SMC
SHIP MOTION CONTROL

SMC-1310
PANEL DISPLAY
USER GUIDE

Notice

The information in this User Guide is subject to change without notice.

Not all the features described in this manual are available in all hardware and firmware versions. Please check with SMC for details of model specific features such as measurement parameters and Protocol support.

SMC Ship Motion Control is not responsible for any errors in this manual or their consequences.

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TABLE OF CONTENTS

1 INTRODUCTION

The SMC-1310 Panel Display is a reliable and cost effective way to process, log and display data from Motion Reference Units and/or Weather sensors.
The SMC-1310 can receive data on multiple serial RS232, RS422, RS485 ports and over ethernet. The panel display accepts data in NMEA formats and many proprietary formats.
Data can be transmitted from the display to another receiving device, via serial or ethernet using the external output.
The data received can be displayed in one of the SMCs Monitoring System applications for graphical presentation and data logging.

The SMC-1310 is intended to be used in indoor applications.

1.1 RECEIVING THE DISPLAY

Unpack the equipment and remove all the packaging materials and shipping carton.

The SMC-1310 Display is delivered in a cardboard box designed to protect it from damage during transit.

When the Panel Display has been received, it must be inspected for damage during shipment. If damage has occurred during transit, all the shipping cartons and packaging materials should be stored for further investigation. If damage is visible, a claim for shipping damage must be filed immediately.

Standard Delivered Items

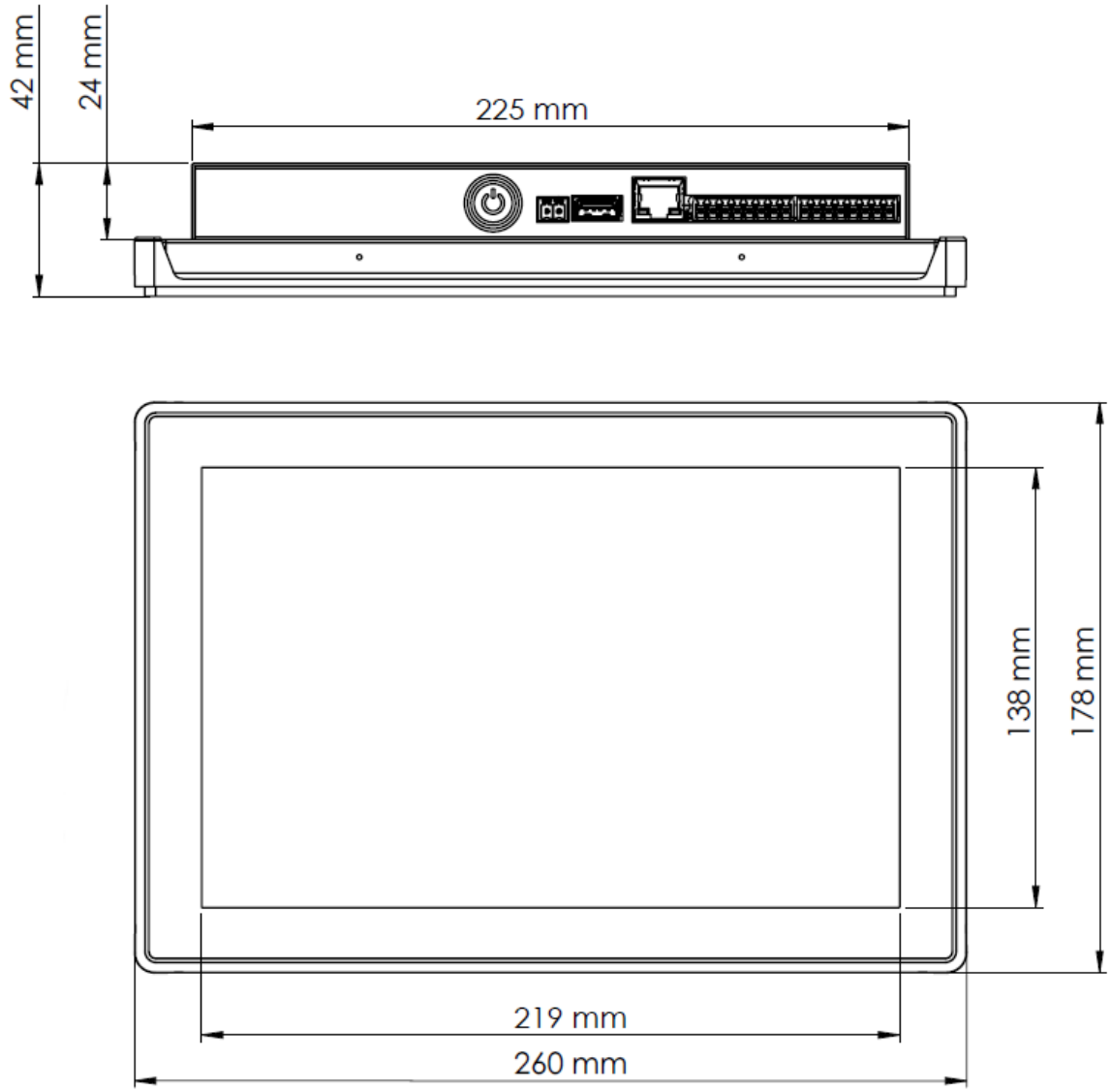
- Display Panel
- USB memory
- Cable Connectors

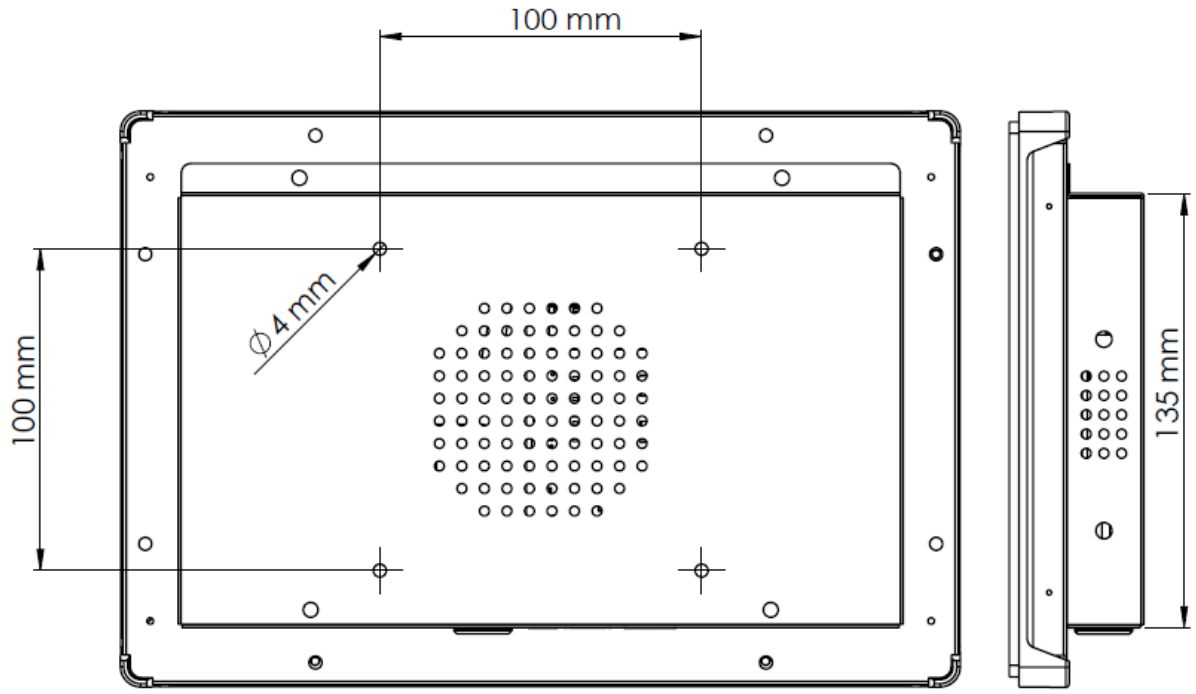
Optional Items

- VESA mount
- Power adapter

1.2 SMC-1310 DIMENSIONS

All dimensions are in mm





Rear view showing VESA mounting holes.

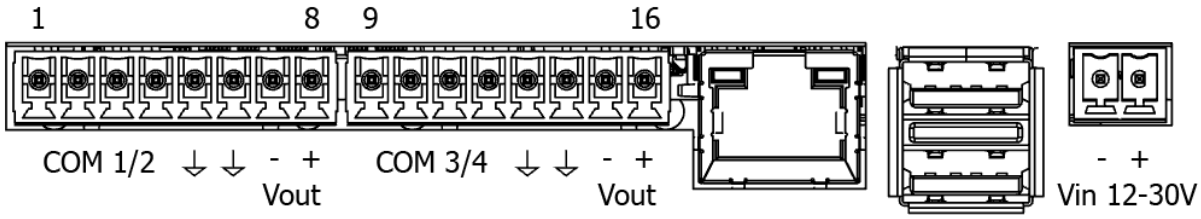
1.3 INSTALLATION

SMC highly recommend that the SMC-1310 Data Display is attached to a wall or suitable surface using a VESA compatible mounting.
The VESA spacing is 100 x 100 mm
The Panel PC should not be mounted outside.

1.3.1 INSTALLATION LOCATION RECOMMENDATIONS

Install the SMC-1310 Data Display in an area with free air flow. The SMC-1310 is a fanless device and the air need to be able to circulate through the ventilation holes in the case.
Avoid positioning the display sensor in direct sunlight. Where possible the display should be mounted away from heat sources.

1.4 ELECTRICAL & DATA CONNECTION



The underside of the display has several connectors.
2 x 8 pin data connection, phoenix style terminal blocks
1 x RJ45 Ethernet
1 x USB for external devices
1 x USB acting as a service port
1 x 2 pin DC power, terminal block

Starting from left

8 Pin terminal connectors

Pin	Terminal function	Details
1 & 9	Serial	Setting dependable, see below tables
2 & 10	Serial	Setting dependable, see below tables
3 & 11	Serial	Setting dependable, see below tables
4 & 12	Serial	Setting dependable, see below tables
5 & 13	Signal Ground	
6 & 14	Signal Ground	
7 & 15	VDC - Output	Power **output** 12…24 VDC for instrument
8 & 16	VDC+ Output	Power **output** 12…24 VDC for instrument

RJ45 connector

The RJ45 connector is a 10/100mbit type used for system remote access and ethernet communication with the Panel Display. The RJ45 can be set to static mode or to DHCP

USB Connector

The top USB connector can be used to connect external devices for expansion, as for example USB to serial ports.
The bottom USB connector is used as a service port and for software updates

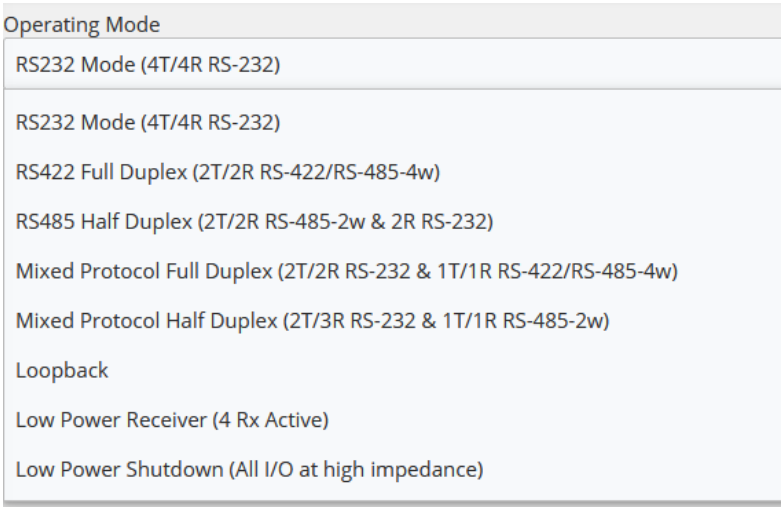
2 Pin terminal connector

Pin	Terminal function	Details
7 & 15	VDC - Input	Power **Input** 12…24 VDC
8 & 16	VDC+ Input	Power **Input** 12…24 VDC

Refer to the tables in the *Connecting a device* section below for the position of the power and data wire connections for each communication protocol operating mode, RS232, RS422 and RS485.

1.5 OPERATING MODES

The SMC-1310 has several serial operating modes.
To access the menu, click on the SMC logo > System > UART > Quad UART RS-232/RS-485 Controller.
Click on Edit to select the mode from the drop down menu shown below.



1.6 SERIAL PORT TERMINALS

The following selections can be made for the serial inputs and outputs, any of

Note:
Each table below has eight columns representing the eight terminals of each physical connector.

RS232 mode (4T/4R RS-232)

Position 1 … 8

COM1 RS232 TxD	COM1 RS232 RxD	COM2 RS232 TxD	COM2 RS232 RxD	Signal GND	Signal GND	VDC-	VDC+

Position 9 … 16

COM3 RS232 TxD	COM3 RS232 RxD	COM4 RS232 TxD	COM4 RS232 RxD	Signal GND	Signal GND	VDC-	VDC+

RS422 full duplex (2T/2R RS-422/RS-485-4w)

Position 1 … 8

COM1 RS422 Tx+	COM1 RS422 Rx+	COM1 RS422 Tx-	COM1 RS422 Rx-	Signal GND	Signal GND	VDC-	VDC+

Position 9 … 16

COM3 RS422 Tx+	COM3 RS422 Rx+	COM3 RS422 Tx-	COM3 RS422 Rx-	Signal GND	Signal GND	VDC-	VDC+

RS485 half duplex (2T/2R RS-485 & 2R RS-232)

Position 1 … 8

COM1 485 Data+		COM1 485 Data-	COM2 RS232Rx	Signal GND	Signal GND	VDC-	VDC+

Position 9 … 16

COM3 485 Data+		COM3 485 Data-	COM4 RS232 Rx	Signal GND	Signal GND	VDC-	VDC+

Mixed Protocol Full Duplex (2T/2R RS-232 & 1T/1R RS422/RS485-4w)

Position 1 … 8

COM1 RS232 TxD	COM1 RS232 RxD	COM2 RS232 TxD	COM2 RS232 RxD	Signal GND	Signal GND	VDC-	VDC+

Position 9 … 16

COM3 RS422 Tx+	COM3 RS422 Rx+	COM3 RS422 Tx-	COM3 RS422 Rx-	Signal GND	Signal GND	VDC-	VDC+

Mixed Protocol half Duplex (2T/3R RS-232 & 1T/1R RS485)

Position 1 … 8

COM1 RS232 TxD	COM1 RS232 RxD	COM2 RS232 TxD	COM2 RS232 RxD	Signal GND	Signal GND	VDC-	VDC+

Position 9 … 16

COM3 485 Data+		COM3 485 Data-	COM4 RS232 Rx	Signal GND	Signal GND	VDC-	VDC+

The attached device can also take its operating power from the terminal if required.
The operating power matches the input voltage. If the Panel Display operating power is 12VDC, the voltage output supplied at the device connectors will be 12VDC.

1.6.1 DATA OUTPUT FORMATS

The SMC-1310 supports data output over serial and ethernet TCP or UDP, Modbus, SNMP and TCP.

The Serial and Ethernet string output can be formatted using predefined NMEA style data sentences as below examples. Or by the user defining its own output strings

MWV	Wind speed and angle
HDM	Heading magnetic
HDT	Heading true
XDR	Transducer measurement
XDR	Weather station message
GLL	Geographic position, latitude / longitude

Note, each of the above has a two letter identifier than can be user defined, for example *WI*XDR.

2 MAINTENANCE

Cleaning
Clean the display with a soft cloth, any chemical cleaner may damage the display and void any warranty.

3 SERVICE AND WARRANTY

All products are inspected prior to shipment and SMC manufactured products are guaranteed against defective material or workmanship for a period of two (2) calendar years after delivery date of purchase.

SMC liabilities are limited to repair, replacement, or refund of the factory quoted price (SMC's option). SMC must be notified and provided with sufficient time to remedy any product deficiencies that require factory attention. This time period may include but is not limited to standard production lead times, travel time and raw material lead times. SMC will not be responsible for any charges related to repair, installation, removal, re-installation, or any actual, incidental, liquidated, or consequential damages. All claims by the buyer must be made in writing. All orders returned to SMC must have an issued RMA number supplied by the SMC prior to shipment. Only SMC shall have the authority to issue RMA numbers.

Any products manufactured by others supplied with and/or installed with SMC's products are covered by the original manufacturers' warranty and are excluded from SMC's warranty

SMC manufactured product must be sent to SMC for repair or replacement.

Please read the SMC Ship Motion Control terms and conditions for complete information.

3.1.1 LIABILITY

SMC shall have no liability under the warranties in respect of any defect in the Products arising from: specifications or materials supplied by the Buyer; fair wear and tear; wilful damage or negligence of the Buyer or its employees or agents; abnormal working conditions at the Buyer's premises; failure to follow SMC's instructions (whether oral or in writing); misuse or alteration or repair of the Products without SMC's approval; or if the total price for the Products has not been paid.

SMC shall in no event be liable for any indirect or consequential, or punitive damages or cost of any kind from any cause arising out of the sale, use or inability to use any product, including without limitation, loss of profits, goodwill or business interruption. In case of failure in the product the

company is not liable to compensate the buyer with anything exceeding the cost of the product sold by SMC.

The exclusion of liability in these Terms & Conditions shall not apply in respect of death or personal injury caused by SMC's negligence.

SMC shall not be bound by any representations or statements on the part of its employees or agents, whether oral or in writing, including errors made in catalogues and other promotional materials.

Please read the SMC Ship Motion Control terms and conditions for complete information.

3.1.2 RESTRICTION OF WARRANTY

The warranty does not cover malfunction of the sensor generated from

- If the sensor case has been opened by the customer in an attempt to carry out repair work
- If the sensor has been fed with an over voltage in the power supply wires or the signal wires

The sensor electronics are shielded in a case of UV protected ABS plastic with O ring seals to prevent damage from moisture.
The sensor should not be opened as this could affect the warranty on the unit. All operations inside the sensor must be carried out by SMC personnel.

3.2 TECHNICAL SUPPORT

If you experience any problem, or you have a question regarding your sensor please contact your local agents or SMC directly.

Refer to the SMC website at https://www.shipmotion.eu/

Please have the following information available

- Equipment Model Number
- Equipment Serial Number
- Fault Description

Worldwide Service contact
Telephone: +46 8 644 50 10 (CET 8am – 5pm)
E-mail: support@shipmotion.eu

Return Procedure

If this is not possible to solve the problem a Ship Motion Control technician will issue a Return Material Authorization Number (RMA#). Please be ready to provide the following information.

- Name
- Address
- Telephone, E-mail
- Equipment Model Number
- Equipment Serial Number
- Installation Date

If the Sensor is under warranty, repairs are free.

Pack the sensor in its original packaging, or suitable heavy packaging.
Mark the RMA# on the outside of the package
Return the Sensor, prepaid carrier to SMC

4 TECHNICAL SPECIFICATIONS SMC-1310

System	Processor	ARM based processor
	Operating System	Linux
	Storage	8 GB
	RAM	2 GB
	Display size	10.1 inch
	Brightness	800 cd/m2
	Aspect Ratio	16:10
	Resolution	1280x800
	Viewing angle	89 degrees
	Touch Type	Capacitive
	Mounting	VESA 75x75mm
Communication	User configurable serial inputs. 2xRS232 or 2x RS422/RS485 USB A for data export Ethernet	
External output	Serial, Ethernet, SNMP, MODBUS TCP/RTU	
Physical	Housing Material UV resistant ABS plastic Dimensions (W x H x D) 260 x 178 x 42mm Weight 1.2 kg Terminal and PSU connectors included	
Environmental	Operating Temperature 0° to +50° Celsius MTBF (computed) 50 000 hours IP22	
Electrical	Power requirements 12 - 36 VDC Power consumption 20W Complies with the IEC 60945	
Warranty & Support	2-year Limited Hardware & Software Warranty Free Technical & Hardware support	

5 FAQ AND SUPPORT

If no communication is seen or bad data is displayed, please refer to the FAQs below which cover the most common configuration problems.

Is the attached device sending data over RS232, RS422 or RS485?

Check which serial mode your sensor has been designed or configured for, RS422, RS232 or RS485. The receiving comport on the SMC Display must match the sending data.

Check the wiring as per the Manufacturers guide to see which output is being used.

Data is being received but is either seen as bad data or wrong data.

Verify that there is a signal ground connected for RS232, if not the data would not be readable.

Are the cables connected correctly, Note: RS422 uses a cross over Tx+ to Rx+, Tx- to Rx- etc.

Check the wiring continuity through to the sensor.