COMPASS PLM-4-BT
Bluetooth

USER MANUAL

Revised January 4, 2017
Rev 2.0

Force Measurement and Control Solutions

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 built-in Bluetooth device on your PC or with Bluetooth adapter.

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 32 feet from the Compass PLM4- BT unit in a line of sight.
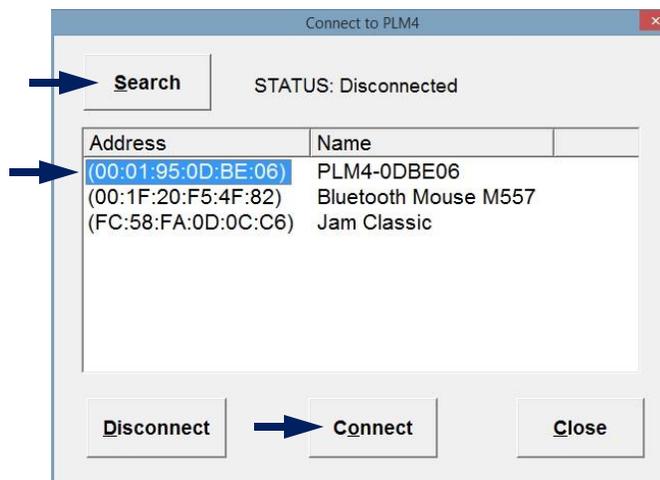
II. Installing Mariner CP for Compass PLM4.

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

III. Starting Compass PLM4 software

1. Start Mariner Compass PLM4 and click on Connect to PLM4 button to search your Compass PLM4.
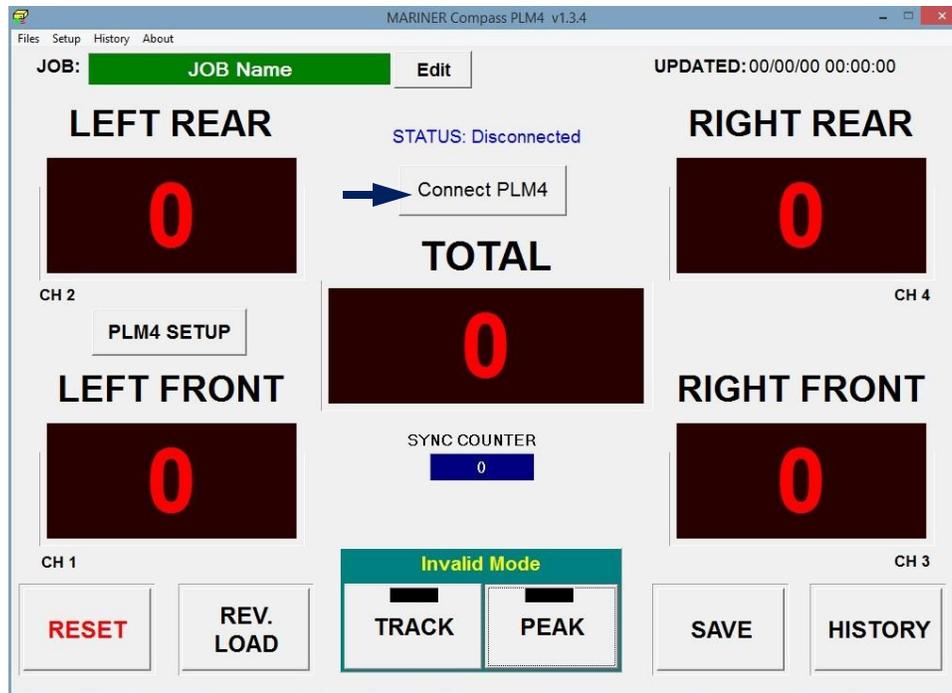
2. Click search button to find the CompassPLM4 and select and click Connect to make connection to the CompassPLM4

Note: Once the connection is made to the CompassPLM4, MarinerCP will try to connect to the same CompassPLM4 automatically every time the program starts. If you need to connect to different CompassPLM4 while connected the other already, from the top main menu, select Setup->Connnect to PLM4 to bring up the search screen.

3. SETTING UP for Load Cell connected

From the main screen, click on PLM4 SETUP button on the main tonnage screen or from the top main menu and select Setup->PLM4 User Setup to go to Setup screen.
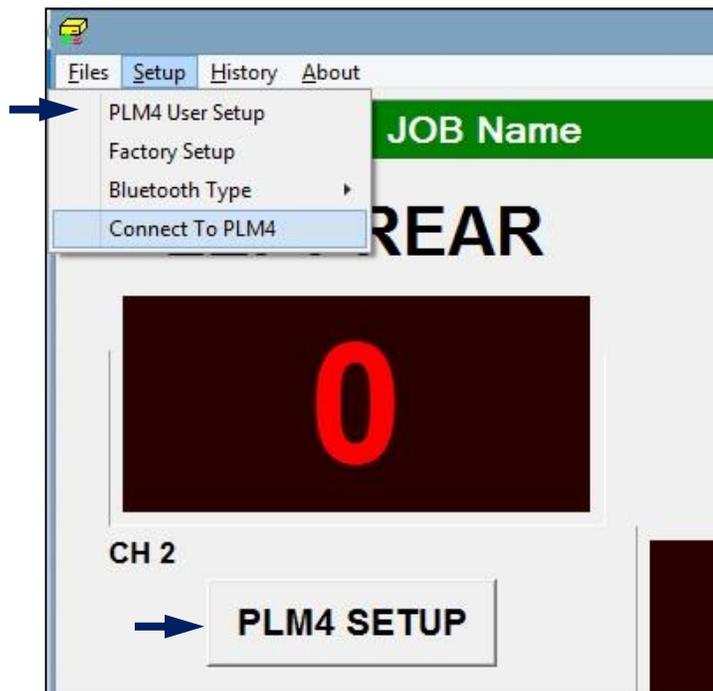
A. Entering "Scale" value:

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 Mutiplier 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 x 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.
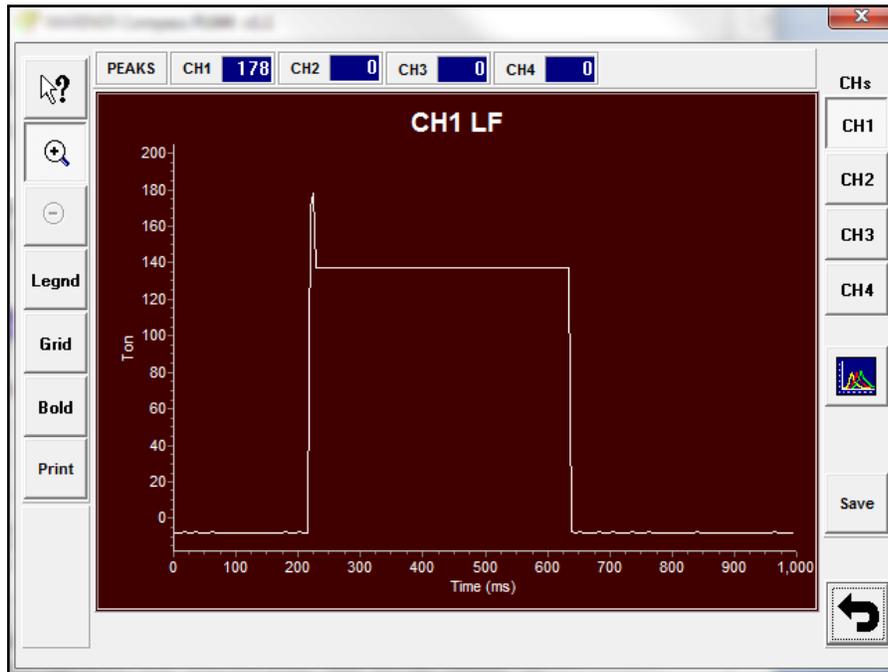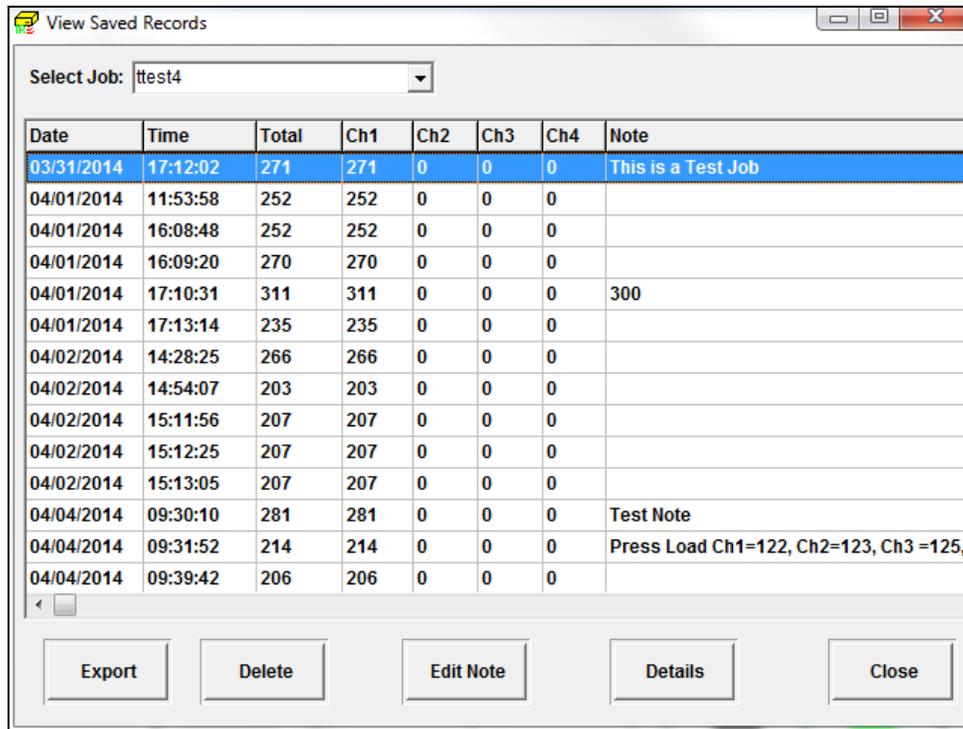

2. Click [icon] button and select the channel to overlay together, and window will display a composite view of all of the selected channel's signatures overlaid on the screen.

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".
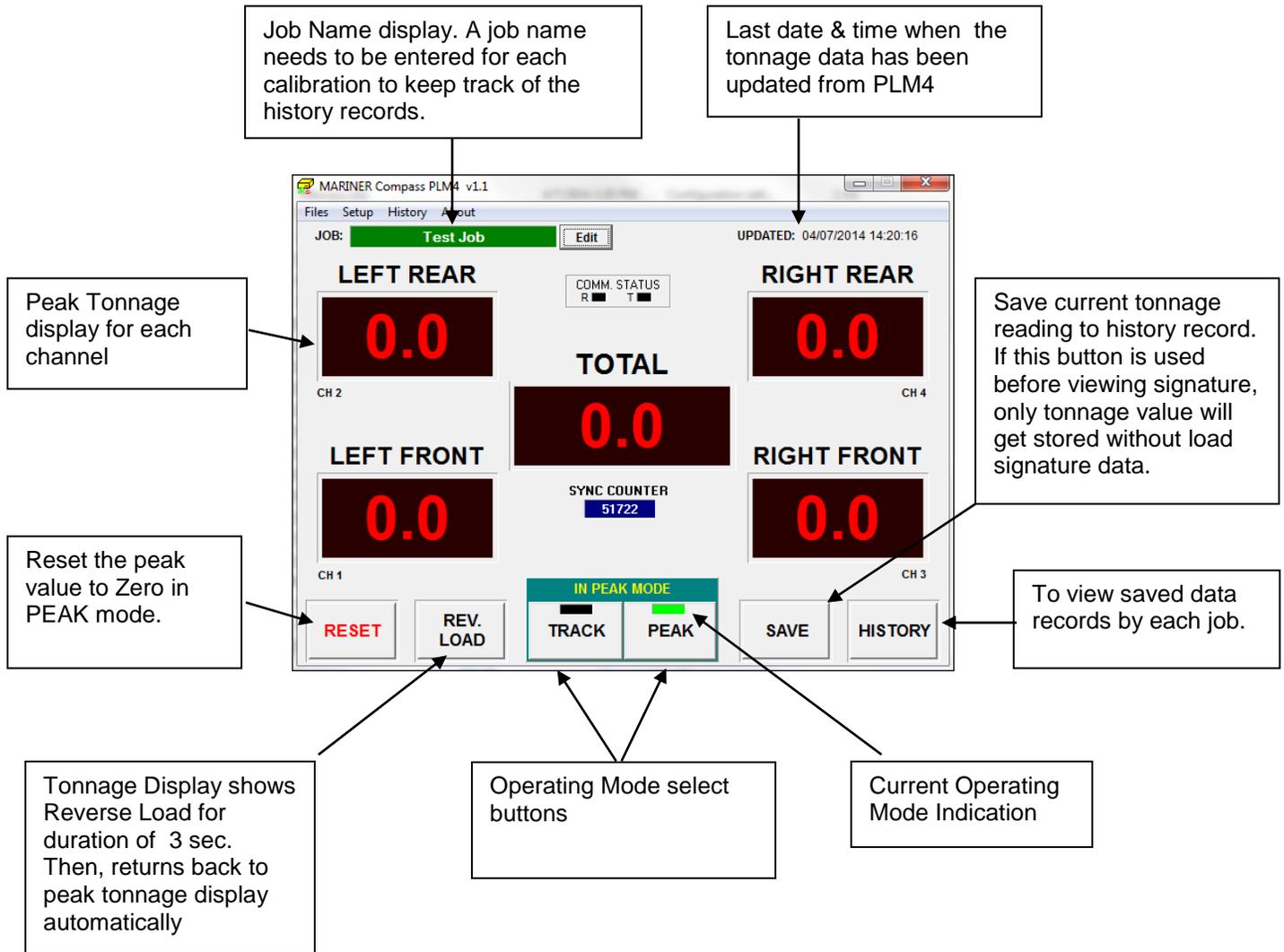

4. Select a job you want to view from the drop down list. This list shows all the jobs created and stored.

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 record.

COMPASS PLM-4 SOFTWARE SCREEN REFERENCE

Main Screen

Job Name display. A job name needs to be entered for each calibration to keep track of the history records.

Last date & time when the tonnage data has been updated from PLM4

Peak Tonnage display for each channel

Save current tonnage reading to history record. If this button is used before viewing signature, only tonnage value will get stored without load signature data.

Reset the peak value to Zero in PEAK mode.

To view saved data records by each job.

Tonnage Display shows Reverse Load for duration of 3 sec. Then, returns back to peak tonnage display automatically

Operating Mode select buttons

Current Operating Mode Indication

MARINER Compass PLM4 v1.1

Files   Setup   History   About

JOB: **Test Job**   Edit   UPDATED: 04/07/2014 14:20:16

LEFT REAR   COMM. STATUS   RIGHT REAR
                   R ■   T ■
0.0   **0.0**
CH 2   **TOTAL**   CH 4

LEFT FRONT   **0.0**   RIGHT FRONT

                   SYNC COUNTER
0.0   51722   **0.0**
CH 1   CH 3

                   IN PEAK MODE
RESET   REV.   TRACK   PEAK   SAVE   HISTORY
        LOAD

2. Signature Display

From Main screen, click on one of the load displays to access signature screen
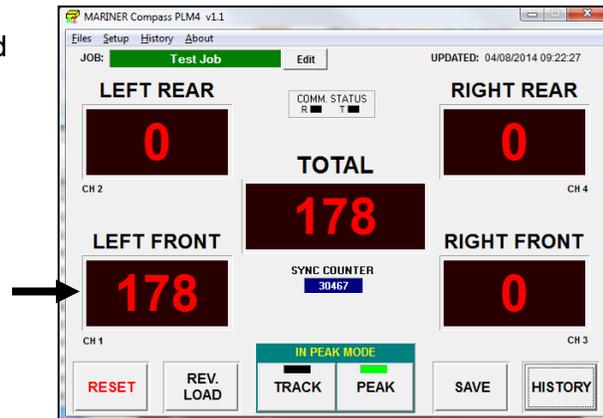
This screen shows the current captured load signature of the selected channel. Click Save button to save current signature data to History records which you can retrieve and view later from View Saved Records screen.

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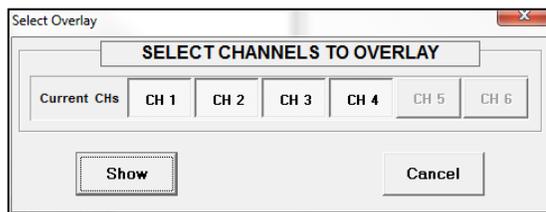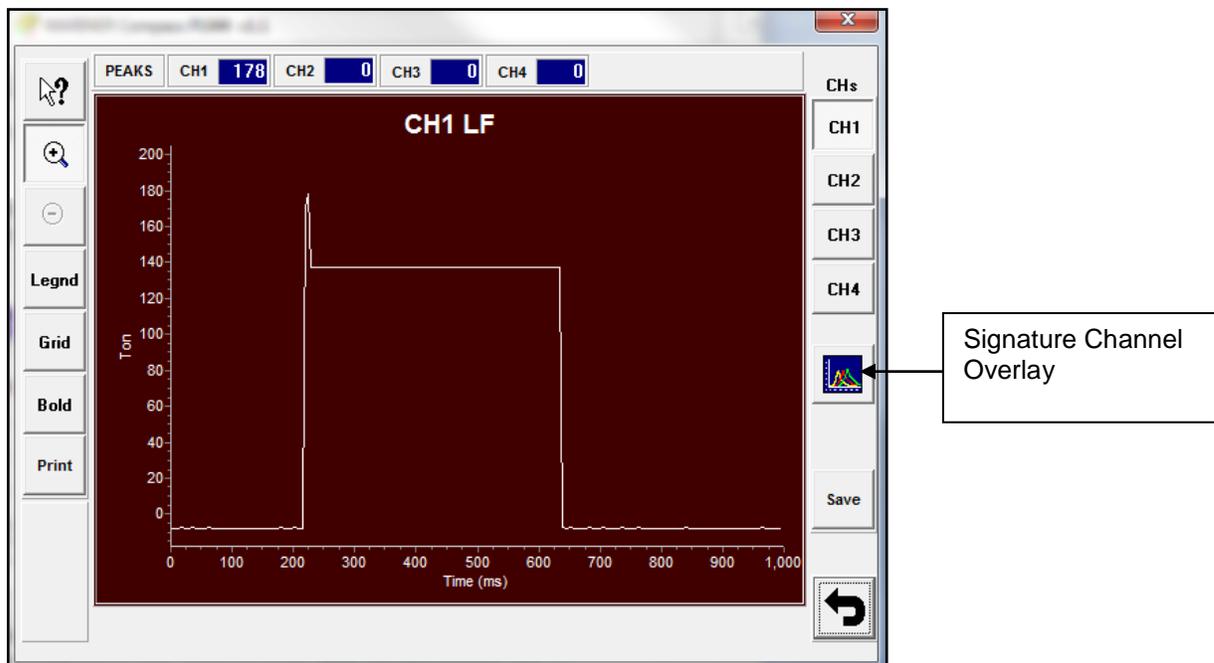
Click Overlay button to overlay between channels signature data. Selected channels signature(s) will show on top of each other in one screen.

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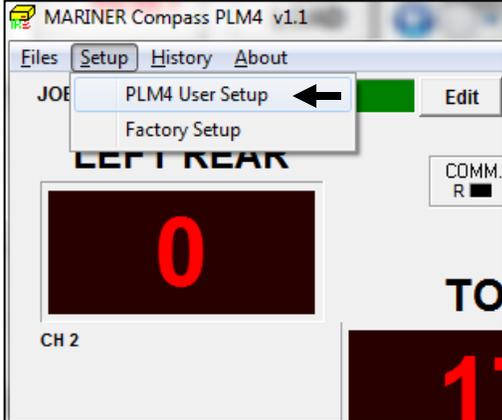
When you connect new load cells to the Compass PLM4, you need to set up the Compass PLM4 with proper parameters for each load cell connected in PLM4 User Setup screen.

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.

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 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

Select a channel number you wish to zero the balance.

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

Enter a Look Window Time in miliseconds. 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 channesl. Once Zero balance for all channel is done, Click Edit and Save to store the zero reference to PLM4 EPROM.

V. <u>TROUBLE SHOOTING</u>

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.