

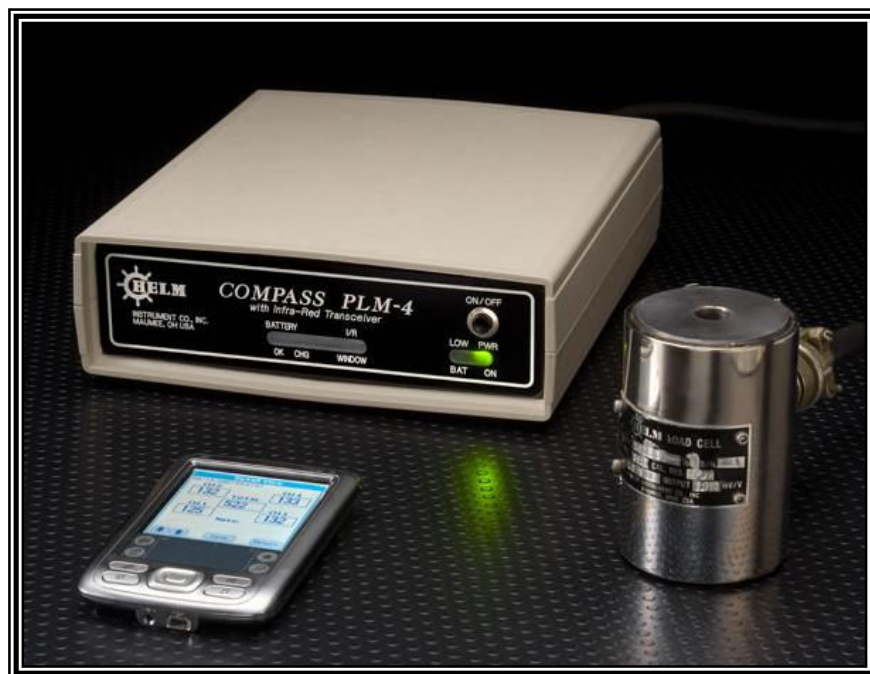


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COMPASS PLM-4-BT

Bluetooth

USER MANUAL



Rev. 1.2

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I. OVERVIEW

The Helm model “Compass PLM-4-BT” Bluetooth unit is a portable four channel strain gage signal conditioner, that displays peak force and waveforms on PC computer (Laptop or Desktop) via Bluetooth communications with USB Bluetooth adapter included.

A. Features:

1. The front of the unit contains the following :
 - a. On-off switch
 - b. Battery status indicator L.E.D.'s
 - c. Power status L.E.D.'s
 - d. Infra-red transmit / receive window.
2. The rear of the unit contains the:
 - a. External charging jack
 - b. Four 7-pin amphenol connectors for sensor inputs
 - c. Chassis ground post

B. Connection of Strain Gages:

1. Looking at the rear of the unit, from left to right, the sensor inputs are: Ch.1, Ch.2, Ch.3 & Ch.4.
2. The wiring code for each channel is: Pin-a (+)gage, Pin-b (-)gage, Pin-c(+)signal, Pin-d(-) signal, Pin-g shield.

C. Charging the Unit

1. Plug-in the supplied 9vdc AC adapter to the charging jack on the rear of the enclosure.
2. Approximate charging time is (4) hours from the “Low” state.
3. During charging, the “Battery OK” and the “Battery CHG” L.E.D.'s will come on.
4. When the unit is full charged, the “Battery CHG” L.E.D. will go out.
5. If the “Low Bat” L.E.D. comes on during operation, stop use immediately and charge the unit.

D. Location of PC with Bluetooth USB Adapter

1. PC (Notebook PC) can be located any place within 100 feet from the Compass PLM4- BT unit in a line of sight.

II. INSTALLING Bluetooth USB Adaptor Driver and Mariner CompassPLM4 Software

1. Installing Bluetooth USB Adapter



2. USB Driver Installation

Windows XP and later versions already include the USB driver. When Windows asks for the location of the USB driver, you can select the option to “install the software automatically” as shown in Figure 2-3.

If the driver is not installed correctly for some reason, you can also install the driver after downloading the driver from <http://www.ftdichip.com/Drivers/VCP.htm>.

Supported operating systems are as follows:

Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7, Windows Server 2008 R2.

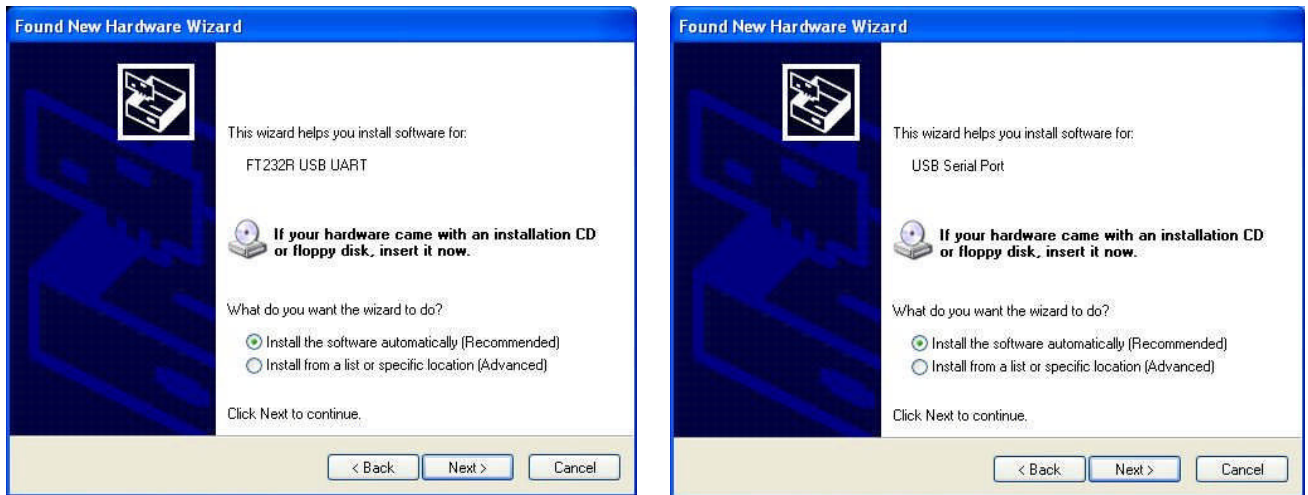


Figure 2-3 USB Driver Installation

3. Virtual Serial Port

The Bluetooth USB adapter connected creates a virtual serial port. It is possible to check the available serial port at the Device Manager of the Panel as shown in Figure 2-4.

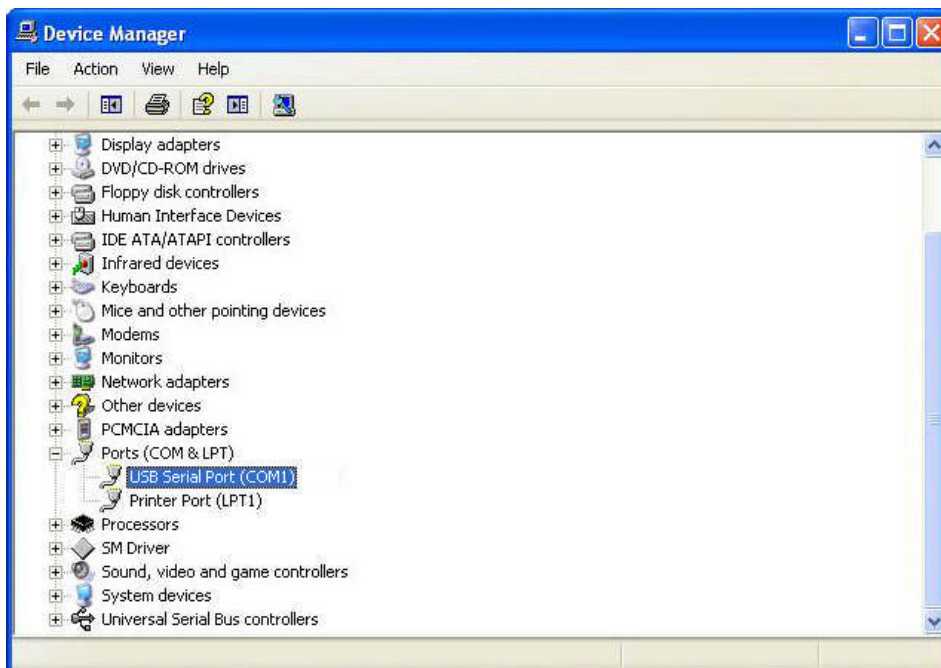


Figure 2-4 USB Serial Port

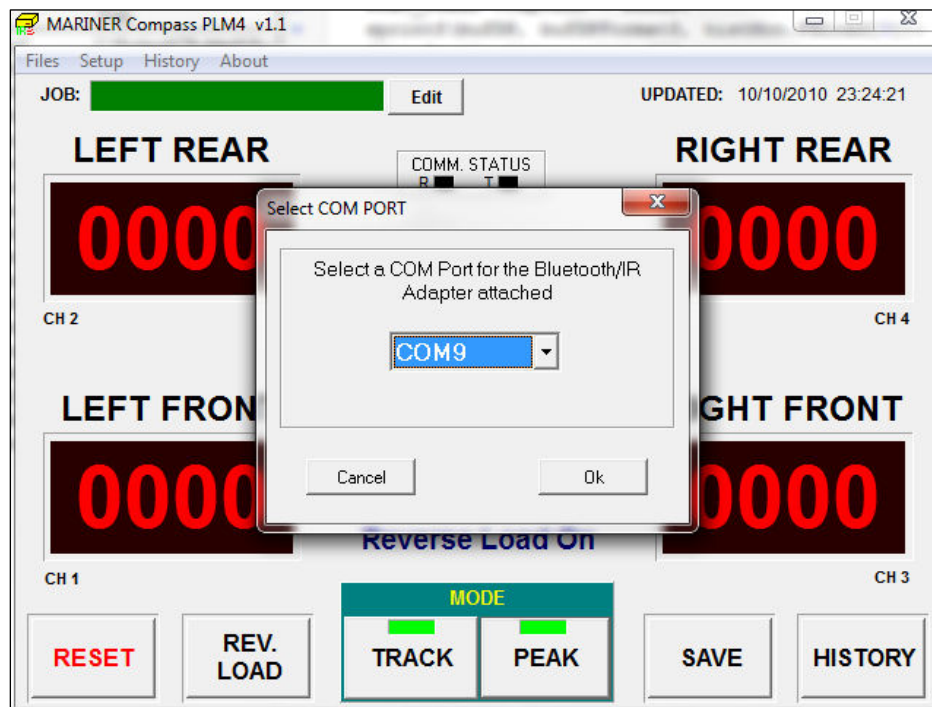
USB Bluetooth adapter is already configured for your Compass PLM4 unit. As soon as the Compass PLM4 unit is powered on, the Adapter will start to communicate with the Compass PLM4 unit. If you have replaced the USB Bluetooth adapter or are making new wireless connection with a different Compass PLM4 unit, please contact Helm Instrument for further instruction.

4. Installing Mariner CP for Compass PLM4.

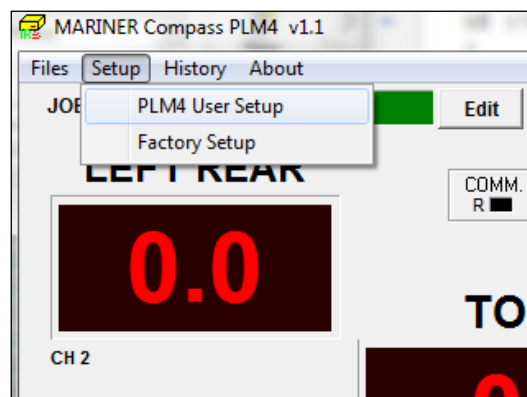
Run MarinerCP Setup.exe from setup CD and follow the instruction.

III. Starting Compass PLM4 software

1. Start Mariner Compass PLM4 and select a COM port number where Adapter is using. Typically you can select the one shown on the screen.



2. SETTING UP for Load Cell connected



From the main screen, click on Setup menu and select PLM4 User Setup to go to Setup screen.

A. Entering "Scale" value:

The screenshot shows the 'PLM4 User Setup' window. It features a 'Scale Set' section with four channels (Ch1 to Ch4). Each channel has a 'Scale' input field and a 'mV/V' output field. Ch1 has a scale of 200 and mV/V of 2.000. Ch2 has a scale of 100 and mV/V of 2.000, with an 'OFF' button next to it. Ch3 has a scale of 200 and mV/V of 2.000, with an 'OFF' button next to it. Ch4 has a scale of 200 and mV/V of 2.000, with an 'OFF' button next to it. To the right of the scale settings is a 'SYNC COUNTER' displaying '44323'. Below the scale settings is a 'HIGH SPEED OPTION' checkbox which is unchecked. Below that is a 'Peak Look Window Time' section with a '1000' msec input. To the right of the peak look window time is a 'Channel Select' section with buttons for CH1, CH2, CH3, and CH4. Below the channel select buttons is a green display showing '-0.7'. Below the green display is a 'Zero Balance:' section with 'ON' and 'OFF' buttons. At the bottom left is a 'Scale Multiplier' section with 'Scale x' and buttons for '1', '0.1', and '0.01'. At the bottom left of the window is a red 'EDIT OFF' button and an 'Edit' button. At the bottom right are 'Save' and 'Close' buttons.

Channel	Scale	mV/V	OFF
Ch1:	200	2.000	
Ch2:	100	2.000	OFF
Ch3:	200	2.000	OFF
Ch4:	200	2.000	OFF

Mode: Cal

Channel Select: CH1 CH2 CH3 CH4

Zero Balance: ON OFF

Scale Multiplier: Scale x 1 0.1 0.01

Peak Look Window Time: 1000 msec

EDIT OFF

Edit Save Close

1. Select "Edit" to allow set-up.
2. On Scale Set, enter the capacity of the load cell x Decimal multiplier for each channel connected. The Scale Multiplier and Decimal Multiplier work together as shown below. Enter 0 for the channel that has no load cell connected or you can simply click "Off" button to zero the scale setting. If you are not using Decimal point option, then just enter load cell capacity as the scale

Scale Multiplier	Decimal Multiplier
1	1
0.1	10
0.01	100

Important Note:

If you are using Decimal point option, you must multiply the load cell capacity by the Decimal multiplier for scale setting. For example, if the load cell capacity is 50 tons and you selected 0.1 for Scale Multiplier to show one below decimal point of the tonnage reading, then the scale value you need to enter is $50 \times 10 = 500$ for scale setting instead of 50.

3. Click "Save" to store what you have changed so far and click "Edit" button again to continue making other changes. Or, just continue to next parameters and click save when all changes have been made at the end.

B. Entering a "mV/V" value:

If not in Edit mode, click "Edit" to enter in Edit mode mode. Enter a "mV/V" value for each load cell connected. The mV/V value is stamped on the tag of the load cell.

EXAMPLE: "2.036" mV/V - as you enter this value, you will need to enter the decimal point as it is shown on the tag. Select "Save", then "Edit" for the rest of the load cells.

C. Zero Balancing the Channel:

Select Zero "On" to balance Ch. 1 to zero. Wait for the value in the window to go to zero. When at zero, click "Off". Then select "Save" again.

The above procedure (Steps 3 thru 7) must be repeated for each channel that has a load cell connected to it. Start with Ch. 2 now, by selecting "Edit" again.

Finish the set-up for all channels by selecting "Return". Touch "Reset". Unit is now in peak mode and ready to register a dynamic reading.

D. Peak Look Window, Initial Setting:

Enter a Look Window Time in mille second. Window time should be set long enough to cover entire loading period when the load cell is in contact with upper slide. Set 500 msec to start with and check load signature and adjust accordingly.

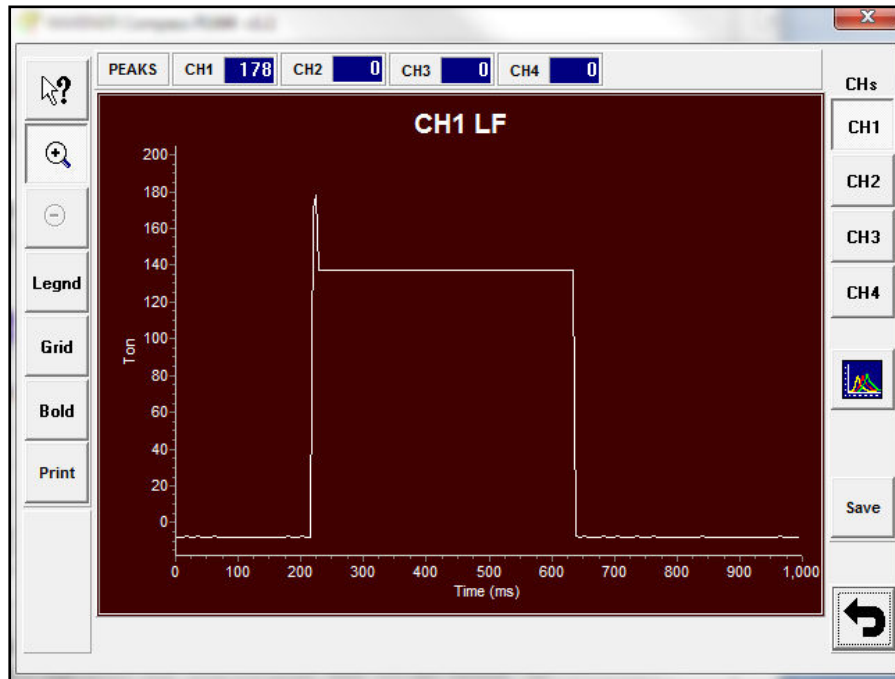
E. High Speed - 2Ch Mode (HS):


Enable High Speed mode by checking **HS** option If the machine cycle speed exceeds 200SPM. In High Speed mode, Compass PLM4 becomes only a two channel instrument. Channel 3 and 4 get disabled.

IV. VIEWING AND STORING FORCE SIGNATURES

A. Viewing and Saving Current Tonnage Signature

1. Clicking on any tonnage reading while in peak mode will display the force signature for the selected channel.

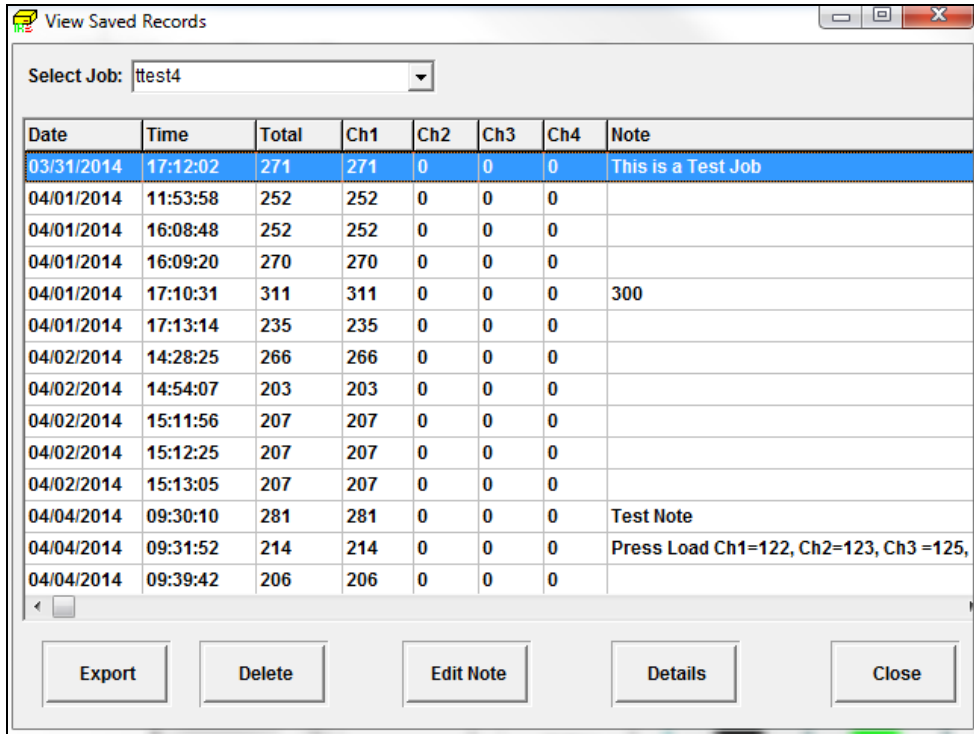


2. Click  button and select the channel to overlay together, and window will display a composite view of all of the selected channel's signatures overlaid on the screen.
3. To store the force signature, click Save button.

*Note: If you save new captured tonnage data from the Main screen without viewing the force signature first, only the peak data will get stored. To insure the storage of captured tonnage signature data, always click save button from any Signature Screen.

B. Viewing Stored Tonnage and Signature Data:

1. From the main tonnage screen, click on History button to view saved tonnage data records”.



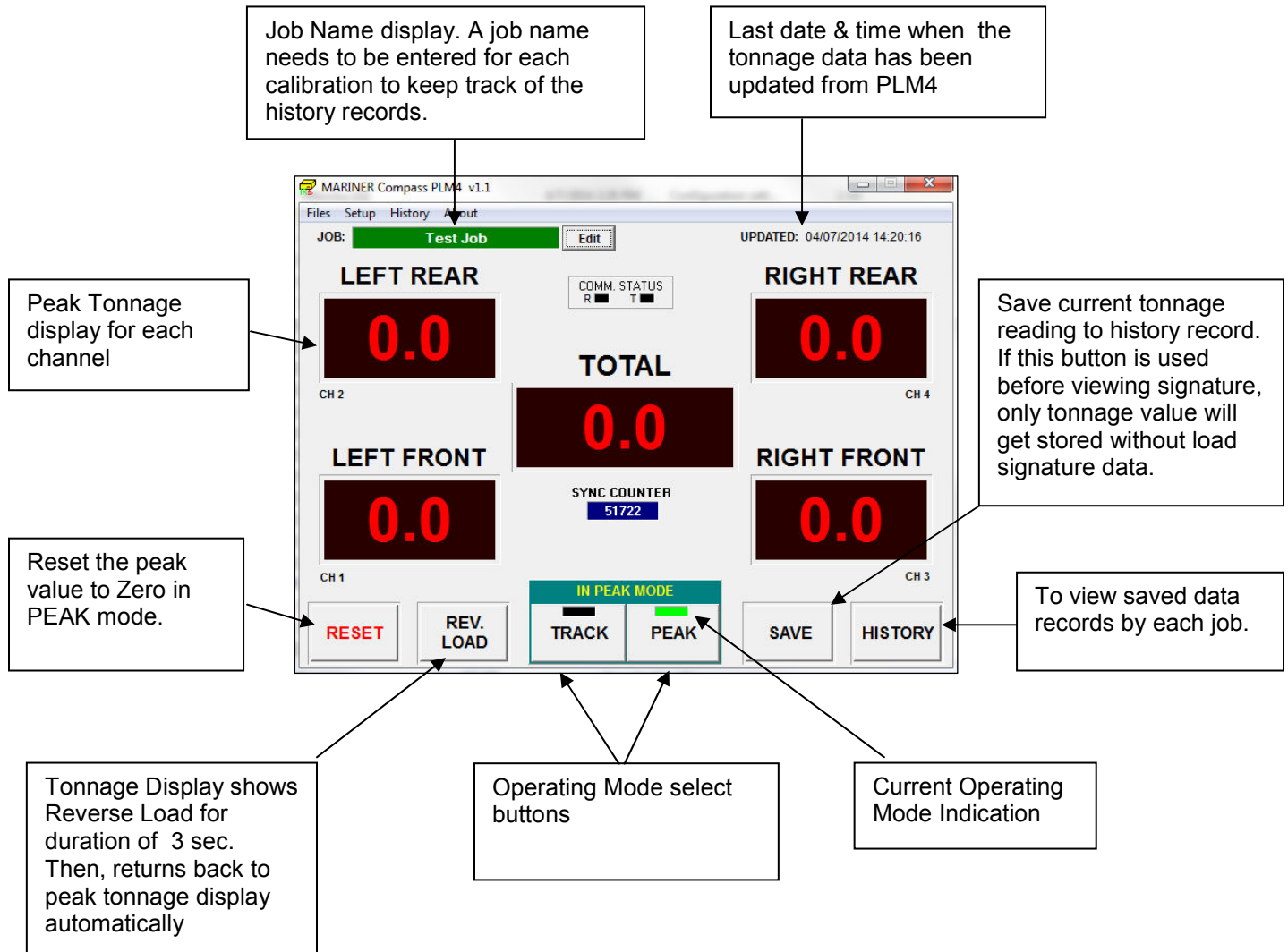
The screenshot shows a window titled "View Saved Records" with a dropdown menu set to "ttest4". Below the menu is a table with columns: Date, Time, Total, Ch1, Ch2, Ch3, Ch4, and Note. The table contains 15 rows of data. The first row is highlighted in blue. At the bottom of the window are five buttons: Export, Delete, Edit Note, Details, and Close.

Date	Time	Total	Ch1	Ch2	Ch3	Ch4	Note
03/31/2014	17:12:02	271	271	0	0	0	This is a Test Job
04/01/2014	11:53:58	252	252	0	0	0	
04/01/2014	16:08:48	252	252	0	0	0	
04/01/2014	16:09:20	270	270	0	0	0	
04/01/2014	17:10:31	311	311	0	0	0	300
04/01/2014	17:13:14	235	235	0	0	0	
04/02/2014	14:28:25	266	266	0	0	0	
04/02/2014	14:54:07	203	203	0	0	0	
04/02/2014	15:11:56	207	207	0	0	0	
04/02/2014	15:12:25	207	207	0	0	0	
04/02/2014	15:13:05	207	207	0	0	0	
04/04/2014	09:30:10	281	281	0	0	0	Test Note
04/04/2014	09:31:52	214	214	0	0	0	Press Load Ch1=122, Ch2=123, Ch3 =125,
04/04/2014	09:39:42	206	206	0	0	0	

4. Select a job you want to view from the drop down list. This list shows all the jobs created and stored.
5. Each line of stored data shows the date & time when the data was captured, tonnage value for each channel and total tonnage, and the note added when captured by user for the selected job.
6. Double click on a record or click Details button to bring up the signature screen for the selected record.
7. Use Delete button to delete any unnecessary record. Click Edit Note button to change the note description for the selected job.

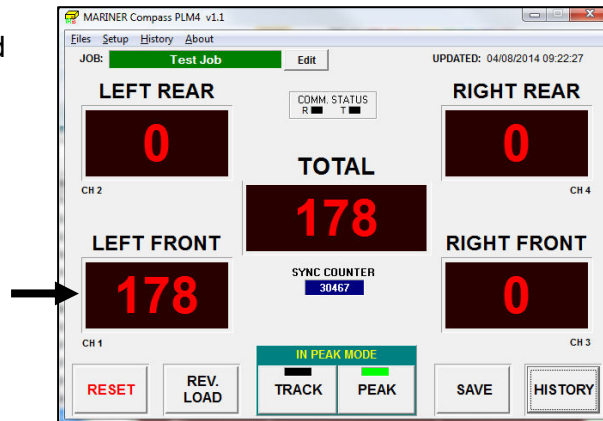
COMPASS PLM-4 SOFTWARE SCREEN REFERENCE

Main Screen

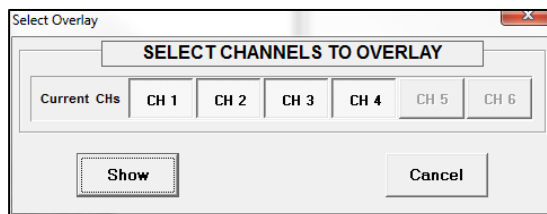
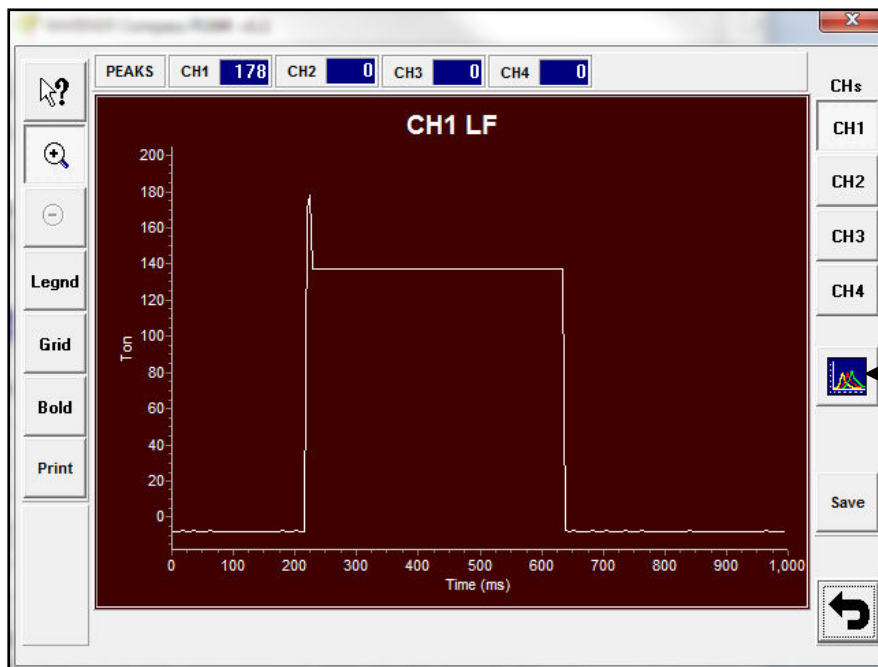


2. Signature Display

From Main screen, click on one of the load displays to access signature screen

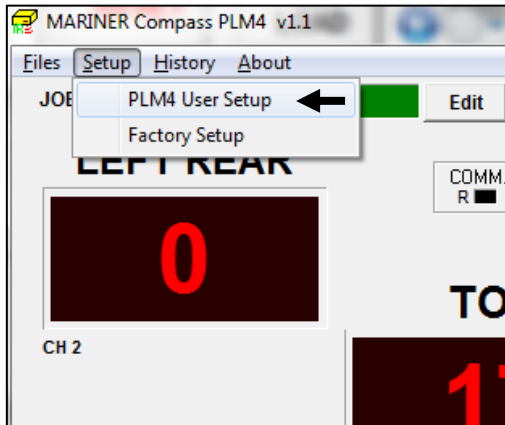


This screen shows the current captured load signature of the selected channel. Click Save button to save current signature data to History records which you can retrieve and view later from View Saved Records screen.



Click Overlay button to overlay between channels signature data. Selected channels signature(s) will show on top of each other in one screen.

4. PLM Setup Screen



When you connect new load cells to the Compass PLM4, you need to set up the Compass PLM4 with proper parameters for each load cell connected in PLM4 User Setup screen.

PLM4 User Setup screen allows you to enter scale (Capacity) values and mV/V values for each load cell, adjust Look Window time, and zero the balance for the load cell connected. Before you make any changes to the settings, make sure to enable the "Edit" mode by clicking on "Edit" button.

Enter Capacity of the load cell for the connected channel. If you are using Decimal point option, the value must be multiplied by the Dec Multiplier

High Speed (2Ch) Mode

Enter mV/V value for each load cell connected.

Select decimal point to be shown on the peak reading. Make sure to multiply the scale setting with the multiplier
DEC 1 = 1
DEC 0.1 = 10
DEC 0.01 = 100

1. Click this button to enable Edit mode to make any changes on settings.

Click Off button to clear the scale value to 0. This button simply sets the scale to 0, to turn off the channel(s) when a load cell is not connected for the channel.

Select a channel number you wish to zero the balance.

Enter a Look Window Time in milliseconds. Window time should be set long enough to read entire loading period. Set 500msec to start, and check load signature and adjust accordingly.

When edit is done, Click this button(Save) to save the new settings to PLM4 memory.

Turn on Zero to do the zero balance for each channel selected from "CH Select". Make sure to turn off before selecting different channels!. Once Zero balance for all channel is done, Click Edit and Save to store the zero reference to PLM4 EPROM.

V. TROUBLE SHOOTING

A. **given channel will not balance to zero:**

Sensor is disconnected - connect sensor or:
Sensor is preloaded - remove preload.

B. **Waveform is not visible:**

Go to "PLM-Setup" screen and enter a larger Peak Look Window (PKLW) value. EXAMPLE: Current value is 100 ms - try 1000 ms (1 second) or larger, if needed.