - Probable sources to problem: 1) Short circuit to ground or supply voltage, 2) No contact - connector or cable loose alternatively cable breakage in the lever.

Button short circuited or pushed in– Secure that the button is not pushed in. If the button is not pressed in the button is malfunctioning and must be changed.

16.2 – PBF Power supply box

Error code	Error type
PBF Power supply box	
001R	CAN Transmitter passive
002R	CAN Transmitter active
003R	CAN Receiver passive
004R	CAN Receiver active
006R	System over loaded
008R	High voltage
009R	Low voltage
012R	Internal error
100R	Dump 1 fuse broken

Corrections of errors in PBF

001R-004R Error detected in the systems CAN bus. Check cables and connection points (Connectors).

006R The system uses more current than expected. Systematically check for short circuits.

008R Battery voltage higher than allowed. Check the charging regulator in the truck is working OK.

009R Battery voltage lower than allowed. Check the truck's battery/generator is OK.

012R Internal error in the PBF. Visit service center for check and eventual replacement.

100R Check the fuse and replace it if out of order.

16.3 – DA modules

Error code	Error type	Error code	Error type
DA13 modules		DA14 modules	
1000	Disruption exit 1	100P	Disruption exit 1
1010	Short circuit exit 1	101P	Short circuit exit 1
1100	Disruption exit 2	110P	Disruption exit 2
1110	Short circuit exit 2	111P	Short circuit exit 2
1200	Disruption exit 3	120P	Disruption exit 3
1210	Short circuit exit 3	121P	Short circuit exit 3
DA modules		130P	Disruption exit 4
012I	Internal error	131P	Short circuit exit 4
Error code Error type			
DA26			
1000	Disruption any exit		
1010	Short circuit any exit		
012I	Internal error		

Correct error DA modules

Disruption – No contact with the positioners

Step 1. Secure that the DA modules are attached properly to the positioners.

DA26 check that the cables are OK and that the connectors are attached properly to the positioners.

Step 2. Check that the positioners are OK by measuring the resistance over the contact plates. Set value 28-33 Ohm. If the resistance is within the set values the DA module/DA26 must be replaced else the positioner to be repaired.

Short circuit – Check the positioner is OK by measuring the resistance over the contact plates. Set value 28-33 Ohm. If the resistance is within the set values the positioner is OK and the DA module must be replaced else the positioner to be repaired. Check DA26 cables before changing complete unit by swapping place with contacts. If error still remains the output is broken and the DA26 unit to be replaced else change the cable.

Internal error – Internal error in the DA module/DA26 - replace the broken unit.

Note! Important at replacement of DA module/DA26 to configure the new DA unit exactly as the DA unit replaced.

DA2 is configured via jumpers on the backside of the DA module. DA13, DA14 and DA26 are configured via OCS system alternatively at the service center.