

Quick start guide

Vessel Central Dimming

SER0047 - Central dimming of Northinvent monitors



1. Function and area of use

This document explains how to set up a central dimming system for NorthInvent monitors using an HMI panel in the X2 series and our smartobject 'Vessel Central Dimming'.

This example requires the following steps to be completed:

- Set up the X2 Marine 7 with the attached IX project.
 - X2 Marine 7 is normally used, but Pro, Extreme and Control variants can also be used.
- Setup the NorthInvent monitors with stationID.
- Connect the NorthInvent monitors to X2 Marine 7.



2. About this startup document

This quick start document should not be considered as a complete manual. It is an aid to be able to start using our 'Vessel Central Dimming' solution for the X2-series .

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Use the following hardware, software, drivers and utilities in order to obtain a stable application:

Software

- iX Developer v2.40 SP6 <https://smartstore.beijerelectronics.com>

Hardware

- X2 Marine 7 (X2 pro, X2 extreme or X2 control can also be used).
- One or more NorthInvent Wave II monitors.
- Optional serial port splitter (i.e. [UPC-6000 from Øverland](#)).

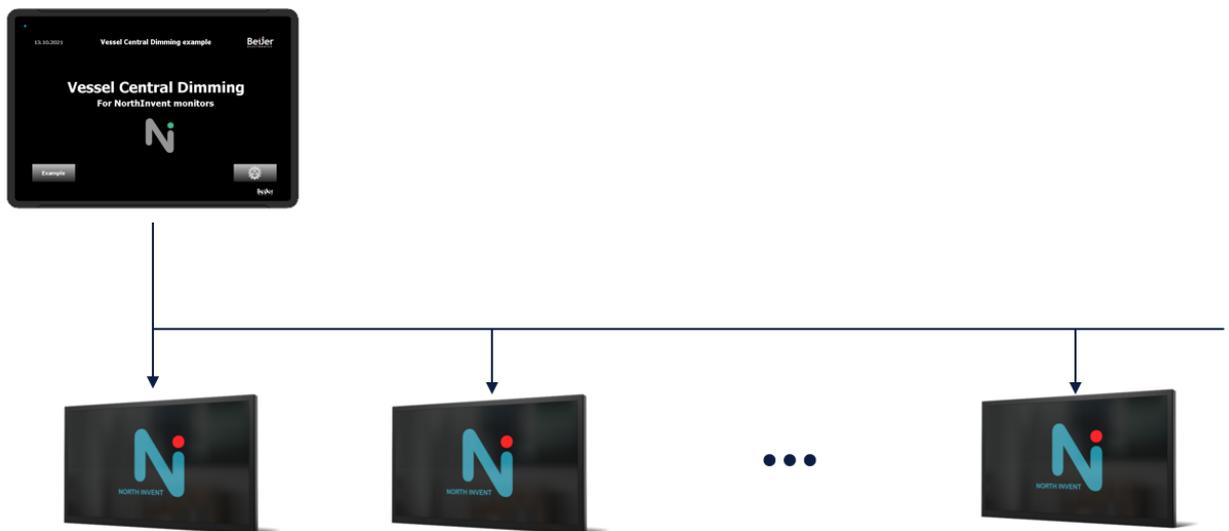
For further information refer to

- [NorthInvent Wave II User Guide](#)
- [Beijer Electronics knowledge database, HelpOnline](#)

This document and other quick start documents can be obtained from our homepage. Please use the address support.europe@beijerelectronics.com for feedback.

3. Introduction

The 'Vessel Central Dimming' solution is build up around the X2 Marine 7, or one of the other models in the Marine-series as this is approved for bridge mounting. The predefined application includes a scriptmodule with the dimming protocol (SCOM) and some example screens to show the functionality. This makes it easy to set up and tailor the solution to your own needs.



4. Prepare the hardware

In this section we describe the unboxing, connection and necessary configuration of the hardware needed in the solution.

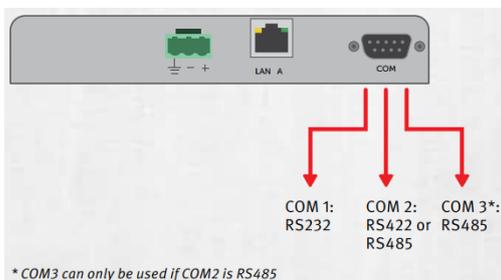
4.1 X2 Marine 7

The X2 Marine 7 is delivered as a standalone unit for panel mounting in a cabinet front or desk. The needed connections is 24Vdc power and a serial port for the dimming signal. RS422, RS485 or RS232 can be used. Multidrop or point-point connection with a splitter/repeater. A network connection is also needed for commissioning and program transfer.



4.1.1 Connect RS232 or RS422/RS485 kabel

RS232 (COM1), RS422 (COM2) or RS485 (COM2, COM3) connection is used to the NorthInvent monitors. COM2 or COM3 is used when connect the monitors in multidrop. COM1 is normally used when connected to a serial port splitter. The serial parameters are fixed to 9600, N, 8, 1.



X2 Pro X2 Control X2 Motion X2 Marine

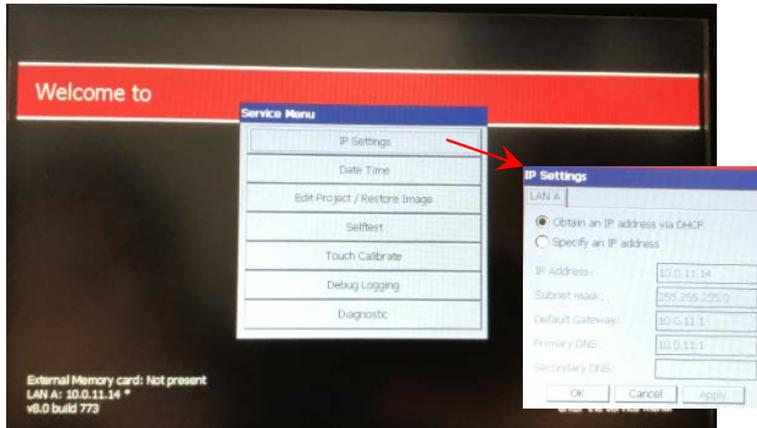
Female DB-9	Pin	COM1 signal	COM2 signal	COM3 signal
9	5	-	RS422 TX+/RS485 TX+/RX+	-
8	4	RS232 RX	-	-
7	3	RS232 TX	-	-
6	2	-	RS422 RX+	RS485 TX+/RX+
5	1	GND	GND	GND
4	8	-	RS422 TX- / RS485 TX-/RX-	-
3	7	RS232 RTS	-	-
2	6	RS232 CTS	-	-
1	5	-	RS422 RX-	RS485 TX-/RX-



Cab112 can be used for RS422\485. Project only use Tx and only 2 wire needed.

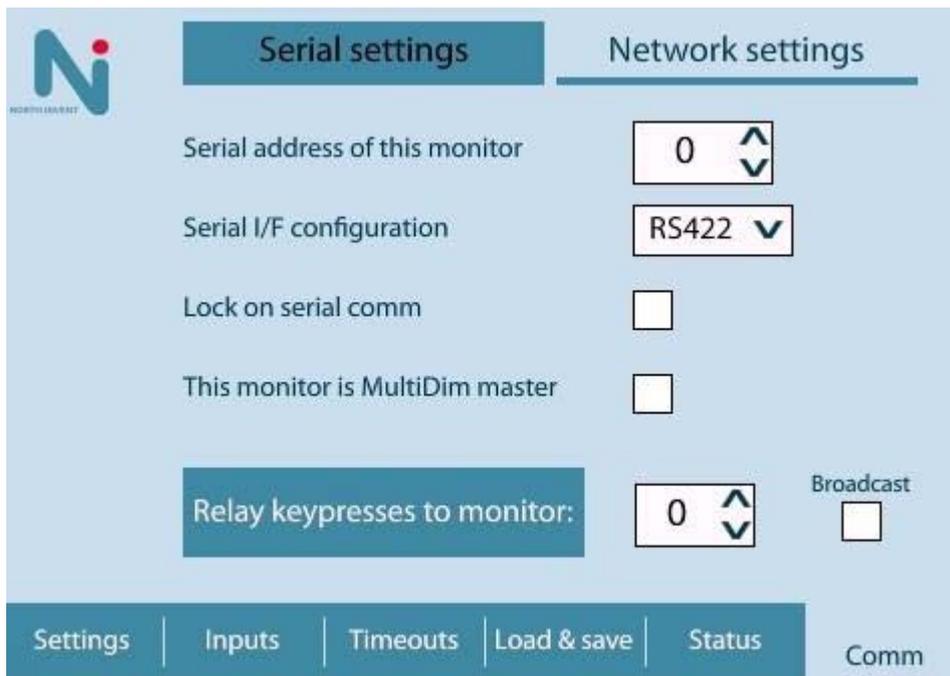
4.1.2 Change IP address on X2 Marine 7

When the X2 Marine 7 boots for the first time the system menu is shown and the IP address can be changed under the network settings. The system menu can always be reached by pressing a finger on the display when booting. After approximately 25 sec into the boot sequence you are asked to release, and push again to confirm access to the system menu.



4.2 NorthInvent monitor

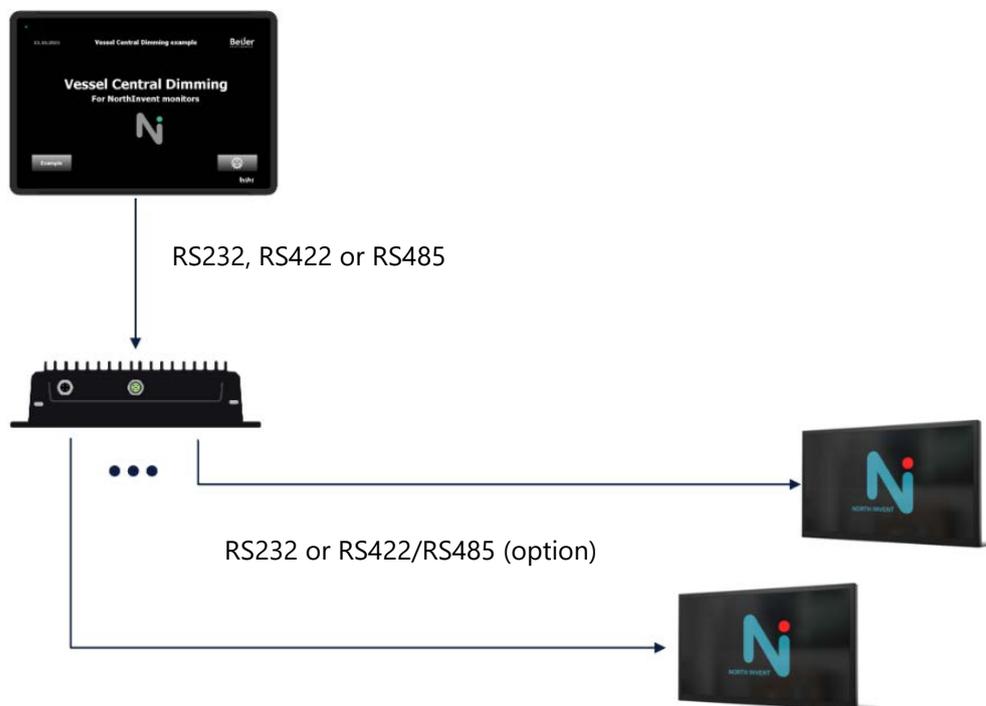
Station ID (Serial address of the monitor) must be set individually in each monitor. Default ID is '1' and serial parameters is fixed to 9600, N, 8, 1. ID can be changed by connecting a USB mouse to the monitor and access the OSD menu by rightclick.



4.2.1 Connect Serial port

There are two ways to connect the monitors. Either a star system from X2 Marine 7 to a splitter/repeater and further on to the monitors with individual cables, or a multidrop system from X2 Marine 7 to the monitors. For the multidrop system you need the optional RS422/RS485 port in the monitors. If you are using a splitter the built in RS232 DSUB (female) could also be used if your splitter permits. NorthInvent monitors accept dimming commands on the RS232 DSUB port also (1:1 connection).

4.2.1.1 Star network

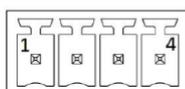


RS232 – DB9 receptable



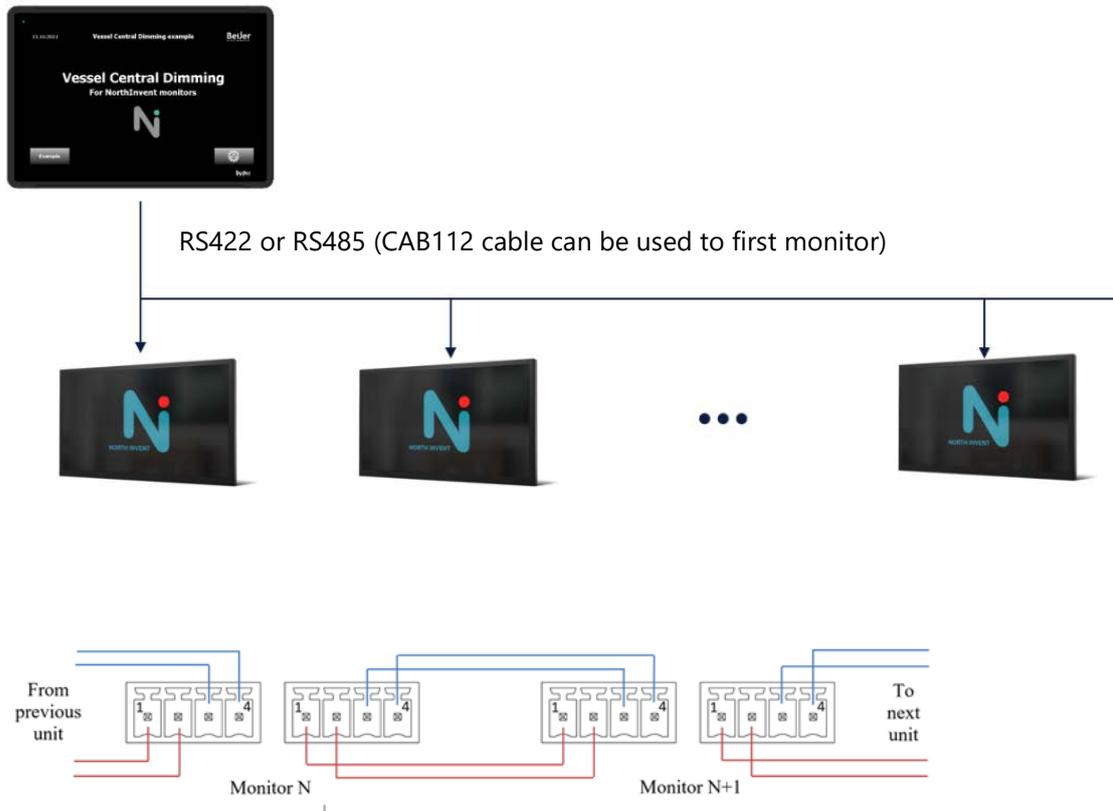
Pin	Description	Pin	Description
1	Not connected	4	Not connected
2	TxD (Transmit Data)	5	GND
3	RxD (Receive Data)	6	Not connected

RS422 / 485



Pin	Description	Pin	Description
1	Tx+ (RS422)	3	Rx+ (RS422), Rx+/Tx+ (RS485)
2	Tx- (RS422)	4	Rx- (RS422), Rx-/Tx- (RS485)

4.2.1.2 Multidrop connection



i Only receive pair (blue) is used.

Left and right connectors carry same signals and are connected in parallel internally. This allows for easy and more reliably wiring as both incoming and out-going wires can be terminated in separate connectors.

Remember termination resistor (120 Ω) on each end of the cable. CAB112 cable has a resistor included, and for the last monitor a jumper can be mounted between the connectors to enable the onboard resistor (default off).

5. Configure the software

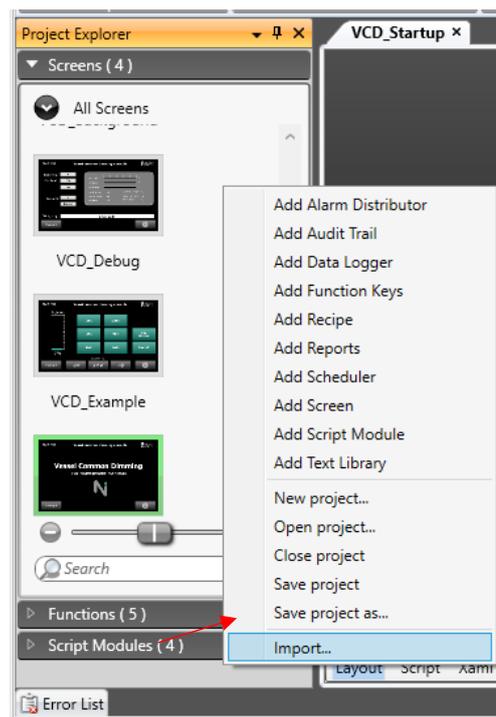
5.1 IX Developer project

The 'Vessel Central Dimming' project for X2 marine 7 is included the smart engineering object for you to change or import into your own project.

5.1.1 Open source project in IX

Start IX Developer and open the project backup 'SER0047_VesselCentralDimming_Vx.x.x_IX.zip'. Choose a folder for the project backup.

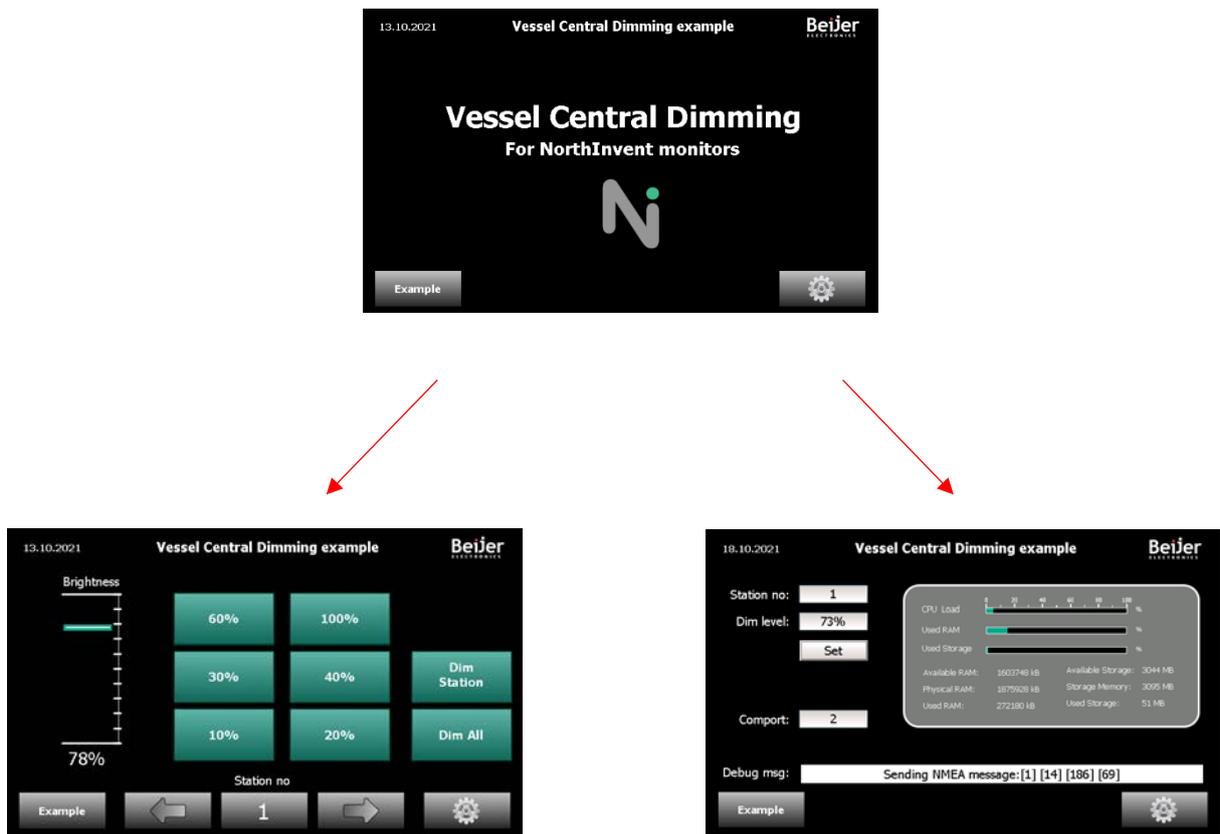
Use this project as a template to build your own application, or import the parts you need to another project by rightclick the gray spot in your project and select 'Import'.



6. Test

Our solution is now complete and it's time to test the functionality.

The application consist of three screens as shown below. A Menu, dimming screen and debug screen.



X2 Marine 7 boots in the menu screen and it is possible to return to this screen by pressing the Beijer logo in the upper right corner.

In the dimming screen a brightness level from 0-100% can be set for a single monitor or all monitors at the same time.

In the debug screen it is possible to see the latest debug information and adjust the serial port to be used. COM1 = RS232, COM2 = RS422/RS485 (depending on configuration), COM3 = RS485.

7. About Beijer Electronics

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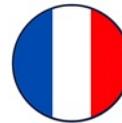
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