
User's Manual

Marine Pro.

200E Series

DCU 210E/208E – Diesel Engine Control Unit

RP 210E – Remote Panel



auto MASKIN

User's Manual

Rev. 1.0

Marine Pro 200E Series

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DCU 210E Diesel Engine Control Unit

DCU 208E Diesel Engine Control Unit

RP 210E Remote Panel

### Revision history:

| Rev. | Date    | Description                                    |
|------|---------|------------------------------------------------|
| 1.0  | 10.6.15 | Initial Revision for 200E Series User's Manual |

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## Document Information

### About this manual

This manual is published primarily for professionals and qualified personnel. It is assumed that the user of this material has basic knowledge in marine systems.



#### Warning!

Work on low-voltage circuits shall be carried out by qualified and experienced personnel only.

Installation or work on power equipment *must* be carried out by electricians authorized to work with the applicable installation.

### Responsibilities



#### Warning!

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 any prior notice.

The contents presented in this manual is based on information available when this was written. For updated information, please contact your local distributor.

### Matching firmware

This document describes the 200E Series of panels and is updated according to the following firmware releases:

| Product       | Firmware | Release   |
|---------------|----------|-----------|
| DCU 210E/208E | 3.2      | 29.4.2015 |
| RP 210E       | 3.2      | 29.4.2015 |

### Ordering information

The **Marine Pro** covers a wide range of compatible products within both the **200-** and **400 Series**. Please visit our web site for more information.

<http://auto-maskin.com/marine/>

## Overview of the 200 Series

The diagram below shows a typical layout.

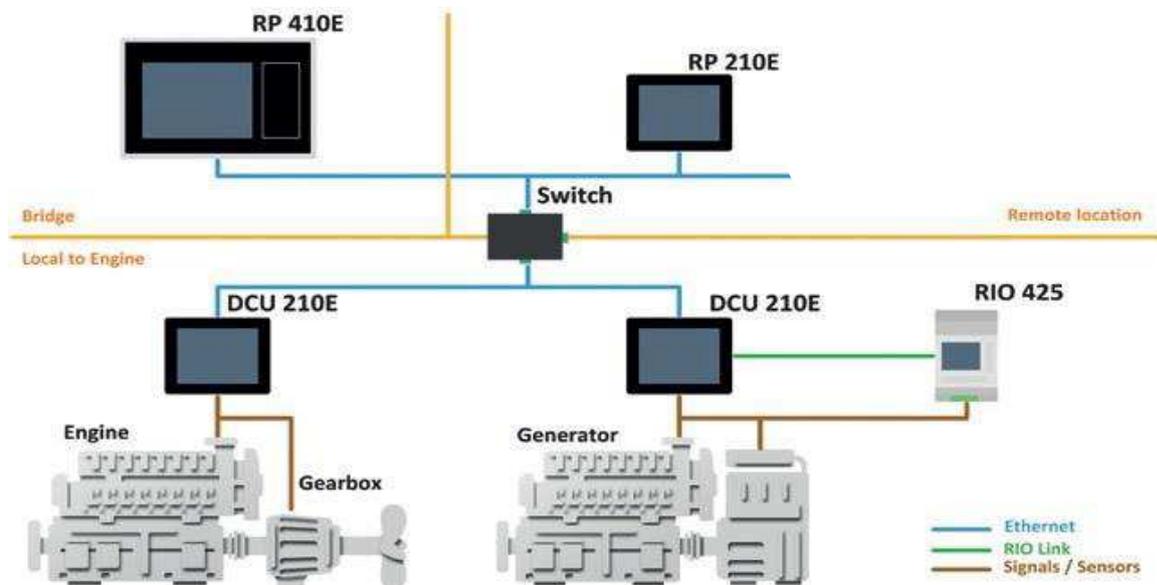


Figure 1: Context Model

### DCU 210E

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

The user controls and monitors the Engine from the color touch screen.

### DCU 208E

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

It saves cost if a remote panel is the only user interface needed.

### Remote Panel

The optional RP remote panel brings everything from the DCU to a remote location. The user interface is the same it is auto configurable by reading the configuration from the DCU.

The RP also supports installation of one IP-camera on the network.

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## Ethernet Switch

An Ethernet Switch is not necessary when connecting only one DCU 210E with one RP 210E. Direct wiring is possible and the 200E series has Auto-Crossover detection.

However, we recommend using an Ethernet Switch to simplify the PC configuration connection and future expansion with remote panels and/or camera interface.

## Expansion

Expand your system with more input/output channels using versatile RIO units (**R**emote **I/O**).

The following RIO units are available:

|         |                                                     |
|---------|-----------------------------------------------------|
| RIO 210 | General I/O for resistive and 0–5V sensors          |
| RIO 216 | Switch Inputs (16 Channels)                         |
| RIO 410 | General I/O expansion for 4–20 mA and PT100 sensors |
| RIO 412 | Exhaust temperature monitoring                      |

## Configuration

Use a Web-browser to setup and configure the DCU.

PC Connection/Setup:

- Connect via Ethernet using a Net Browser
- From the Address Field in the Browser, type the IP-Address. Factory Default is **192.168.0.101**.
- Then log in to the unit. Factory Default Username is '**DCU**' and Factory Default password is '**1234**'.

For further details and information, please see the Configuration Manual.

**Note!** At the first Power-Up the user will be guided through a Setup Wizard:

1. Language selection and your choice is valid through the rest of the procedure.
2. Network settings. Make sure to follow common network configuration practice and take care when several units need to operate within the same network.

## DCU 210E Engine Panel

### Configuration dependency

The behavior of the panel depends somewhat on its configuration.

For instance, the start/stop buttons can be configured either as **latched**, meaning the DCU completes the start/stop cycle once the button is pressed, or **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 210E (not the DCU 208E) uses a touch screen for all user interaction.

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

### Screen navigation and hot-spots

The screen has a few **hot-spot** area predefined for certain functions.

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 (midway) of the screen  |
| Next screen     | Right-hand side (midway) of the screen |

Screen animations will aid the user 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 and selecting the screens.

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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.



## Panel Buttons

The DCU has four buttons for quick access to main functions.

### Home



The small Home button located at the upper right corner always displays the first page of instruments.

**Note!** Long-press (~1 sec) the Home button is a shortcut to the main menu.

### Alarm List



The alarm list button located at the left side of the panel shows the alarm list. Press the button again to leave the alarm list.

### Start Engine



The start button located on the right side of the panel can be configured as *latched* or *hold*. See Start Engine Section for further details.

### Stop Engine



The stop button located at the bottom right side can be configured as *latched* or *hold*. See Stop Engine Section for further details.

## Screen Layout

At the top area of the screen is the **Status Bar**. The left-hand side indicates the Engine Status and the right-hand side is dedicated for Panel Status.



## Status bar symbols

The following symbols may appear in the status bar and 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

To enter this mode the DCU need to be configured as a Combined Harbor/Emergency set.

Channels configured as shutdown will not cause any engine shutdown but indicate with alarms only.

Overspeed is an exception that can't be 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.

Overspeed is an exception that can't be disabled.

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## 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 soft-button Start to start.

The DCU will complete the start sequence.



### 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.



**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.

## 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 soft-button.

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.

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## Alarm List

### Indication

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

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

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

- Yellow: Warning
- Red: Critical Alarm or shutdown

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 14.

## 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 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.

## 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.

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## 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.

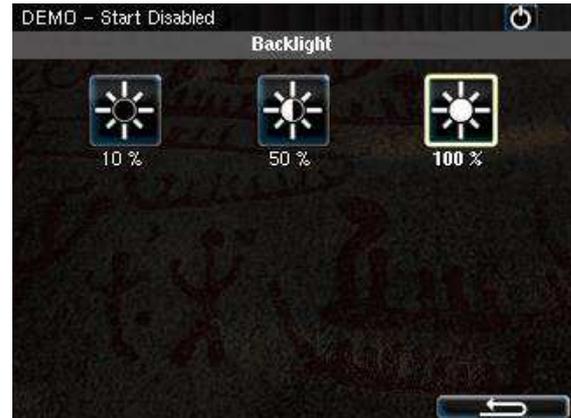
Select an event to see when it first appeared, when it was acknowledged (if applicable for that event) and when it disappeared (again, if applicable).

## 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.

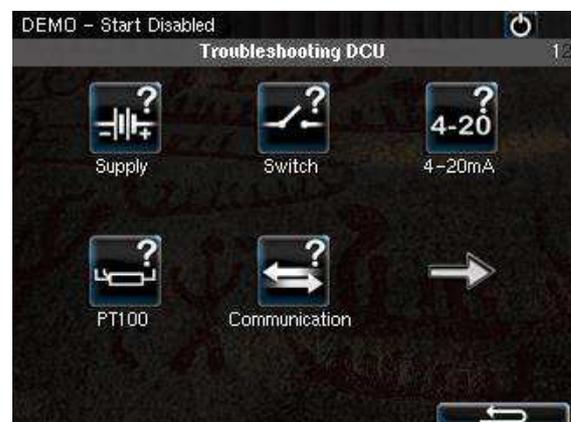


## Help

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

## Troubleshooting

This submenu has troubleshooting information for the panel itself in addition to every RIO expansion unit connected.



Select the icon that represents the area of interest.

## Troubleshooting Diagnostics

Additional CPU related Information; Temperature, Frequency and Load.

## **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.

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## RP 210E Remote Panel

### Introduction

The RP 210E 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 210E can monitor and control one DCU engine panel only.

### Similarities with the DCU 210E

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

### Status bar symbols

In addition to the symbols already mentioned for the DCU the RP has one additional symbol to indicate active station.



This RP is the active station for the connected DCU.

### Menu

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

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 connected engine this RP.

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, send a request to the RP with the current active station status.

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

**Note!** If there is only one RP in the network, it may initially not be the active station. Select it once to store current selection (this will be valid also after reboot).

## Release the Active Station status

The RP can release its Active Station status and make the engine “free” or available 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 210E only.



## 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.

### 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)

| 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

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, e.g. **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!** Active Alarms will stay displayed until they go inactive.