
User's Manual

marine-pro

200 Series

DCU 210/208 – Diesel Engine Control Unit

RP 210 – Remote Panel



Rev. March 2012

auto
MASKIN

User's Manual
for the
Marine Pro 200 Series

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DCU 210 Diesel Engine Control Unit

DCU 208 Diesel Engine Control Unit

RP 210 Remote Panel

|          |                            |
|----------|----------------------------|
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# Document Information

## About this manual

This manual has been published primarily for professionals and qualified personnel.

The user of this material is assumed to have basic knowledge in marine systems, and must be able to carry out related electrical work.

Work on the low-voltage circuit should only be carried out by qualified and experienced personnel.

Installation or work on the shore power equipment *must only* be carried out by electricians authorized to work with such installations.

## Responsibilities

It is the *sole responsibility of the installer* to ensure that the installation work is carried out in a satisfactorily manner, that it is operationally in good order, that the approved material and accessories are used and that the installation meet all applicable rules and regulations.

**Note!** Auto-Maskin continuously upgrades its products and reserves the right to make changes and improvements without prior notice.

All information in this manual is based upon information at the time of printing.

For updated information, please contact your local distributor.

## Matching firmware

This Installation and Configuration Manual is for the 200 Series of panels. It has been updated to match the following firmware releases.

| Panel        | Firmw. | Release   |
|--------------|--------|-----------|
| DCU 210/ 208 | 2.4    | Sep. 2011 |
| RP 210       | 2.4    | Sep. 2011 |

## Ordering information

The **Marine Pro** range is compatible units, and includes the **200 Series** and the **400 Series** of panels.

| Item                                                   | Part #  |
|--------------------------------------------------------|---------|
| DCU 208 - Engine Control Unit                          | 1006480 |
| DCU 210 - Engine Control Unit                          | 1006481 |
| RP 210 - Remote Panel                                  | 1006482 |
| RIO 410 - I/O Expansion Unit                           | 1006453 |
| RIO 412 - Exhaust Temp. Monitoring                     | 1006454 |
| RIO 425 - Generator Interface                          | 1006409 |
| SDU 410 - Safety Unit                                  | 1006451 |
| RP 410 - Remote Panel                                  | 1006452 |
| Ethernet Switch - 5 channels, 24V                      | 1050165 |
| J1939 CANbus Cable                                     | 1009110 |
| IP Camera - for connection to RP 210/410 remote panels | 1121258 |
| CANbus/Fiber converter module                          | 1121268 |

## Overview of the 200 Series

The diagram below shows a typical layout.

### DCU 210

The DCU 210 engine panel is the main building block in the 200 Series.

Engine sensor values are displayed on the color touch screen, and commands and other user interaction is also done performed here.

### DCU 208

The DCU 208 is basically the same as the DCU 210, but without the color touch screen.

It saves cost being used in smaller engine rooms, where a remote panel is all that is needed.

## Configuration

A PC web-browser is used to configure the DCU, using the inbuilt web-server on the DCU.

## Remote Panel

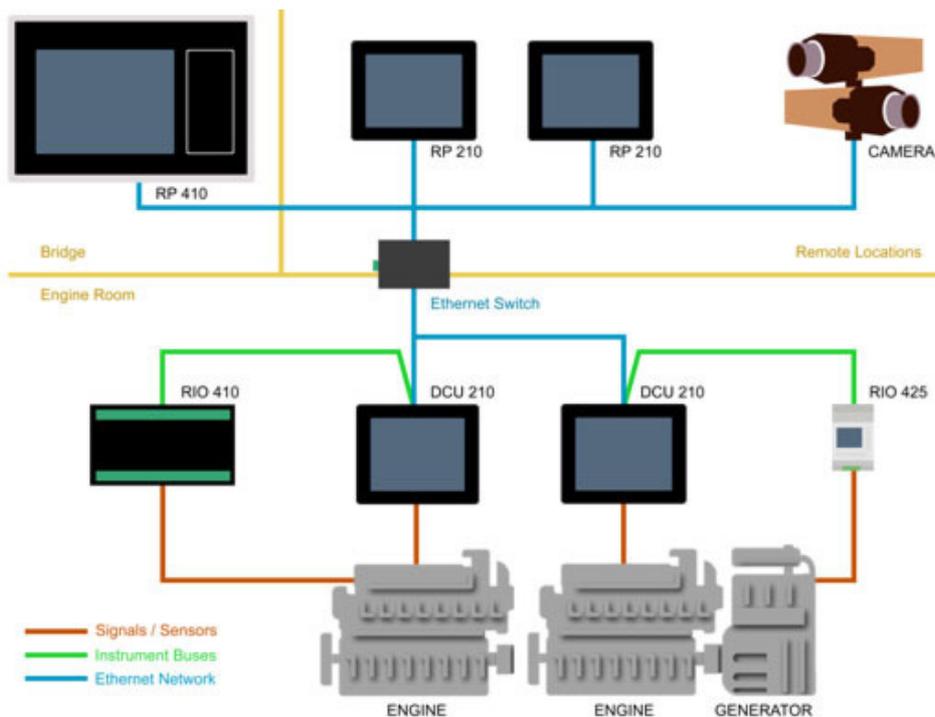
The optional RP remote panel brings everything on the DCU to a remote location, with the exact same user interface. It does not need any configuration, as it is reading the configuration from the DCU.

As such, the RP can easily be retrofitted.

The RP also supports one IP-camera to be installed on the network.

## Ethernet Switch

The Ethernet switch is not necessary if only one DCU 210 and one RP 210 is in use. These can then be wired with an ethernet cable directly.



It is recommended to make use of an ethernet switch though, as it simplifies PC configuration connection and future expansion to remote panels and/or camera interface.

## Expansion

The basic system can be expanded with more input and output channels using the versatile RIO units (**R**emote **I/O**).

Currently, there are RIO units for

- general I/O expansion (RIO 410)
- exhaust temperature monitoring (RIO 412)
- generator monitoring (RIO 425)

# DCU 210 Engine Panel

## Configuration dependency

The behavior of the panel depends somewhat on its configuration. For instance, the start/stop buttons can be configured as **latched**, meaning the DCU completes the start/stop cycle once the button is pressed, or it can be configured as **hold-to**, meaning the operator must keep the button pressed until the engine has started or stopped.

The configuration of the DCU is not part of this document.

## Main elements of the touch screen

The DCU 210 (not the DCU 208) uses a touch screen for all user interaction.

The DCU 208 does not have a user interface; please see the RP 210 remote panel section.

## Screen navigation and hot-spots

The panel has no buttons so everything is accessed from the touch screen.

There are several defined **hot-spots**. A hot-spot is a certain area of the screen defined to do a predefined function.

For instance, pressing the left-hand side of the screen moves to the previous page (if any).



| To do this      | Press this                               |
|-----------------|------------------------------------------|
| Select Page     | Center of the screen                     |
| Previous screen | Left-hand side of the screen             |
| Next screen     | Right-hand side of the screen            |
| Shortcut Menu   | Top-left corner                          |
| Alarm List      | Top-right corner                         |
| Menu            | Long-press (1 sec) center of the screen. |

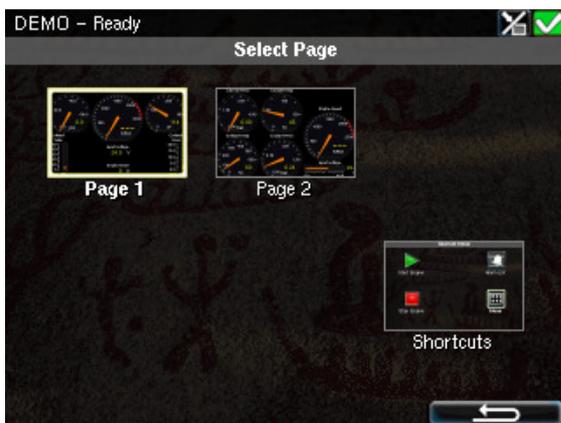
There are some screen animations to aid in understanding the different hot-spot actions.

## Select Page

Press the **center** of the screen to get a miniature (thumbnail) of all the instrument screens for easy access.

In addition to the configured instrument screens, there will always be a thumbnail of the command screen **Shortcuts** at the bottom right corner.

This is the quickest and easiest way to get an overview of the screens, and to select either any of the screens or the Shortcuts Menu.



In the above example, there are two instrument screens available.

Select one of the two thumbnail pages to move directly to that page.

Select the Shortcuts thumbnail to move to that menu.

## Previous Screen

From the instrument view, press the **left-hand side** of the screen to move to the previous screen.

## Next screen

From the instrument view, press the **right-hand side** of the screen to move to the next screen.

## Shortcut Menu

The command page **Shortcuts** can be accessed in two ways.

- From the Instrument view, press the **top-left corner** of the screen.
- Or, from the Select Page screen, press the **Shortcuts** thumbnail



## Alarm List

The alarm list can be accessed in two ways.

- From the instrument view, press the **top-right corner** of the screen.
- Or, from the Shortcut Menu, select the **Alarm List** icon.

## Menu

The main menu can be accessed in two ways.

- From the Instrument view, **long-press** ((1 sec) the center of the screen, until the main menu is displayed

- Or, from the Shortcut Menu, select the **Menu** icon.



## Start Engine

There are two ways to access the Start button.

- From the Instrument view, press the **top-left corner** of the screen. This displays the Shortcut Menu with the start button.
- Or, from the Select Page, select the Shortcuts thumbnail.

## Stop Engine

There are two ways to access the Stop button.

- From the Instrument view, press the **top-left corner** of the screen. This displays the Shortcut Menu with the stop button.
- Or, from the Select Page, select the Shortcuts thumbnail.

## Screen Layout

At the top area of the screen is the **Status Bar**.

Engine status is displayed on the left-hand side of the status bar, and panel status is displayed on the right-hand side.



## Status bar symbols

These are the symbols that can appear in the status bar.

Several symbols may be visible simultaneously.

-  DCU is in **automatic** or **emergency** mode.
-  DCU is in **manual** mode.
-  DCU is in **local** mode.
-  DCU is in **harbor** mode.
-  DCU is in **shutdown override** mode.



A **service** interval is past due.



All **OK**.  
(no alarms)

## Automatic Mode

The DCU is ready to accept automatic start- and stop commands.

Local start- and stop is possible.

## Emergency Mode

This mode is available only if the DCU is configured as a Combined Harbor/Emergency set.

Channels configured as shutdown will not give an engine shutdown, but indicate with an alarm only.

The Exception is overspeed, which is not disabled.

## Manual Mode

In Manual Mode, the DCU does not accept external automatic start- and stop commands.

Local start and stop is possible.

## Harbor Mode

This mode is available only if the DCU is configured as a Combined Harbor/Emergency set.

- Shutdown channels are enabled.
- Automatic start/stop is disabled.

## Shutdown Override

All channels configured as shutdown will give alarm only.

The exception is overspeed, which is enabled.

## Service

A service interval is past due.

## All OK

There are no alarms in the alarm list.

## Start Engine

The start button can be configured as **latched** or **hold-to**.

### Latched Start

If the button is configured as **latched**, press the start button, observe the confirmation dialog, and press the softbutton Start to start.

The DCU will complete the start sequence.



**Note!** Activating E-Start will override any configured Prelube and also set Shutdown Override. The engine will start immediately, and run in a Shutdown Override mode setting.

If desired, the operator can switch off Shutdown Override mode once the engine has started.

### Hold-to Start

If the start button is configured as **hold-to**, press and hold the start button until the engine has started.

There will be no confirmation dialog.

### E-Start

If the DCU is configured for it, an Emergency Start option is available in the Start dialog. See the picture above.

The E-Start is designed to start the engine as quickly as possible in an emergency situation, and shall not be used for everyday start.

## Stop Engine

The stop button can be configured as **latched** or **hold-to**.

### Latched Stop

If the button is configured as **latched**, press the stop button, observe the confirmation dialog, and press the stop softbutton.

The DCU will complete the stop sequence.



### Hold-to Stop

If the stop button is configured as **hold-to**, press and hold the stop button until the engine has stopped. There will be no confirmation dialog.

## Alarm List

### Indication

Whenever there is a new event in the alarm list, the DCU indicates as follows:

- Buzzer oscillates
- The screen status bar flashes yellow or red

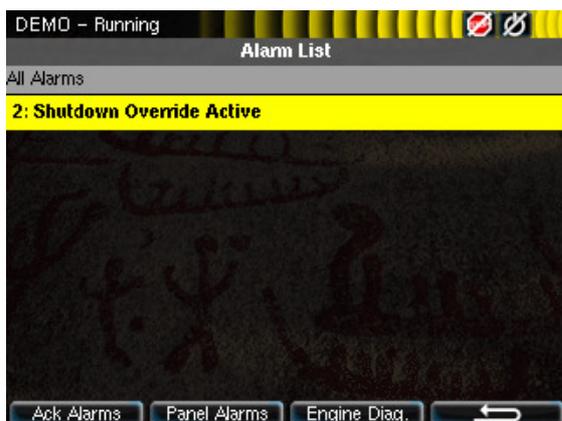
**Note!** The color of the flashing status bar indicates the type of event.

- Yellow: Warning
- Red: Alarm or shutdown

In case of a conflict, the red bar takes precedence over yellow.

### Enter the Alarm List

To see the alarm list, press the alarm list button or the top-right section of the screen, as discussed earlier.



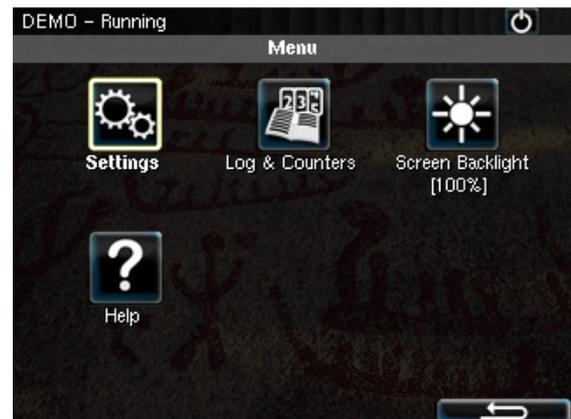
The above picture indicates a warning in the alarm list.

## Further reading

For further explanation, see the chapter **The Alarm List** page 17.

## Menu

The menu page has four icons.



## Settings

Access all panel settings.

There are three pages with icon selections in the submenu.

## Mode

Select the panel operating mode.



|           |                                                                                  |
|-----------|----------------------------------------------------------------------------------|
| Automatic | The panel accepts signals for automatic start/stop of the engine.                |
| Manual    | The panel <b>does not</b> accept signals for automatic start/stop of the engine. |
| Local     | The panel does not accept <b>any</b> remote commands.                            |

## Start Disabled

Set to **Active** to disable start.

## Prelube Override

Set to **Active** to override any configured prelube session.

## Button Beep

Set to **Enable** to have each screen press sound the buzzer.

## Language

Select any of the panel's built-in languages.



The panel configuration may not be translated to the selected language.

## Units

Select **Metric** or **U.S.** units of measure.

Any gauge scaling is handled in the configuration.

## Calibrate touch screen

Re-calibrate the touch screen if necessary.

## Wallpaper

Select any of the built-in wallpapers as a background for instruments, menus and popup dialogs.

## Engine Overspeed Test

Set to **Active** to activate the engine overspeed test.

This temporarily lowers the overspeed setpoint to the nominal speed of the engine. Start the engine to perform the test.

The test will deactivate automatically after a timeout, or when an actual overspeed (from the test) is detected.

## Connect a PC

The panel has an inbuilt DHCP server, and thus can issue an IP address to a PC that is configured to receive a dynamic IP address in a company network.

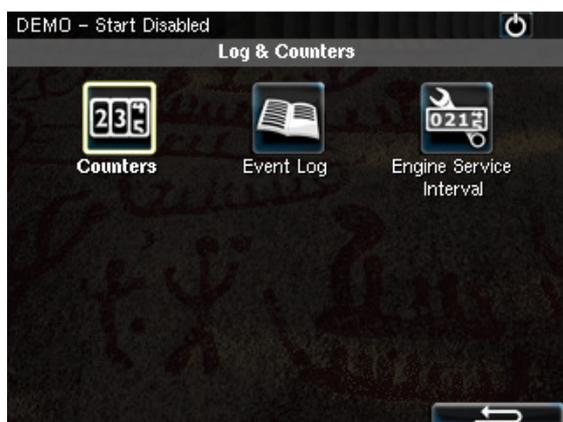
Set the Start- and End IP to be outside of the panel's current IP address, and press **OK**.

## Administration

This section covers deeper configuration options of the panel, and is not covered in this manual.

## Log & Counters

There are submenus for engine operating hours, event log and service intervals.



### Counters

The submenu has the engine hours, in total, since start and since the last reset.

The **Since Start** value is automatically reset every time the engine makes a new start.

The **Since Reset** values can be reset manually using the button provided.

### Event Log

All panel events are stored internally, and can be monitored here.

Select an event to see when it first appeared, when it was acknowledged (if applicable for that event) and when it disappeared (again, if applicable).

### Engine Service Interval

If engine service intervals are configured, then this page displays how many hours until the next service.

## Screen backlight

Adjust screen backlight intensity for varying light conditions.

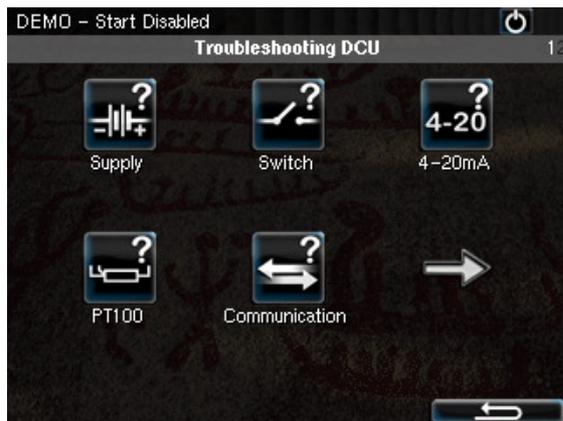


## Help

Submenus for troubleshooting and panel version information, such as firmware version and IP address.

### Troubleshooting

This submenu has troubleshooting information for the panel itself, and also for any RIO expansion unit that is connected.



Select the icon that represents the area of interest.

## Version Information

This page displays panel hardware version, software version, kernel version and also the engine ECM software version (if connected to the J1939 CANbus).

Of special interest here is the panel **IP address**, which is necessary when connecting to the panel using a PC.



# RP 210 Remote Panel

## Introduction

The RP 210 is a remote panel for DCU's in the Marine Pro 200 and 400 series.

It reads the configuration from the DCU engine panel it is connected to. If the DCU engine panel has a configuration change, then the RP remote panel will automatically adapt. The DCU 210 can monitor and control one DCU engine panel only.

## Similarities with the DCU 210

The use of the RP 210 remote panel is very similar to the use of the DCU 210 panel, so this chapter will only describe the menu sections on the RP 210 that are not available on the DCU 210.

## Status bar symbols

In addition to the symbols already mentioned for the DCU, these are the extra symbols that can be seen in the RP 210 status bar.



This RP is the active station for the connected DCU.

## Menu

The menu is access in the same manner as for the DCU 210.

Upon entering the menu, the previously used menu item is pre-selected.



## Active Station

There may be several RP panels in the network, all controlling the same engine.

Only one remote panel can be in control of the engine at any given time.



The Active Station dialog displays the engine this RP is connected to.

If there is a yellow star in the top-right position of the icon, as in the picture above, then **this** RP is currently in control of that engine.

## Request the Active Station status

If the RP is not the active station for the engine, then a request can be sent to the RP with the current active station status.

Select the engine and then select **Request**.

**Note!** If there is exactly one RP in the network, it may initially not be the active station. Select it once, and then the current selection is stored, also after reboot.

## Release the Active Station status

The RP can release its Active Station status, so as to make the engine “free” on the network.

Other RP panels with lower priority settings than this RP can now become the active station for that engine.

Select the engine, and then press the **Release** button.

## Settings

This chapter describes the menu icons that are not found on the DCU 210 only.

## Sound

The RP panel has a 3.5mm line-out for optional connection to external speakers. The sounds are “prettier”, and there are different sounds connected to different events.



## Sound Configuration

Select external **Speakers** or the inbuilt **Buzzer** for audible feedback.

## Camera

The RP panel can display images from a connected IP-camera.



# The Alarm List

The following is valid for the alarm list in the DCU and RP panels.

## Bold text

- An unacknowledged event is in **bold text.**
- An acknowledged event is in normal text.

## Background colors

- A diagnostic message is displayed on a white background.
- A warning is displayed on a yellow background.

- An alarm and an engine shutdown are displayed on a red background. In addition, an engine shutdown is indicated with a STOP sign.
- An unacknowledged event that turned inactive before acknowledge, is displayed on a grey background. For instance, the coolant temperature may have been above the setpoint, and then dropped below the setpoint again before the operator acknowledged it.

## Sample events

See sample events with explanations in the alarm list, below.

| Alarm List                            |                                |
|---------------------------------------|--------------------------------|
| New active Alarm or Shutdown          | (bold text, red background)    |
| Acknowledged active Alarm or Shutdown | (red background)               |
| Unacknowledged inactive Alarm         | (red text, grey background)    |
| New active Warning                    | (bold text, yellow background) |
| Acknowledged active Warning           | (yellow background)            |
| Unacknowledged inactive Warning       | (yellow text, grey background) |
| Unacknowledged White Diagnostic       | (bold text, white background)  |
| Acknowledged White Diagnostic         | (white background)             |
| Unacknowledged inactive Diagnostic    | (black text, grey background)  |

Sample Alarm List events

## Filter Alarms

The alarm list can filter alarms in three groups as follows

- **All Alarms** (alarms and diagnostics)
- **Panel Alarms** (alarms, no diagnostics)
- **Diagnostics** (diagnostics only)

Press the corresponding button at the bottom of the screen for the desired filter to take effect.

The filter currently in use is displayed on the second line of the alarm list, eg. **All Alarms**.

## Silence the Buzzer

Entering the alarm list will also automatically silence the buzzer.

If the buzzer sounds while in the alarm list, then press the **Ack. Alarms** button to silence it.

## Acknowledge a single alarm

- In the alarm list, select the alarm to be acknowledged. Observe that the selected alarm line will expand to reveal additional information, if any.
- Press the **Ack. Alarms** button to acknowledge the selected alarm.



## Acknowledge all alarms

- In the alarm list, press and hold (1 sec) the **Ack. Alarms** button. This acknowledges all active alarms.

**Note!** Alarms that are still active will stay displayed in the screen until they go inactive.