



Beijer Panel Image

User's Guide
English

User's Guide for Beijer Panel Image

Foreword

The information in this document is valid for the latest versions of the panel images at the time the document was released.

For information and updates, see <https://www.beijerelectronics.com>.

Order no: MAEN205B

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1 Introduction

1.1 Safety Precautions

Both the installer and the owner and/or operator of the operator panel must read and understand the manual.

1.2 Trademarks

Microsoft, Windows, Windows embedded CE6, Windows Embedded Compact 2013, Windows 7, Windows Embedded Standard 7 are registered trademarks or trademarks of Microsoft Corporation in the USA and/or other countries. Any additional trade names given in this documentation are trademarks of their corresponding owners.

1.3 References

Name	Description
MAEN202	Installation Manual X2

The installation, technical data as well cutout and outline dimensions of the panels are described in the installation manual for each operator panel. Please refer to the Installation manuals and the iX Developer manual for further information.

Note:

Current documentation and software updates can be found on

<http://www.bejerelectronics.com>

1.4 Operating Systems

Panel family	Runtime Versions (licenses)	Description
- iX TxA - iX TxB - X2 base	Windows CE6	Includes support of most existing features.
- All 4" X2 panels - X2 pro - X2 control 7 - X2 motion 7 - X2 marine - X2 marine SC	Windows Embedded Compact 2013 Runtime (Entry)	Basic license, not supporting: Streaming Media Playback PDF Reader VB Script Jscript
- X2 marine HB - X2 marine HB SC - X2 pro, X2 control and X2 motion with screen sizes greater than 10"	Windows Embedded Compact 2013 Runtime (General embedded)	Includes support of most existing features.

2 Boot

2.1 Welcome Screen

1. Apply power to the operator panel.
2. Within 20–30 seconds, the **Welcome Screen** will appear.

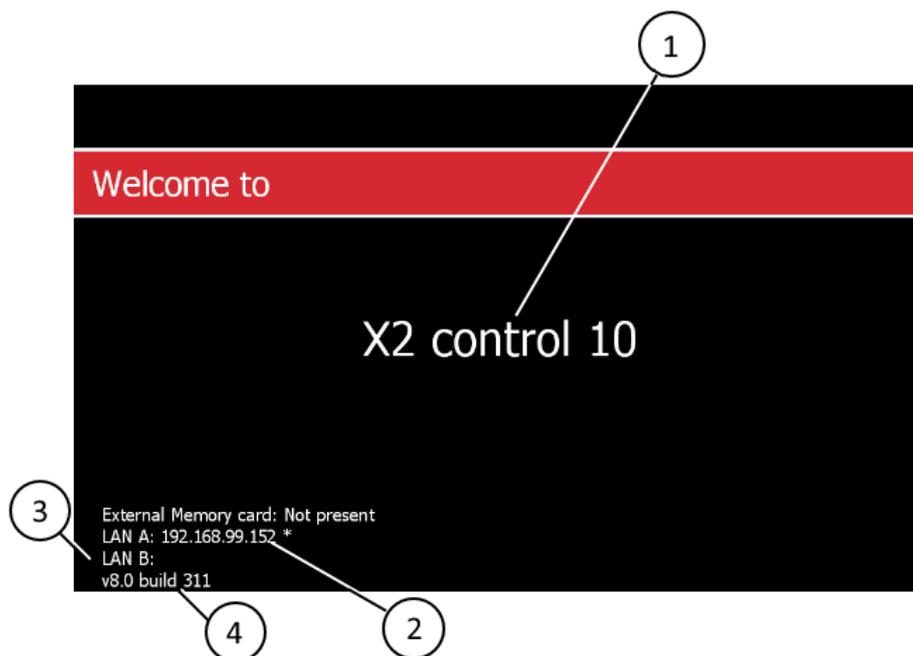
The following items about the operator panel are listed:

- Size of internal memory card, if applicable
- IP address
- Panel image version

If a project has been downloaded to the panel, it will be loaded automatically.

If there is no project in the panel, touching the screen will display the Service Menu.

If there is an SD card inserted into the panel, and the project on the SD card differs from what is saved in the operator panel, then the user is asked if the project and IP-settings should be restored.



The Welcome Screen on a X2 control 10 panel

Position	Description
1	operator panel type.
2	External Memory card status.
3	Network status. If a network cable has been detected, an asterisk is shown after the IP address.
4	Panel image main version and build number.

3 Service Menu

The service menu for the operator panel can be accessed before a project is downloaded.

3.1 Service Menu in an Empty Panel

When no project is loaded in the panel memory, the panel will boot, displaying the Welcome screen.

- Press anywhere on the panel display to enter the service menu.

3.2 Service Menu in a Panel containing a Project

Perform the following steps to enter the service menu:

1. Apply power to the panel.
2. When the hourglass appears, press a finger on the screen and hold for approximately 20 seconds.
3. If the service menu is password protected, you will be prompted for a pin code. Enter pin code.
4. The touch calibration screen will display the following message:
“Tap anywhere on screen or touch calibrate will start in 10 seconds.”
5. Press the screen once again to enter the service menu.

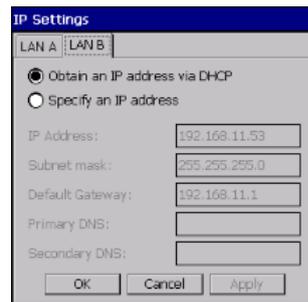


3.3 IP Settings

The following parameters can be set:

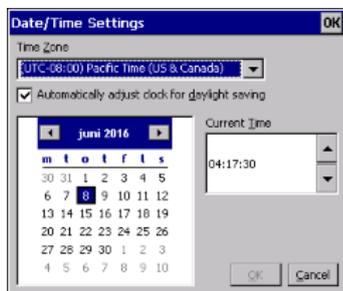
- IP address
- Subnet mask
- Default gateway
- DNS settings for the Ethernet port on the operator panel

The default setting for LAN A is: IP address 192.168.1.1, Subnet mask 255.255.255.0



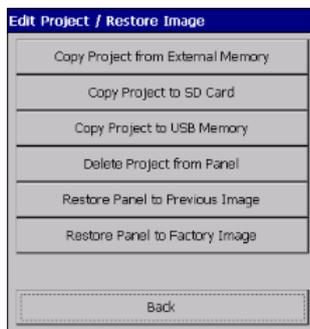
If the operator panel is equipped with two Ethernet ports, then a second tab is shown in the IP settings dialog. The default setting for LAN B is “Obtain and IP address via DCHP”.

3.4 Date / Time



The date/time settings dialog allows setting of the Time zone, date, time and also setting automatic adjustment of clock for daylight saving.

3.5 Edit Project



The edit project / restore image dialog allows modifying the project in an operator panel and, if needed, restore the panel image to a previous version.

3.5.1 Copy Project from External Memory

This option enables the function to copy an iX Developer project from an external memory, USB flash drive or storage device connected to one of the operator panels USB-ports.

3.5.2 Copy Project to SD Card

This option enables the function to copy the iX Developer project and all the files needed to run the application to an external SD Card.

Note:

This option is not available on X2 base

3.5.3 Copy Project to USB

The iX Developer project and all the files needed to run the application are copied to an external USB flash drive or other USB connected storage device. Make sure that the storage device is connected before trying this option.

3.5.4 Delete Project

The iX Developer project and all its corresponding files are deleted from the operator panel. There is no way of undeleting a project, make sure that the project should be deleted before confirming the deletion.

3.5.5 Restore Panel to Previous Image

The operator panel image can be restored to the panel image version the operator panel was using, before a new panel image was loaded into the operator panel. This option is used to restore a panel to a known working condition.

**Note:**

This option is only available on X2 pro, X2 marine and X2 control

Note:

If the operator panel contains a CODESYS Runtime, then the CODESYS Runtime must be downloaded once again to the panel after the panel image has been changed.

3.5.6 Restore Panel to Factory Image

The operator panel image can be restored to the panel image version that the operator panel was shipped with from the factory. Use this option if all else fails, this will downgrade the operator panel to its initial state.

Note:

This option is only available on X2 pro, X2 marine and X2 control

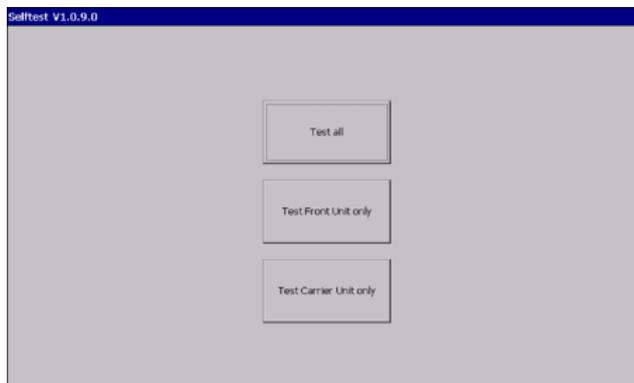
Note:

If the operator panel contains a CODESYS Runtime, then the CODESYS Runtime must be downloaded once again to the panel after the panel image has been changed.

3.6 Self Test

The self test screen looks a little different depending on operator panel type.

To be able to fully test the Carrier unit, a complete set of test plugs, SD-card and a USB flash drive is needed.



3.7 Touch Calibrate

The touch calibration screen enables the function to recalibrate the touch screen.

The recalibration consists of five steps, where a crosshair on the screen is pressed and held. Take care and try to do this as precise as possible, an incorrect calibration makes it hard to use the operator panel.

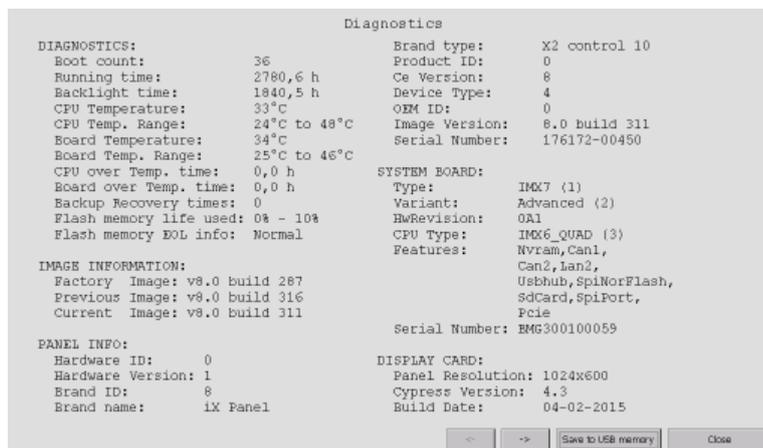
3.8 Debug Logging



The Debug Logging dialog enables the function to enable and disable the debug logging on the operator panel. It also enables the function to move a previously created set of debug log files from the operator panel to an USB flash drive.

Option	Description
Enable Logging	The operator panel will start or continue to store additional debug log information in log files. A total of 10 log files of a maximum of 100 kB per file will be kept in the operator panel internal memory. If the log files are filled to the limit, the oldest file will be overwritten first. This function should only be used for a limited time, as it will continuously write data to the flash memory and by that add to the flash memory wear.
Disable Logging	The operator panel stops storing debug log data. The data will remain in the operator panel internal memory.
Move Log to USB Memory	Moves the debug log files in the operator panel to an external USB storage device.

3.9 Diagnostic



Category	Description
Diagnostics	Shows how many times the operator panel has been started, how long the operating panel has been running, measured temperatures and the wear of the flash memory.
Image Information	Displays a list of the panel images available on the operator panel.
Panel Information	Shows the make, model and revision of the operator panel.
System Board	Shows hardware information of the System board in the operator panel.
Display Card	Shows hardware information of the Display card in the operator panel.

```

Diagnostics
SELFTEST:
FrontBoard card
[PASSED] Display
[PASSED] Touch
[PASSED] Power LED
[PASSED] Backlight
[PASSED] EEPROM
SystemBoard board
[PASSED] RS232 (COM1)
[PASSED] RS422 (COM2)
[PASSED] RS485 (COM3)
[PASSED] USB
[PASSED] Ethernet 1
[PASSED] Ethernet 2
[PASSED] SD Card
[PASSED] Buzzer
Summary
[PASSED] RS232 (COM1)
[PASSED] RS422 (COM2)
[PASSED] RS485 (COM3)
[PASSED] RAM
[PASSED] Real Time Clock
[PASSED] EEPROM
[PASSED] Core Temperature
[PASSED] Board Temperature
[PASSED] Touch
[PASSED] Buzzer
[PASSED] Power LED
[PASSED] Backlight
[PASSED] Display
[PASSED] USB
[PASSED] Ethernet 1
[PASSED] Ethernet 2
[PASSED] SD Card
Folders:
Path      Size      Free      Free
\         127,77 MB 127,52 MB 99%
\FlashDrive 3,02 GB  2,91 GB  96%
Memory:
RAM:      1,8 GB  1,58 GB  87%
Network interfaces:

```

Category	Description
Selftest	Shows the result of the last self test.
Summary of flash drive storage	Shows a summary of the flash drive storage status.
Network adapters	Shows IP configurations and MAC addresses for the network adapters in the operator panel.

```

Diagnostics
Adapter name: LAN A
IP address: 192.168.99.152
IP mask: 255.255.255.0
Gateway: 192.168.99.254
DHCP: Enabled
MAC address: 00-50-6C-07-97-59
Adapter name: LAN B
IP address: 169.254.170.255
IP mask: 255.255.0.0
Gateway: 0.0.0.0
DHCP: Not Enabled
MAC address: 00-50-6C-07-97-58

```

Note:

The information (layout and number of screens) on the diagnostic screen pages appear differently depending on screen size. The screenshots above are taken from a X2 control 10 operator panel.

3.9.1 Export Diagnostic Information

Click **Save to USB memory** to export the diagnostic information to an external USB flash drive or other USB connected storage device. Make sure that the storage device is connected before trying this option.

4 Image and CODESYS Update

In the operator panel, iX Runtime comes pre-loaded on delivery.

iX Runtime can be updated, either via Ethernet using a PC, or in some cases, using an external storage device.

The Image Loader utility is used to create Image Loader SD-cards and USB-sticks or to transfer a panel image to an operator panel over Ethernet.

Note:

The **Make Recovery SD Card** option should only be used after first consulting with Beijer Electronics support.

4.1 Updating the Panel Image using USB or SD-Card

4.1.1 Preferred Way

Using a USB flash drive or SD-card to update the image in an operator panel is the preferred method of updating the panel. This makes it possible to upgrade the panel image without the use of a PC.

Note:

iX TxA and X2 base do not support updates from external storage.

4.1.2 Image + New iX Developer Project

It is possible to upgrade both the panel image and the iX Developer project on an operator panel. This is done in two steps:

1. Create a panel image USB flash drive or SD-card using the Image Loader utility.
2. Export the iX Developer project from within iX Developer, to that same USB flash drive or SD-card.

4.2 Updating the Panel Image over Ethernet

The Image Loader utility can be used to upgrade the panel image over Ethernet.

Note:

Before trying to update the panel over Ethernet, make sure that your PC is on the same IP-subnet as the operator panel. If your panel has an IP address of 192.168.1.1, and a netmask of 255.255.255.0, then your PC has to have an IP address in the range of 192.168.1.2 - 192.168.1.254 and a netmask of 255.255.255.0, in order to be able to communicate with the panel.

1. Enter the panel target IP address in the dialog and click on **Update** to start the update.

The screenshot shows a dialog box titled "External Memory" with two main sections: "External Memory" and "Ethernet".

External Memory Section:

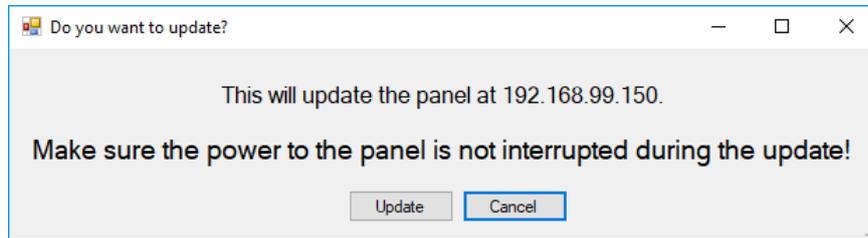
- Text: "Copies necessary files to a external memory. When ready, insert in panel and cycle power to initiate the update."
- Field: "Select drive:" with a dropdown menu and a "Create" button.
- Checkbox: "Make Recovery SD Card"
- Note: "Note: SD recovery should only be used under special circumstances, see Manual. Updating the EBOOT is normally not needed and special care must be taken when doing this update to ensure that power is uninterrupted."

Ethernet Section:

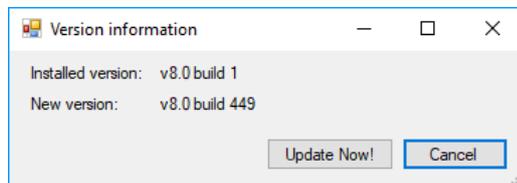
- Text: "Sends the update through Ethernet. Panel will reboot automatically when the transfer is finished."
- Field: "Target IP:" with a text input containing "192.168.99.150" and an "Update" button.

At the bottom, there is a progress bar showing "0 %" and the status "Ready".

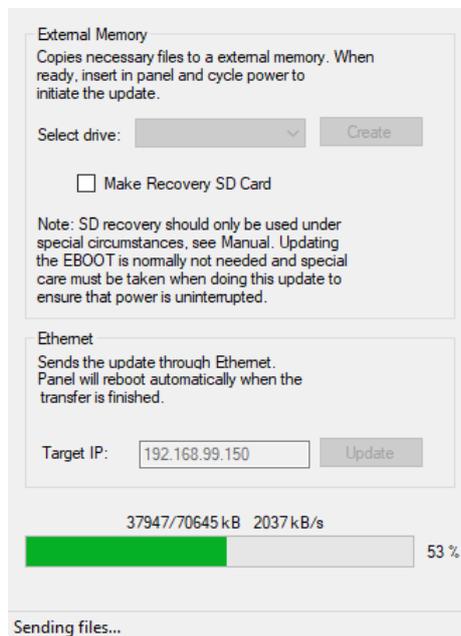
2. Make sure that the IP address of the panel matches the actual panel that you want to upgrade.



3. The dialog shows the current installed image and the new image the panel will be updated to after the upgrade. Click on **Update now!** to confirm the update.



4. The progress bar shows the upgrade status. When the upgrade is done, the panel will restart.



Note:

If the operator panel contains a CODESYS Runtime, then the CODESYS Runtime must be downloaded once again to the panel after the panel image has been changed.

4.3 iX Developer Project Status after Panel Image Update

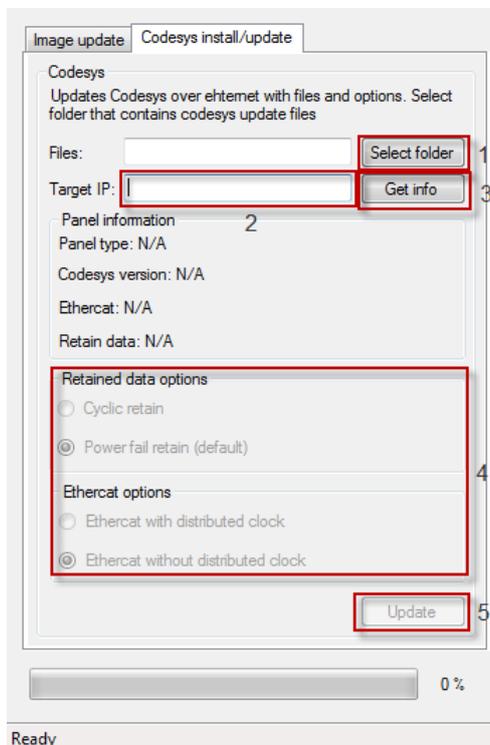
On X2 pro, X2 marine and X2 control, the iX Developer project is unchanged after a panel image update is performed. If the panel image upgrade is made over Ethernet, an additional dialog will pop up to confirm an erasing of the current iX Developer project. The default setting is not to erase the iX Developer project.

4.4 Updating the CODESYS Runtime using Ethernet

To update the CODESYS Runtime, the folder containing the CODESYS .cab-files listed below must be specified in the Image Loader utility. The existing Power Management- and EtherCAT Distributed Clock settings are shown in the Image Loader utility, and can be set before updating the CODESYS Runtime.

temp > CoDeSys v3.5.10.10_5 >

Name	Date modified	Type	Size
CoDeSysControl_SC	2017-04-21 09:59	Cabinet File	9 256 KB
CoDeSysControl_SC_NoEcat	2017-04-21 09:59	Cabinet File	9 258 KB
CoDeSysControl_SM	2017-04-21 09:59	Cabinet File	9 253 KB
UpdateSoftPLCSW	2017-03-20 09:56	Application	24 KB
Version	2017-04-21 09:59	Text Document	1 KB



1. Select the folder that contains the CODESYS files.
2. Select the target IP address for the panel.
3. Press the **Get info** button to make sure that communication with the panel is working.
4. Select the desired options

Note:

The only valid options for X2 motion are **Power fail retain** and **EtherCAT with distributed clock**.

5. Press **Update** to perform the update. This button is disabled until communication has been established with the panel by previously pressing the **Get info** button.

Note:

Before downloading a new CODESYS Runtime, the panel image should always first be downloaded to the operator panel again, even if there are no changes to the panel image. If only the CODESYS Runtime is installed, then this may result in problems connecting to and communicating with other devices.

4.5 Updating the CODESYS Runtime using USB

1. In order to install a CODESYS software package on an X2 control operator panel, copy the files listed below to the root of an empty USB flash drive.

Name	Date modified	Type	Size
 CoDeSysControl_SC	2017-04-21 09:59	Cabinet File	9 256 KB
 CoDeSysControl_SC_NoEcat	2017-04-21 09:59	Cabinet File	9 258 KB
 CoDeSysControl_SM	2017-04-21 09:59	Cabinet File	9 253 KB
 UpdateSoftPLCSW	2017-03-20 09:56	Application	24 KB
 Version	2017-04-21 09:59	Text Document	1 KB

2. Insert the USB flash drive in the panel and reboot the panel.
3. Answer **Yes** when asked if the current version of SoftPLC should be replaced
4. When asked if **DC support for EtherCat** should be installed, answering **Yes** or **No** will have the following consequences
 - Yes:** LAN A will be reserved for EtherCAT and LAN B for Ethernet communication
 - No:** Both LAN A and LAN B can be used for Ethernet communication
5. Answer **Yes** when asked if **Power-fail supported retain** should be enabled
6. Remove the USB flash drive and reboot the panel

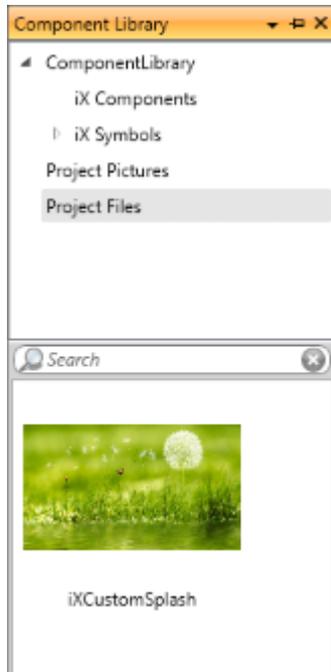
Note:

Before downloading a new CODESYS Runtime, the panel image should always first be downloaded to the operator panel again, even if there are no changes to the panel image. If only the CODESYS Runtime is installed, then this may result in problems connecting to and communicating with other devices.

5 Creating a custom Welcome Screen on a X2 pro operator panel

The default Welcome Screen on a X2 pro, X2 marine and X2 control operator panel can be replaced with a custom picture.

1. Create a start-up picture with the following characteristics:
 - Size: The exact same resolution as the panel the picture will be used in
 - Name: iXCustomSplash.bmp
 - Picture format: .bmp
2. Create a iX Developer project for the panel you want to replace the Welcome Screen on.
3. Add the picture to the project's **Project Files**.



4. Download the project to the operator panel.
5. Reboot the panel to load the new Welcome Screen.

Tip:

To check the panel resolution, start iX Developer, and in the wizard select the correct panel type, and then check the technical data displayed for the operator panel.

6 X2 control

6.1 Runtime Version

The X2 control platform allows the end-user to install a CODESYS Runtime version of their choice. A number of different versions are available. Some versions are fully tested release versions, but there are also newer versions that are not fully tested by the test department but are available as-is to the end customer.

For information regarding updating the CODESYS Runtime, please see [Updating the CODESYS Runtime using Ethernet](#) and [Updating the CODESYS Runtime using USB](#)

Note:

All X2 control panels are shipped without an installed CODESYS Runtime. It's up to the end customer to choose the appropriate version for their application and install this, prior to taking the panel into commission.

6.2 Change EtherCAT / Normal Ethernet

The CODESYS runtime packages exists in two different versions: one version that sets LAN B to be an Ethernet port and LAN A to an EtherCAT port, the second version sets LAN B to be an Ethernet port and LAN A to an additional Ethernet port. The default setting is to use Ethernet on both ports.

If CODESYS runtime is installed with EtherCAT support, the panel image have to be reinstalled, using the Image Loader utility, before the non-EtherCAT CODESYS runtime version can be reinstalled.

6.3 CODESYS License

6.3.1 Control License

All X2 control operator panels are equipped with a CODESYS SoftControl license.

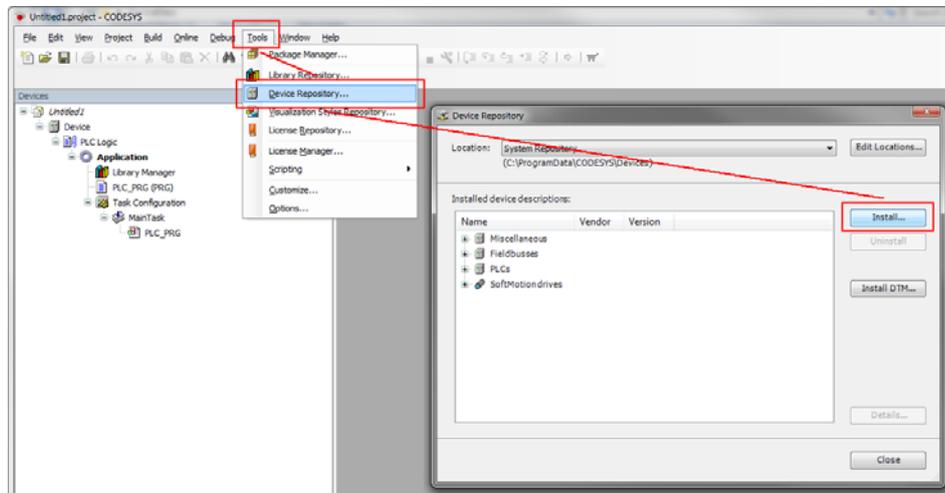
6.4 Load Project

There is a hard connection between the installed CODESYS runtime version and the CODESYS PLC project that is running on the panel. If the CODESYS runtime version is upgraded or downgraded the PLC application must be recompiled with the correct settings for the target runtime version that is used.

6.5 Device Description

The device description XML-file contains information that CODESYS needs in order to be able to build projects for the CODESYS runtime. It's important that the installed device descriptor XML-file CODESYS runtime version matches the

CODESYS runtime version used in the operator panel. Each available CODESYS runtime package has its corresponding XML-file. This XML device descriptor file needs to be installed in the CODESYS development environment.



The installation button in CODESYS 3.5 SP10 Patch 1

Beijer

ELECTRONICS

Head office

Beijer Electronics AB

Box 426

201 24 Malmö, Sweden

www.beijerelectronics.com / +46 40 358600