

Repair Manual



MAN-CAN-Monitoring for Marine Diesel engines Common Rail

R 6
V 8
V10
V12



Dear Customer

This manual is intended to help you:

- Familiarise yourself with the components of the MAN Monitoring System
- Recognise the interaction of the individual MAN Monitoring System components
- Install the system correctly in the ship
- Rectify faults and malfunctions

This manual must be read together with publication 51.99598–8128 “Common Rail Diesel Injection System” in conjunction with 51.99598–8133 “MAN Monitoring Diagnostic System (MMDS)”.

This publication was devised under the assumption that its readers will have the necessary basic knowledge of handling and working with marine engines and their electrical systems.

Best regards
MAN Nutzfahrzeuge Aktiengesellschaft
Nuremberg Plant

Since our products are in continuous development, we reserve the right to make technical modifications.

© 2005 MAN Nutzfahrzeuge Aktiengesellschaft
Reprinting, duplication or translation, in whole or in part, are not permitted without the written permission of MAN. MAN reserves all rights accorded by the relevant copyright laws.



Contents

Foreword	1
Safety regulations	4
Analog display units	6
CAN master tachometer	7
Setting options	8
Display System D08-L-CR	17
Performance description	17
Device description	18
Mounting and installation	18
Function	19
Connection diagram:	22
Technical data:	23
MMDS-LC-CAN display system	24
General information on the MMDS-LC-CAN	24
Device construction	25
Mounting and installation	26
Function principle	31
Operation	34
MMDS-CLC 6.3, fitted vertically	42
Introduction	42
Structure of the display unit	43
Structure of the remote control	44
Fitting and installation	45
Connection diagram	47
Operating functions and configuration	48
Technical data	50
Device operation	51
Introduction	51
Control keys	51
Function	52
Alarms	54
Alarm table	55
Menu functions	55
Service page	56
Configuration	58
MMDS-CLC 6.3, fitted horizontally	59
MMDS-CLC 6.3, fitted horizontally, Step 1	59
Device description	59
Introduction	59
Structure of the CLC 6.3 Step 1 display unit	61
Structure of the remote control	62
Fitting and installation	63
Connection diagram	65
Operating functions and configuration	66
Technical data	68

MMDS-CLC 6.3, fitted horizontally, Step 2	65
Intended purpose of the CLC 6.3 Step 2 engine / ship's alarm display	67
Connection diagram CLC 6.3 Step 2	69
Technical data CLC 6.3 Step 2	72
MMDS-CLC 6.3, fitted horizontally, Step 2	66
Device operation	73
Function	74
Alarms	76
Service page	79
Configuration	82
MMDS-CLC 6.3 Step 2 ship's alarm display, operation	83
MMDS-CLC 6.3 Step 2 ship's alarm display, operation	87
Device operation	83
Operating keys	83
Function	84
Graphical display of measured values data	84
Alarms	86
Menu functions	87
Service page	88
Automatic dimming	88
Selection of logo	89
LED displays	89
Analog and binary data capture MMDS-IO12	90
Introduction	90
Structure	90
Function	91
Monitoring	92
Configuration	94
Mounting and installation	95
Technical data	96
MMDS-CMS	97
Introduction	97
Structure	98
Fitting and installation	99
Technical data	101
Function and operation	102
Software description	103
Operation	105
PC-Module	123
Introduction (up to date of manufacture 10/2005)	123
Structure	124
Mounting and installation	125
Connection and commissioning	127
Function/Operation	130
Technical data	132
Faults	132
Index	133

General information on the MMDS-LC-CAN

The MMDS-LC-CAN display and alarm monitor system is a component of the equipment range developed by MAN for monitoring and diagnosing diesel engines.

The device visualises analog engine data and provides visual and acoustic indications of engine alarms. It also provides the user with the possibility to process 11 other binary ship alarms or displays (generators, bilges, nautical alarms, break-in, fire, etc.). All engine data is entered at the factory in the languages German, English, French, Italian and Spanish. The user can also add texts in these languages for the binary inputs that are available for unrestricted use. The desired language can be called up by means of the buttons.

The MMDS LC-CAN unit is connected via a CAN bus system to the MMDS central monitoring and diagnostic unit in the engine terminal box. If an alarm occurs, the built-in buzzer is activated. In addition, a horn and group alarm relay are activated. If required, the operator can use these (luminous call system, telephone system with unmanned ship, etc.).

The display unit has an LCD display with graphic capability measuring 84 mm x 31 mm. Five lines each with 32 characters and character height of 5.2 mm can be shown. The display is backlit and also uses the light around it, ensuring good readability in all lighting conditions.

At the push of a button, the user can call up all the important engine data. Another button is used to display currently active alarms or displays.

**Note:**

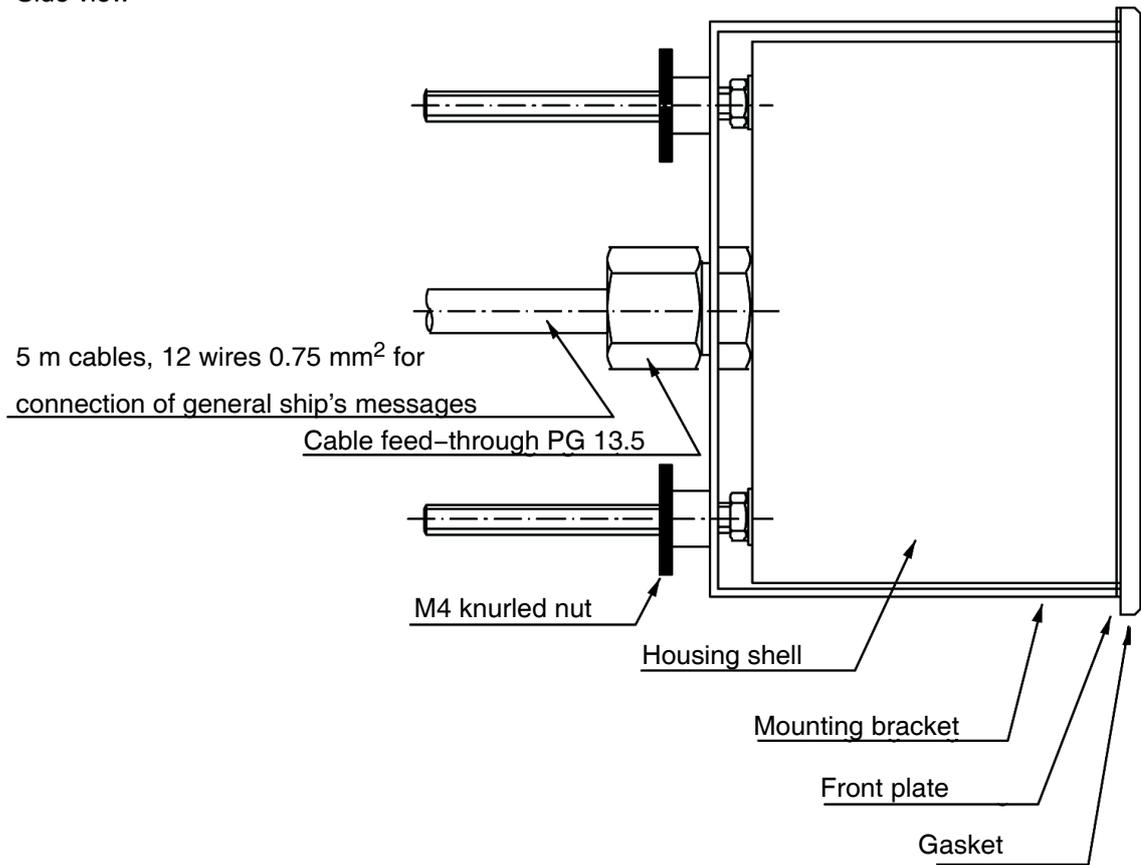
The MMDS-LC-CAN is currently used on D 28-CR-V and in-line engines.

Device construction

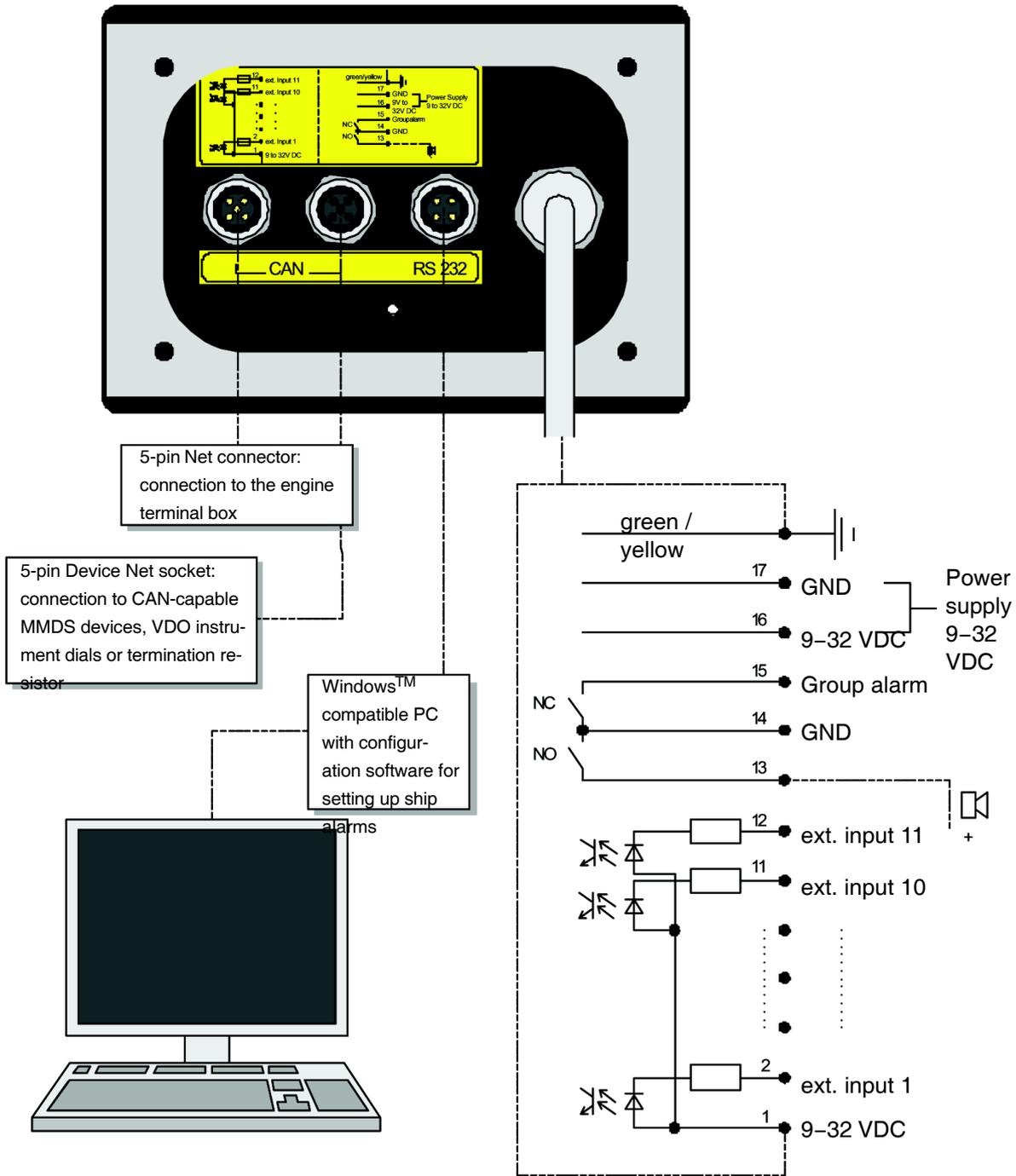
The MMDS-LC-CAN display unit is a built-in control panel unit. It has a front panel made of black anodised aluminium (AlMg1). This is covered with a waterproof and UV-resistant plastic foil. A gasket is fitted in the area between the device and console. This design achieves IP 66 protection at the front. A housing shell made of AlMg1 encloses the electronics at the back. This is pressed against the gasket. The plug connectors and cable feed-through (PG 13.5) achieve IP 54 protection to be applied at the back of the device.

A stable U-shaped aluminium bracket, which is placed over 4 threaded bolts and pressed against the console panel by knurled nuts, provides a firm installation.

Side view



Connection diagram



Main menu (start page)

After switching on the system, the start page is shown first of all. The start page can be called up via the "MAIN MENU" function from any other page. The most important measured values of both engines are summarised here and displayed in large digits. The unacknowledged alarms, as well as the date and time, can be found in the lower section.

Description of function keys for software operation

Area for depiction of port engine measuring points

Area for depiction of starboard engine measuring points



Illustration: start menu

Settings page

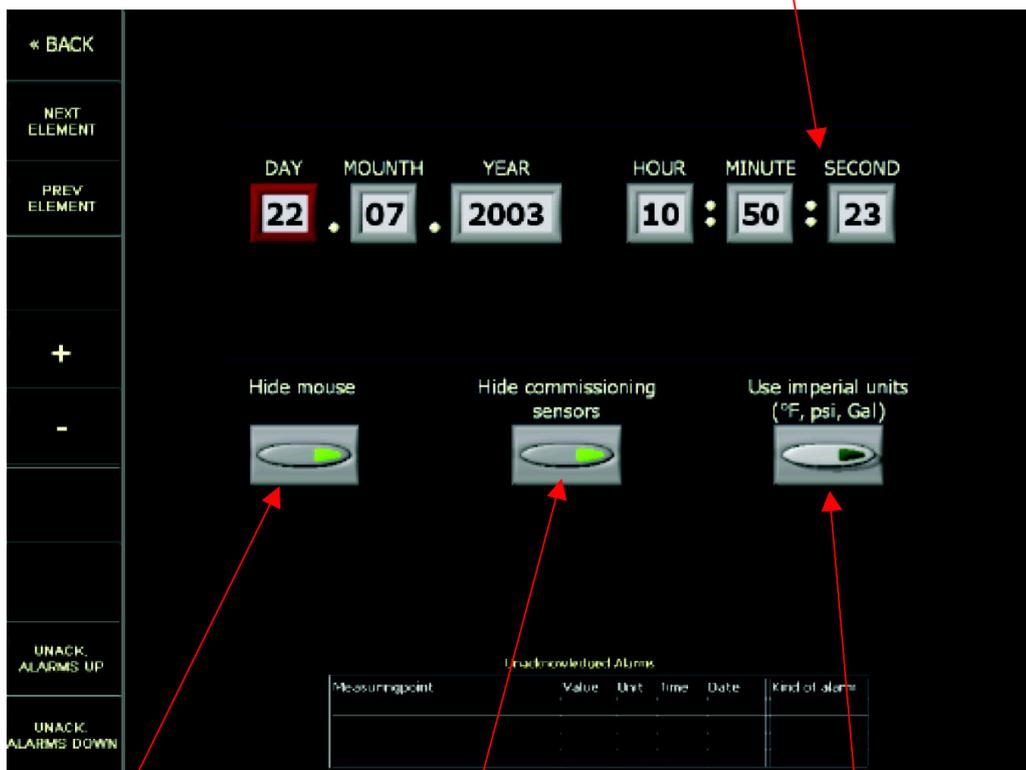
The time and units (metric or imperial system) are set on the settings page. The display of the mouse pointer, as well as the commissioning sensors, can be enabled and disabled here.

This page is only accessible from the “Main Menu” page. Pushing the F7 key opens the settings page.

Values are set using the F5 and F6 function keys. Pushing the F5 (+) key increases the selected value by one; pushing the F6 key (-) reduces the value accordingly. The appropriate key can also be held down to accelerate setting of the time.

The value to be set next is activated with the “NEXT ELEMENT” (F2) button. The “PREV ELEMENT” (F3) button is used to move back one value. The currently selected value is framed in red. Switching back to the main menu page is possible by means of the “BACK” button after completion of the settings. The set values are automatically adopted and stored.

Setting the date and time



Mouse indicator visible/not visible

Showing/hiding commissioning sensors

Changing the unit system

Illustration: settings page

Analog display

This page is opened using the “ANALOG” function. The most important engine and gearbox data is visualised as instrument dials in this display. The battery voltage and current fuel consumption are shown digitally. The unacknowledged alarms, as well as date and time, can be found in the lower section.

Description of function keys for software operation

Area for depiction of port engine measuring points

Area for depiction of star-board engine measuring points



Table of all unacknowledged alarms

Illustration: analog display

Digital display

This page is opened using the “DIGITAL” function. Important engine and gearbox data is shown here as bar displays. This form of representation enables easy evaluation of the registered data, including how far they are away from limit values, as well as their relationship to other values.

Battery voltage, current fuel consumption and total operating hours for both engines are displayed digitally. In a similar way to the other graphical pages, the table with the unacknowledged alarms is located in the lower area.



Illustration: digital display

User-defined display

The user can configure the instrument area as desired in the user-defined display. All instruments can be defined as regards their size and type of representation. Important measuring points can thereby be highlighted visually. The instruments are available in different forms of display. For example, exhaust gas temperatures can be represented as thermometers or instrument dials; the speed can be shown as an instrument dial or meter.

Binary engine alarms are not available in this display. Alarms are, however, listed in the table of unacknowledged alarms, as on all other pages.

Description of function keys for software operation

Configurable area

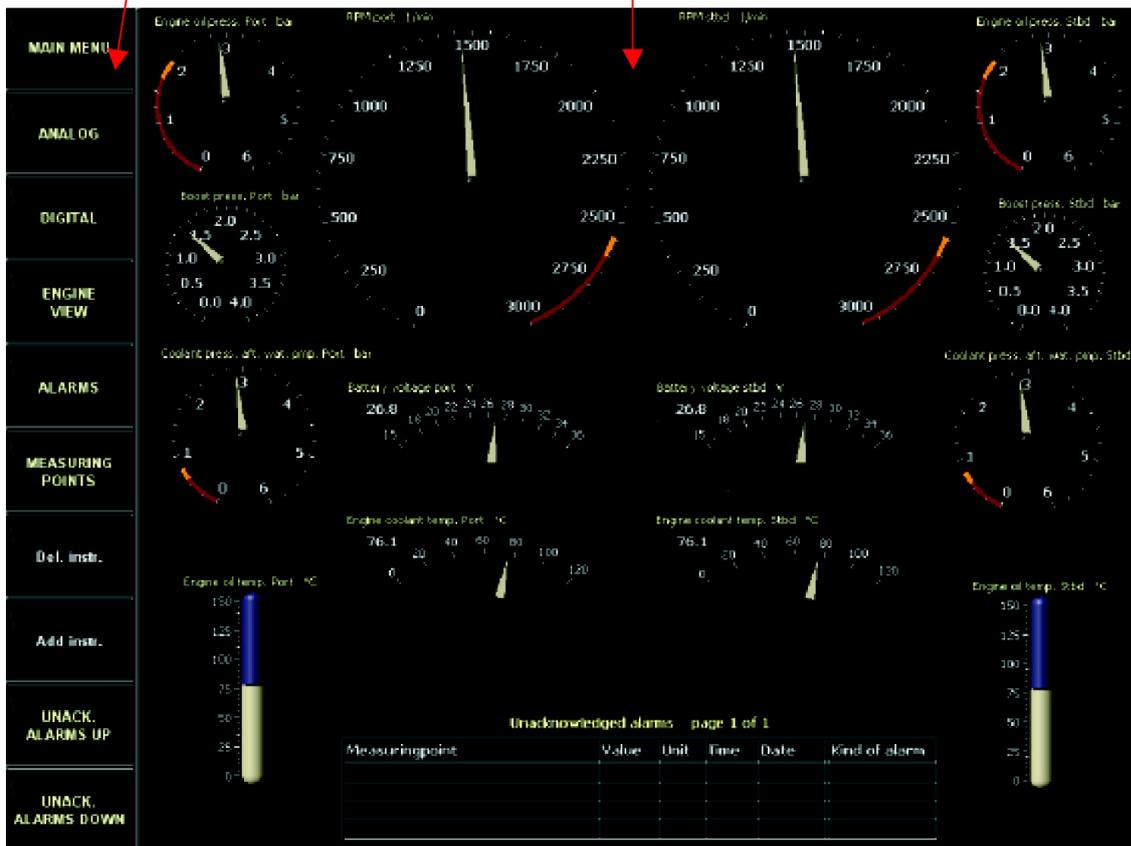


Table of all unacknowledged alarms

Illustration: user-defined display (example)

Configuration of user-defined display

A mouse or trackball and a keyboard must be connected to the MMDS-CMS S compact PC in order to configure this display. To insert or delete an instrument, click on the softkeys to open the selection menu on the softkeys (the F7 and F8 keys are disabled here, as a mouse or another pointer devices is required).

Various instruments are available in this menu for the individual measuring points. Selecting an instrument adds or deletes it.

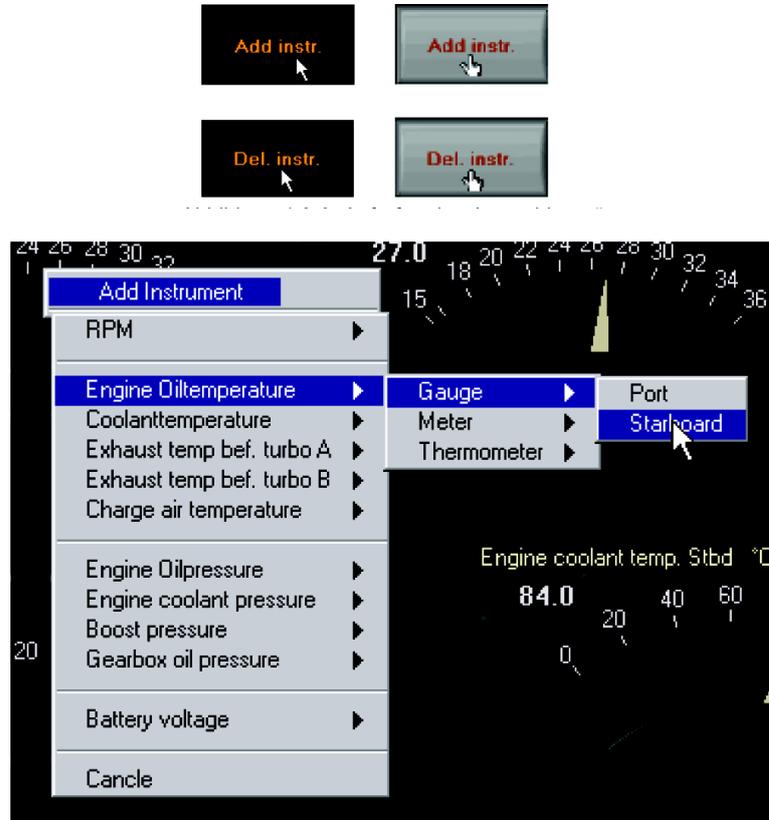


Illustration: opening the selection menu

A mouse click on the point is used to configure an instrument.



Illustration: click points of the individual instruments

To shift an instrument, click to select it and drag with the mouse button pressed (drag and drop).



Illustration: shifting an instrument

The following configuration window appears on clicking an instrument while holding down the [Shift] key. The size of an instrument can be adjusted here between 250 and 400 pixels. To do this, the orange indicator on the scale is dragged with the mouse or the value is entered directly into the adjacent field. The changes are accepted and the configuration window is closed by clicking the "DONE" button.

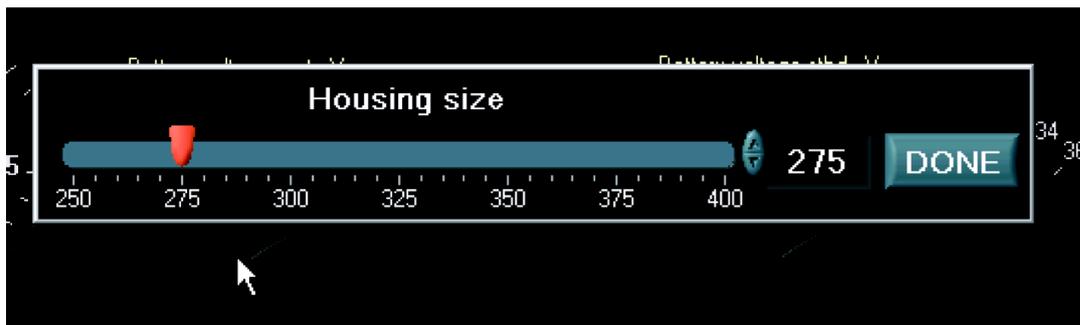


Illustration: the configuration window