X2 Software

Reference Manual

English

MAEN205, 2016-10

Reference Manual for X2 Software

Foreword

All operator panels are developed to satisfy the demands of human-machine communication. Built-in functions such as displaying and controlling text, dynamic indication, time channels, alarm and recipe handling are included.

The operator panel works primarily in an object-oriented way, making it easy to understand and use. Configuration is carried out on a PC using the iX Developer. The project can then be transferred and stored in the operator panel itself. Various types of automation equipment such as PLCs, servos or drives can be connected to the operator panels. In this manual, the term "the controller" refers to the connected equipment.

This manual explains how to install the operator panel. Please refer to the iX Developer reference manual for further information.

Order no: MAEN205

Contents

1 Safety Precautions

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

2 Trademarks

Microsoft, Windows, Windows embedded CE6, WEC2013, WIN7, WES7, 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.

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 manuals. Please refer to the Installation manuals and iX Developer reference manual for further information.

Note:
Current documentation and software updates can be found on *www.Beijerelectronics.com*

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4 Operating Systems

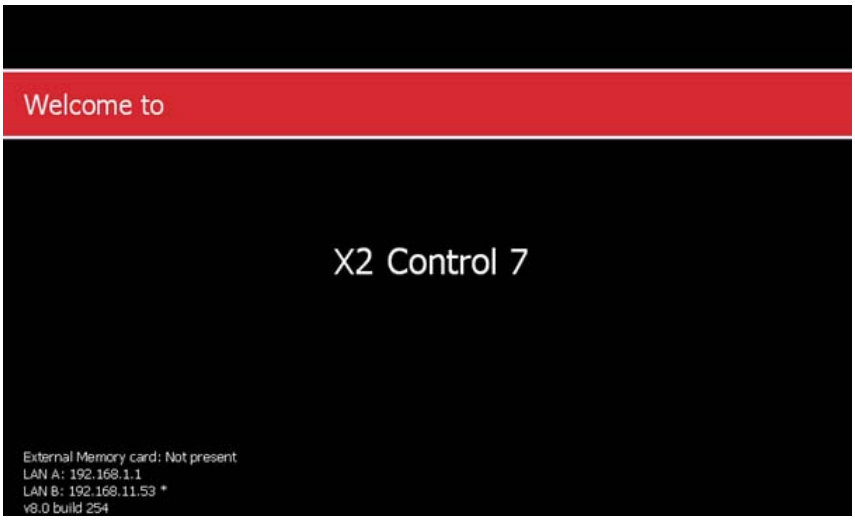
WEC2013 Runtime Versions (licenses)	Description
WEC2013 Runtime (General embedded)	Includes support of the most existing features.
WEC2013 Runtime (Entry)	Basic license without support of (not included): WMA and MP3 Streaming Playbacks Streaming Media Playback Cellcore Voice Web Services on Devices PDF Reader Help VB Script Jscript ...

5 Boot

5.1 Startup to Welcome Screen

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

5.2 Welcome Screen

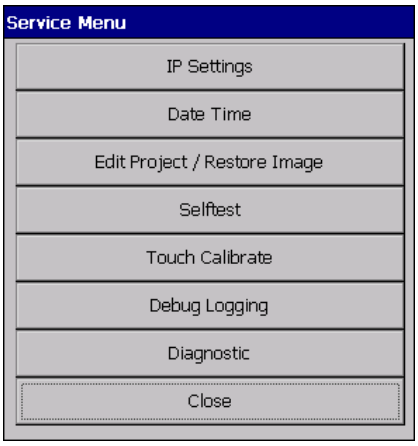


X2 Control 7	Operator panel name
External Memory card: Not present	External Memory card presence information
LAN A: 192.168.1.1	First network status. If operator panel has detected a network cable, a star is present after the IP address.
LAN B: 192.168.11.53 *	Second network status. If operator panel has detected a network cable, a star is present after the IP address.
v8.0 build 254	System image main version and build number.

6 Service Menu

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 until the touch screen calibration screen will display the following message:
   "Tap anywhere on screen or touch calibrate will start in 10 seconds."
3. Press finger once again to enter the service menu.

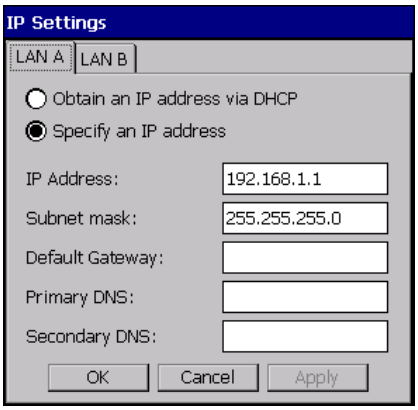


6.1 IP Settings

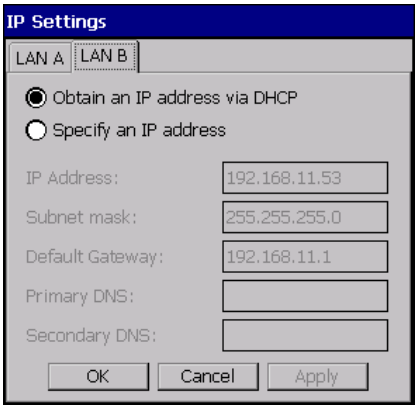
Setting of:

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

Default setting for LAN A is: IP address 192.168.1.1 Subnet mask 255.255.255.0

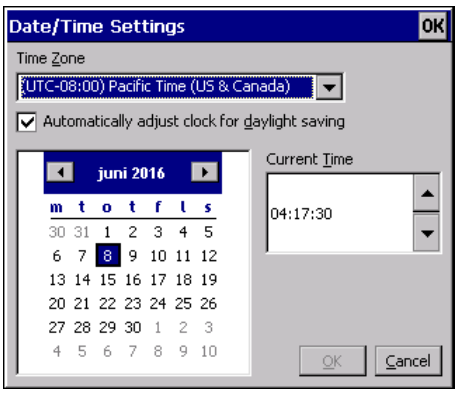


If two Ethernet ports are available, a second tab is visible in the IP settings dialog. Default setting for LAN B is: "Obtain and IP addredd via DCHP".



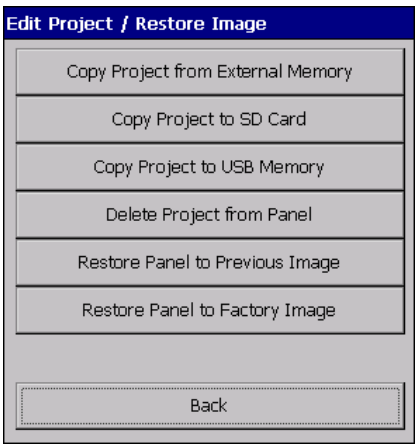
6.2 Date Time

The date time settings dialog allows setting of the Timezone, date, time and setting of automatic adjustment of clock for daylight saving.



6.3 Edit Project

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



6.3.1 Copy Project from External Memory

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

6.3.2 Copy Project to SD Card

This option enables the function to copy the iX application and all the files needed to run the application to an external SD Card. Make sure that the panel has an SD card slot and a SD card mounted, before trying this option.

6.3.3 Copy Project to USB

This option enables the function to copy the iX application and all the files needed to run the application to an external USB flash drive or other USB connected storage device. Make sure that the storage device is connected before trying this option.

6.3.4 Delete Project

This option will delete the iX application and all its corresponding files from the operator panel. There is no way of undeleting a project, make sure that the project should be deleted before confirming the deletion.

6.3.5 Restore panel to Previous Image

This option will restore the operator panels system image to the system image that the panel was using, before a new system image was loaded into the operator panel. Use this option to restore a panel back to a known working condition.

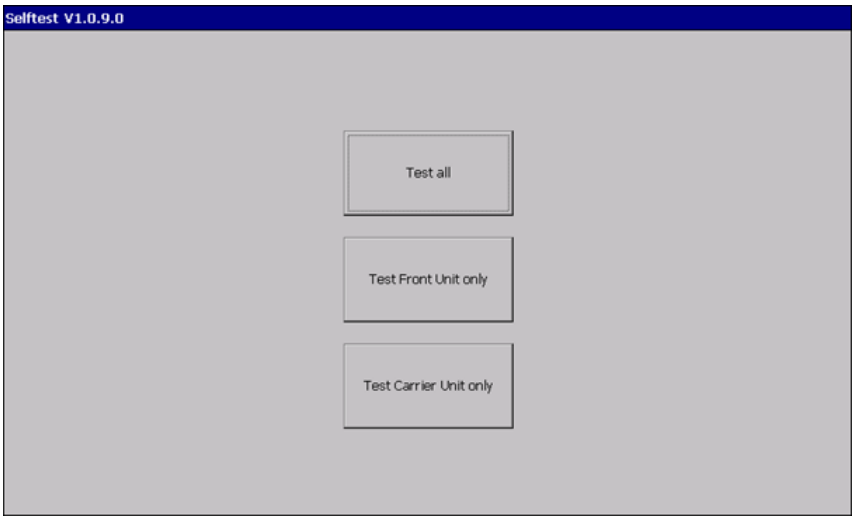
6.3.6 Restore Panel to Factory Image

This option will restore the operator panel to the system image 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.

6.4 Selftest

The self test screen looks a little different depending on operator panel type. The example screen below displays a X2 control panel and enables the function to test front or carrier unit independently or together.

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

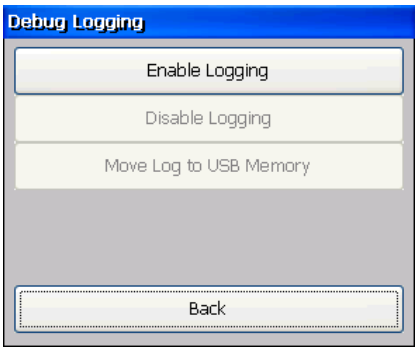


6.5 Touch Calibrate

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.

6.6 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.



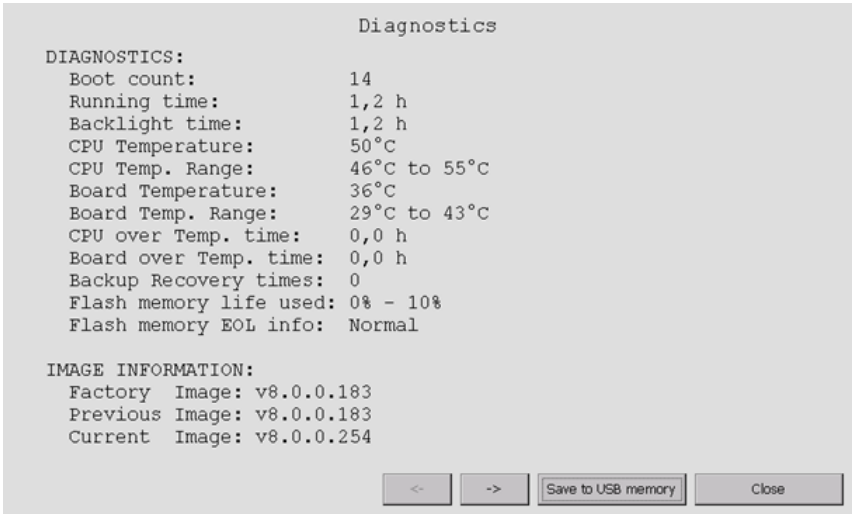
Enable Logging	Will tell the operator panel to start or continue to store additional debug log information into log files. A total of 10 log files of a maximum of 100kb per file will be kept in the operator panel internal memory. If the log files are filled to the limit, the oldest file will be over written 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	Will stop the operator store 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.

6.7 Diagnostic

Note:
The information (layout and number of screens) on the diagnostic screen pages are shown differently depending on screen size. The screen shots below are taken from a X2 control 7 panel.

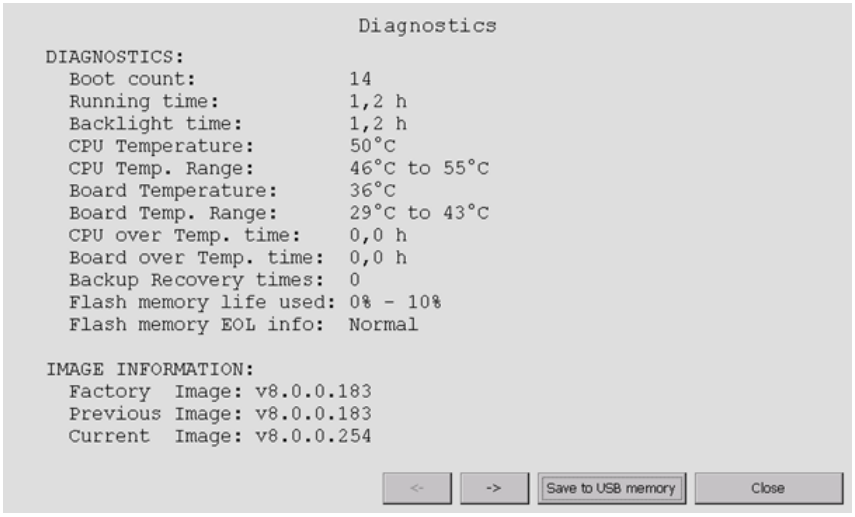
6.7.1 Export Diagnostic Information

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.



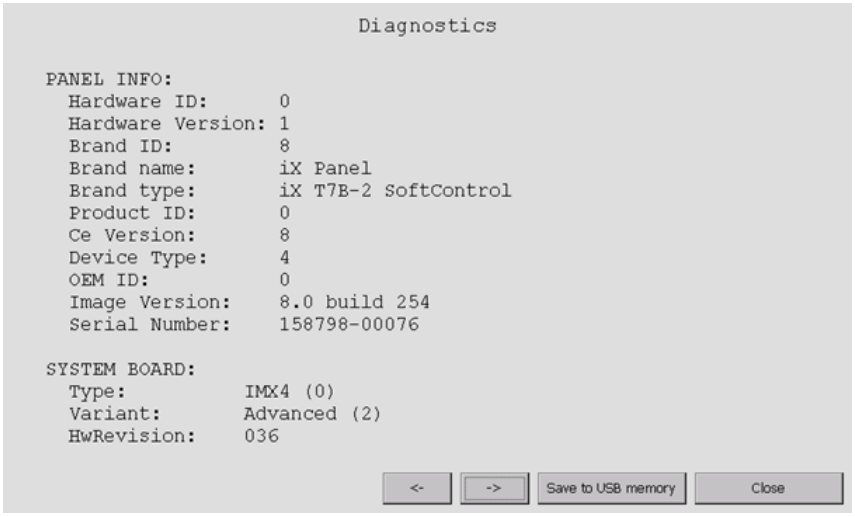
6.7.2 Screen 1 - Runtime Information

For example how many times the operator panel has been started, how long the operating panel has been running, and how the CPU board works and the wear of the FLASH memory.

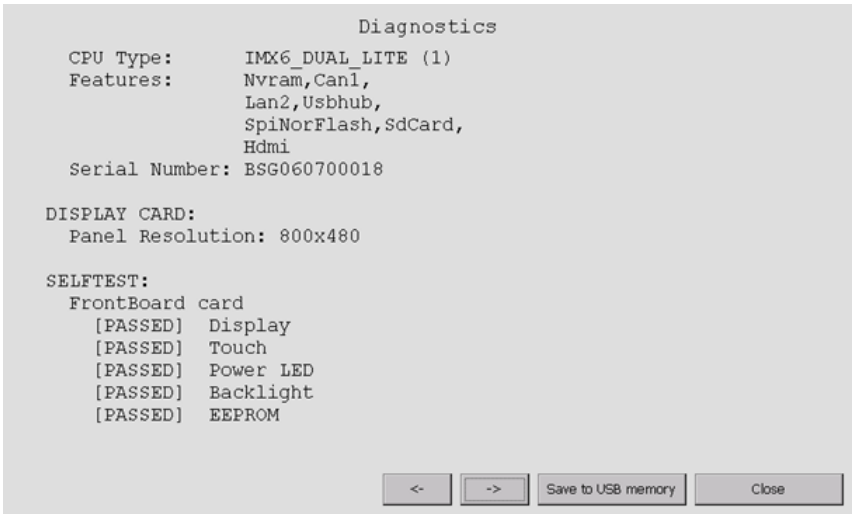


6.7.3 Screen 2 - System Information

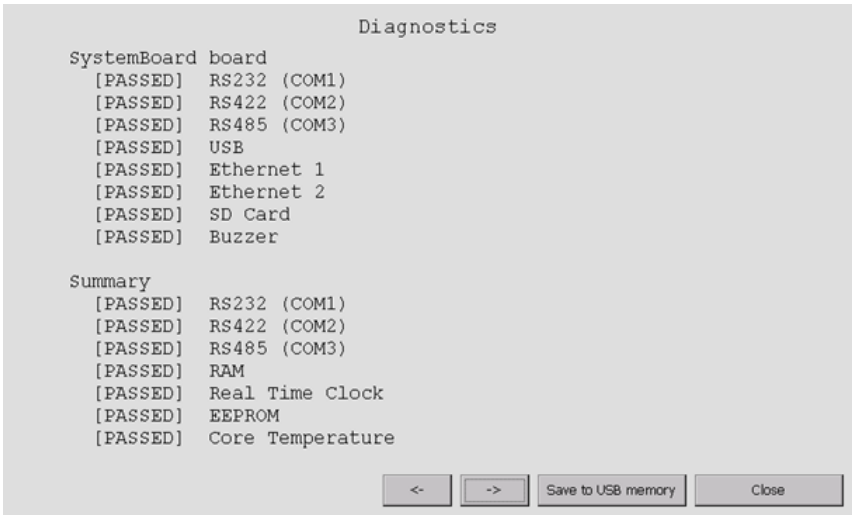
For example a summary of the hardware and software revision of the operator panel.



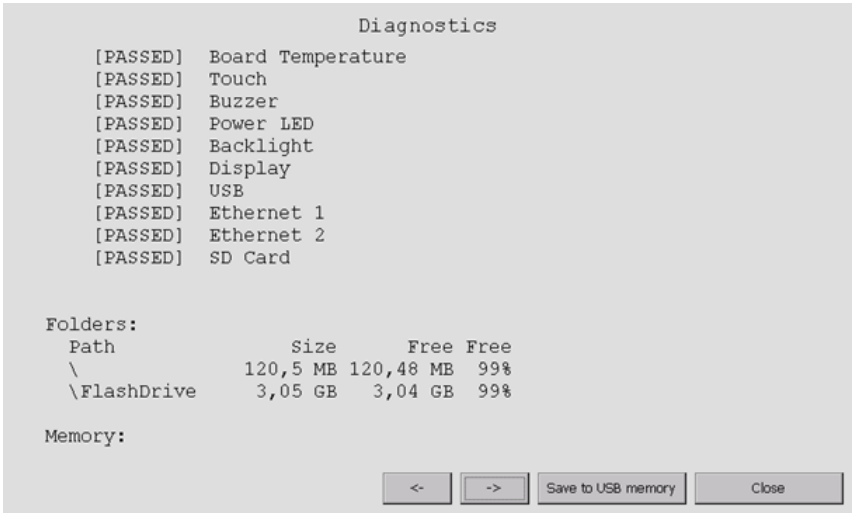
6.7.4 Screen 3 - Hardware Information and Selftest Log



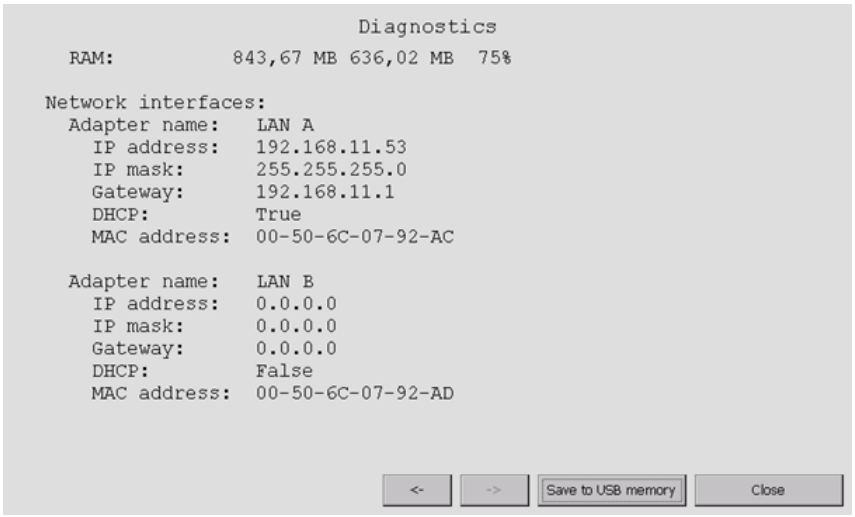
6.7.5 Screen 4 - Cont. Selftest Log



6.7.6 Screen 5 - Cont. Selftest Log and Summary of Internal Flash Drive Storage Status

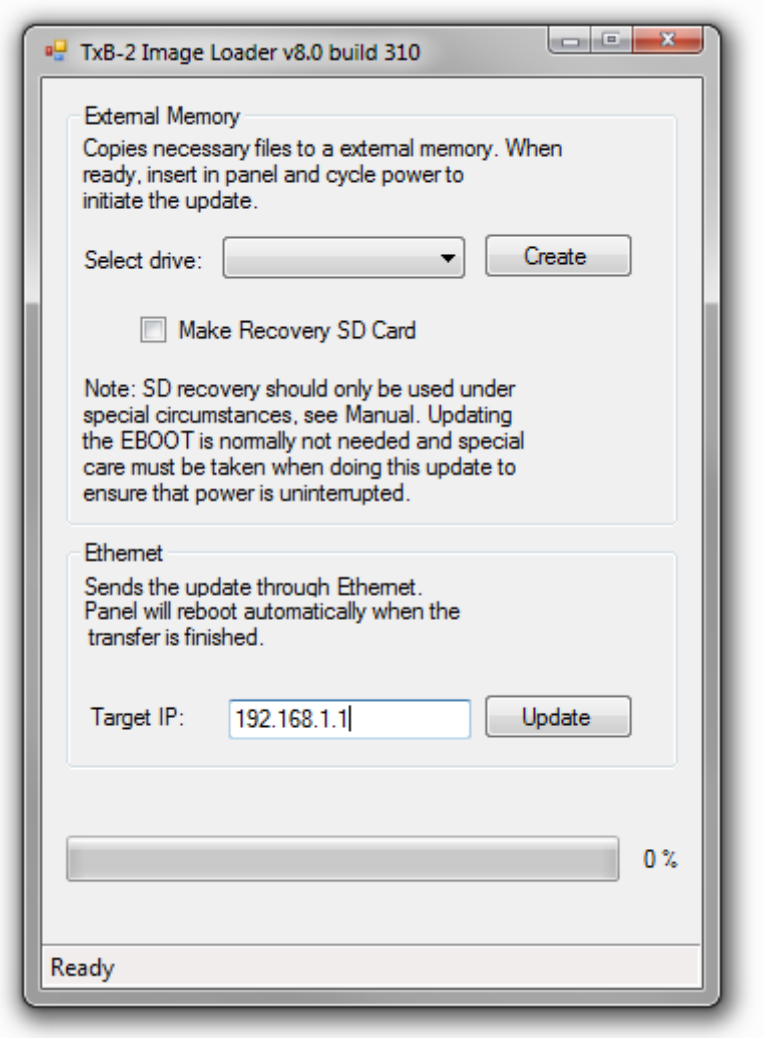


6.7.7 Screen 6 - RAM Memory Information and Summary of Network Interfaces of Operator Panel



7 Image Update

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



Note:
You should only use the Make Recovery SD Card option after first consulting with Beijer Electronics Support.

7.1 USB or SD-Card

7.1.1 Preferred Way

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

Note:
X2 Base does not support USB flash drive updates.

7.1.2 Image + New Project

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

1. Create an image USB flash drive or SD-card using the image loader utility.
2. Export the iX application from within iX Developer, to that same USB flash drive or SD-card.

7.2 Ethernet

The image loader utility can be used to upgrade the system 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 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.

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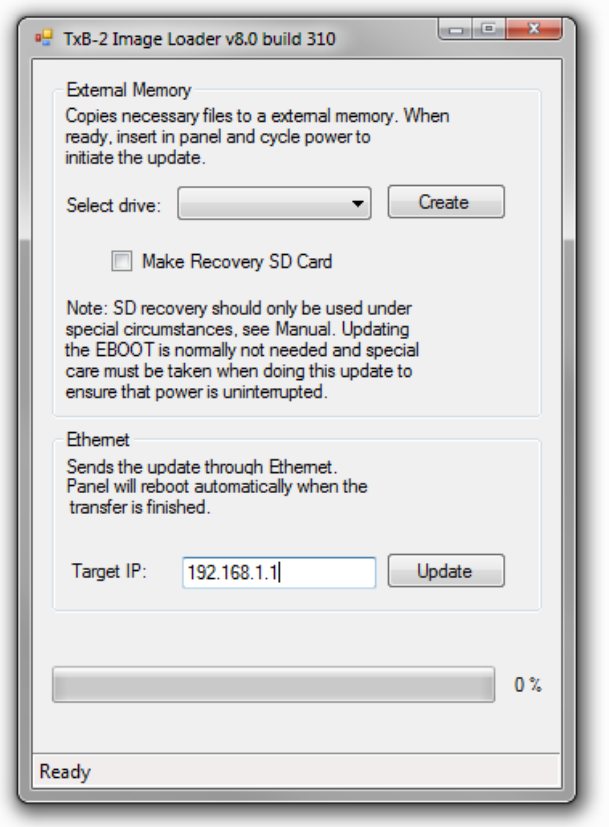
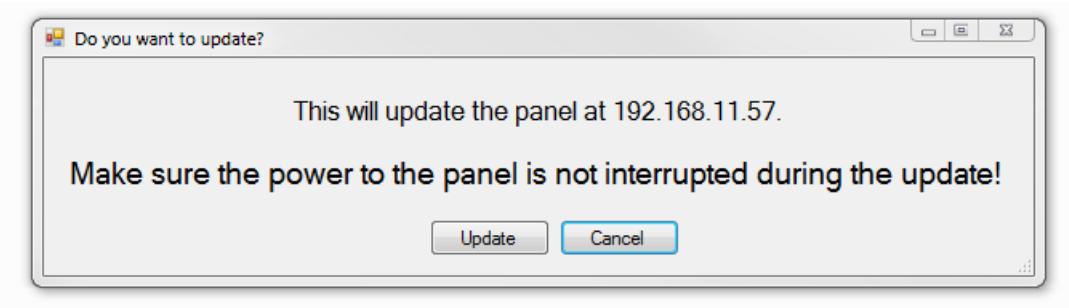
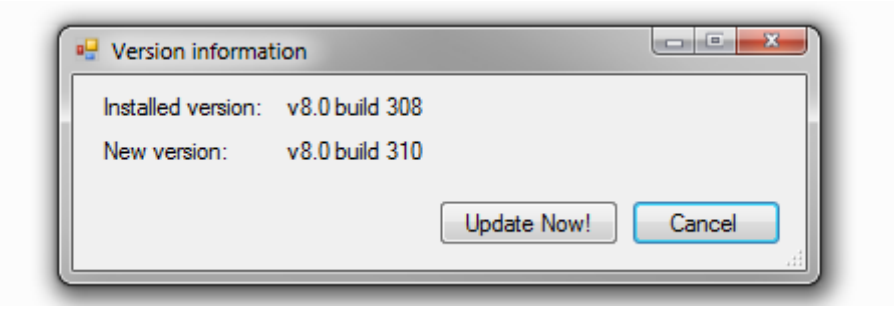
1. Enter the panel target IP address in the dialog and click on **Update** to start the update.



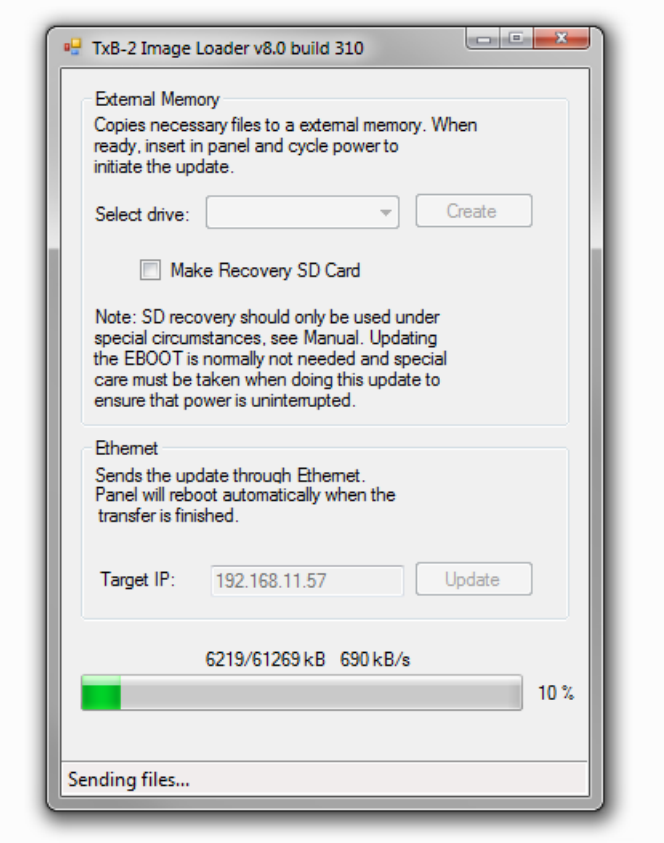
2. Make sure that the IP-address of the panel matches the actual panel that you want to upgrade.



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.



7.3 iX Application Status After Image System Update

The iX application is unchanged after a system image update is performed. If the system image upgrade is made over Ethernet, an additional dialog will pop up to confirm an erasing of the current iX application. The default setting is not to erase the iX application.

8 Image Recovery

It is possible to roll back to the previous system image version or to the factory default version. This is done in the **Edit Project / Restore Image** menu selection in the **Service Menu**.

9 Control / Motion

9.1 Runtime Version

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

Note:
All X2 control and X2 motion 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.

9.2 Update CODESYS Runtime

9.2.1 Update CODESYS Runtime on X2 pro and X2 marine

To update the CODESYS runtime version, copy the CODESYS runtime files to the root of a USB-key and boot the panel with the key inserted.

9.2.2 Update CODESYS Runtime on X2 control and X2 motion

1. In order to install a CoDeSys SW package on a X2 control or X2 motion panel, copy the 5 files contained in one of the folders named **Versions** to the root of an empty USB flash drive.
2. Insert the USB flash drive in the panel and reboot the panel.
3. Follow the instructions on the screen.

9.3 Change EterCAT / Normal Ethernet

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

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

9.4 CODESYS License

9.4.1 Control License

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

9.4.2 Motion CNC License

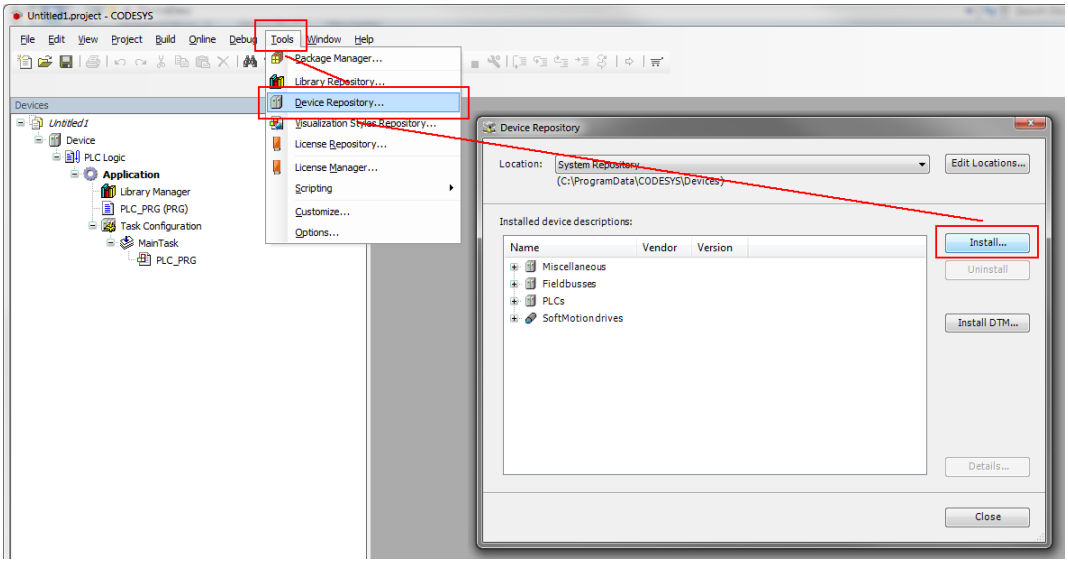
All X2 motion panels are equipped with a CODESYS SoftMotion license.

9.5 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.

9.6 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 SP8 Patch 1