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COMPASS PLM-4

USER MANUAL

Rev. 1.3

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Force Measurement and Control Solutions

I. OVERVIEW

The Helm model “Compass PLM-4” is a portable four channel strain gage signal conditioner, that displays peak force and waveforms on a handheld “Palm” unit through infra-red transceiver technology.

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 Palm Unit

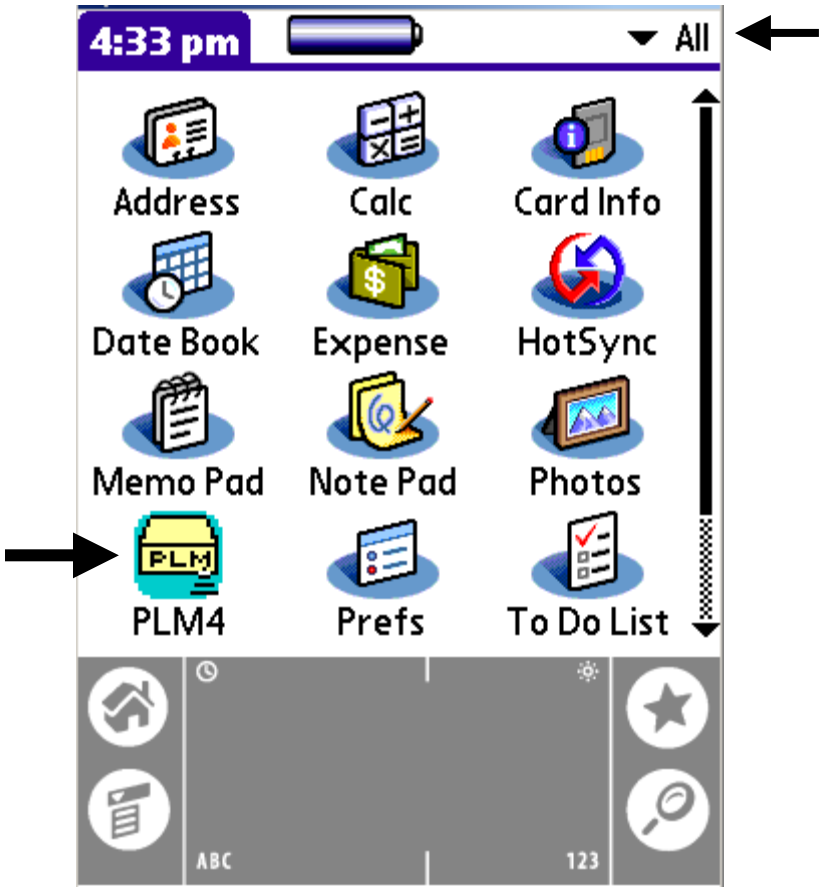
1. Palm unit must face the front panel of Compass PLM4 within 3 feet of distance in same surface.
2. The best operating location for your palm unit is a foot away from the front panel of Compass PLM4 in same surface where Compass PLM4 is positioned and pointing each other as picture shown on the cover page of this manual.

II. UNIT SET-UP PROCEDURE WITH LOAD CELLS

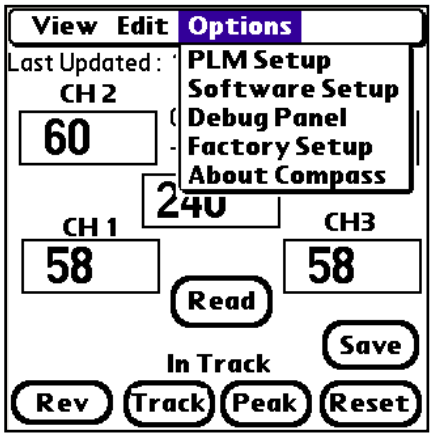
(Note: Palm unit must have Helm software loaded.)

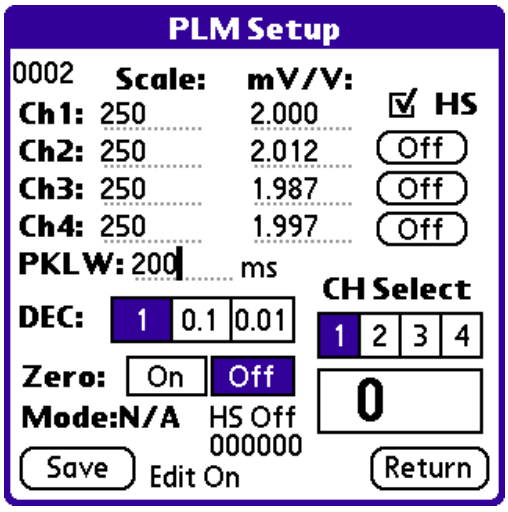
Starting Compass PLM4 software

1. Start Palm Unit.
2. Click PLM4 icon from Palm windows.
3. If you do not see PLM4 Icon, set application filter to ALL



A. Entering "Scale" value:





1. From the main screen, scroll down to and select the "PLM-4" icon.
2. Select “Compass PLM4”, “Options", then “PLM-4 Setup”.
3. Select “Edit” to allow set-up.
4. Select Ch.1, then “Scale Value” field. Now touch the “123” area on the front of the Palm Unit to allow access to the data entry screen.
5. Enter the capacity of the load cell x Decimal multiplier for each channel connected. 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 DEC option, then just enter load cell capacity as the scale.

DEC	*Multiplier*
1	1
0.1	10
0.01	100

Important Note:
If you are using Decimal point option. You must multiple the load cell capacity by the Dec multiplier for scale setting. For example, if the load cell capacity is 5 ton and you selected 0.1 DEC to show below one decimal point of the tonnage read, then the scale you need to enter is 5 x 10 = 50 for scale setting instead of 5.

6. Click “Save” to store what you have changed so far and click “Edit” 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:

6. Touch the “mV/V” field in the same line. Now, touch the “123” portion on the front of the Palm unit again to gain access to the data entry screen. Enter the "mV/V" value stamped on the tag of the load cell connected to that channel. 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. Then touch “Done”. Now select "Save", then "Edit".

C. Zero Balancing the Channel:

7. Select Zero “On” to balance Ch. 1 to zero. Wait for the value in the window to go to zero. When at zero, touch “Off”. Then select “Save” again.
8. 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.
9. 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:

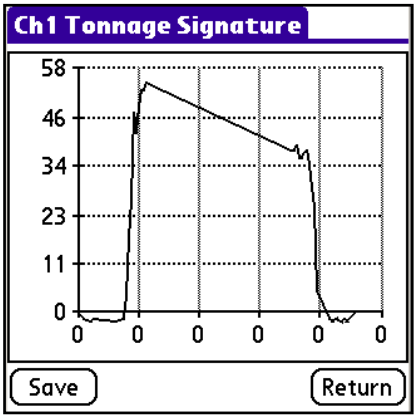
10. Select "CompassPLM4", "Options", then "PLM-4 Set-up". Touch "Edit", then Select "PKLW" field, then touch the "123" area on the front of the Palm Unit. Type "100", then touch "Done", and "Save".
11. Now, select "Return", and "Reset".

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

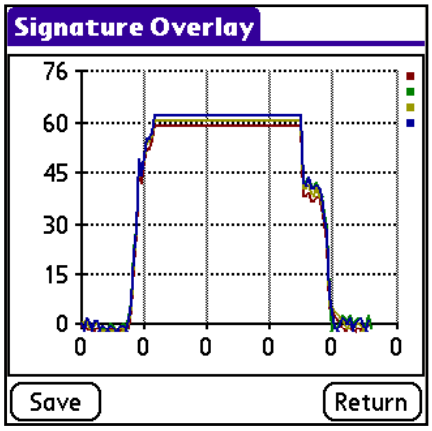
Enable High Speed mode by checking **HS** option If the machine cycle speed exceeds over 200SPM. In High Speed mode, Compass PLM4 become only two channel insturment. Channel 3 and 4 get disabled.

III. VIEWING AND STORING FORCE SIGNATURES

A. Viewing and Saving Current Tonnage Signature



1. Touching any tonnage reading while in peak mode will display the force signature for that channel.

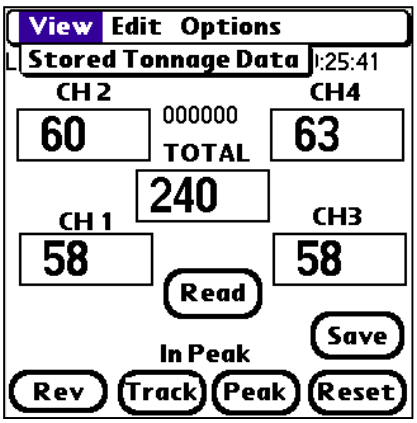


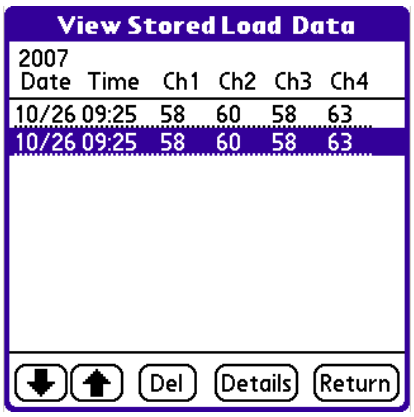
2. Selecting the “Total” window will display a composite view of all four waveforms, overlaid on that screen.
3. To store the force signature, click Save button.

*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. Select "Compass PLM4" on top of the main screen, then click "View" and “Stored Tonnage Data”.

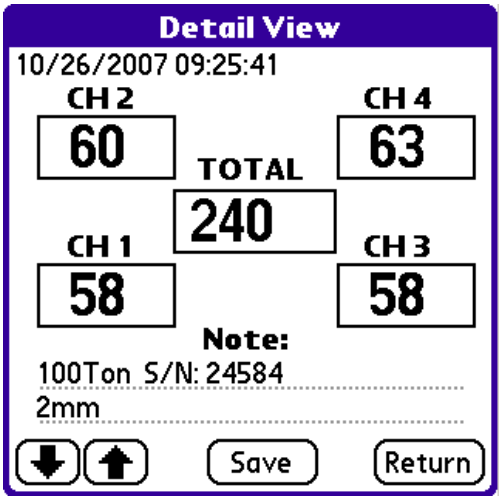




2. Each line of stored data shows the date, time, and channel number you will be viewing.
3. Select a line, then touch “Details".

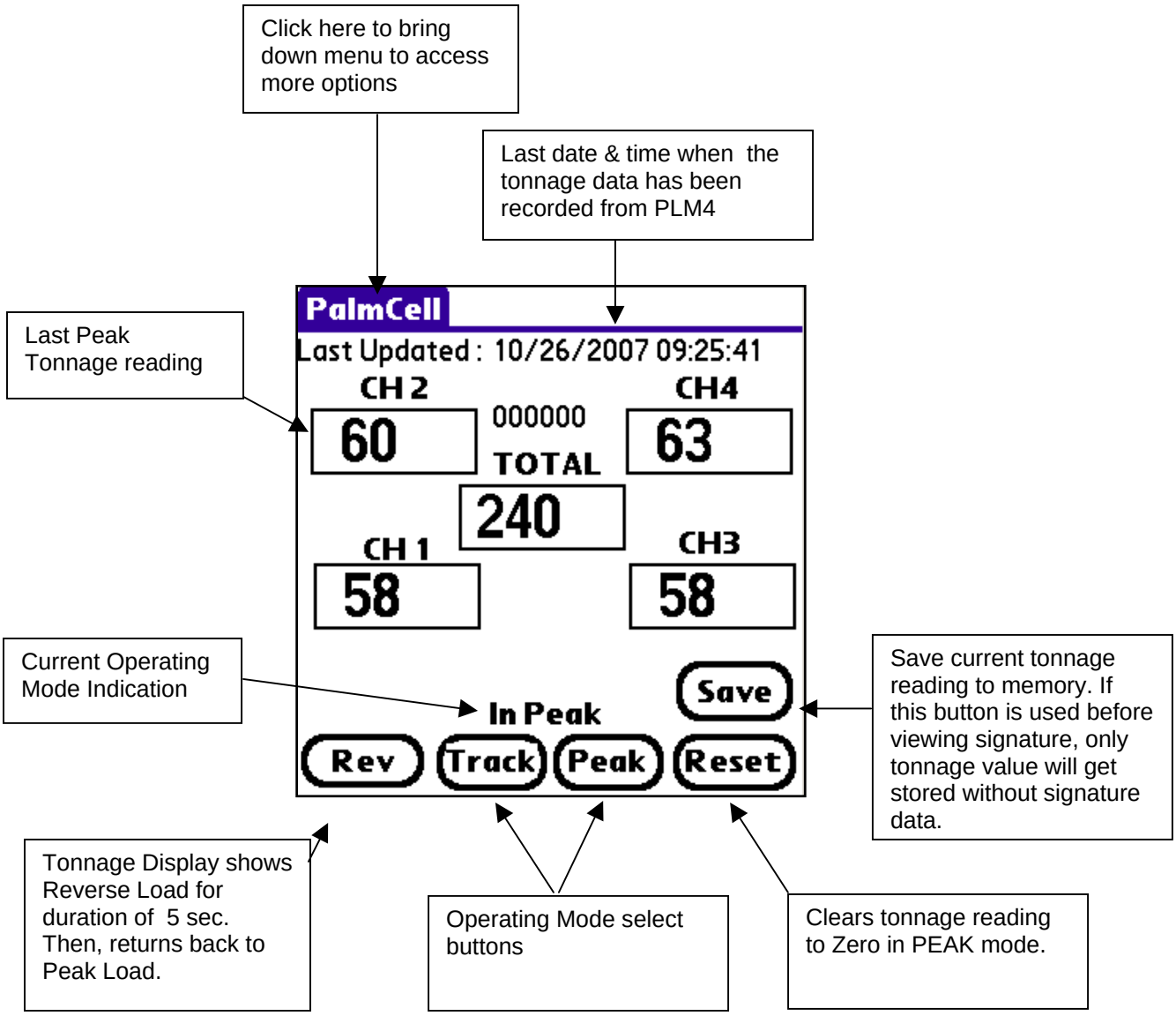
4. Click “Details” to go to Detial View screen of selected record that was previously stored. You can add or edit any “Note” section to each record here. Make sure to hit “Save” button after you made any change to the Note area.

5. Select any channel or total display to view stored signature the record.



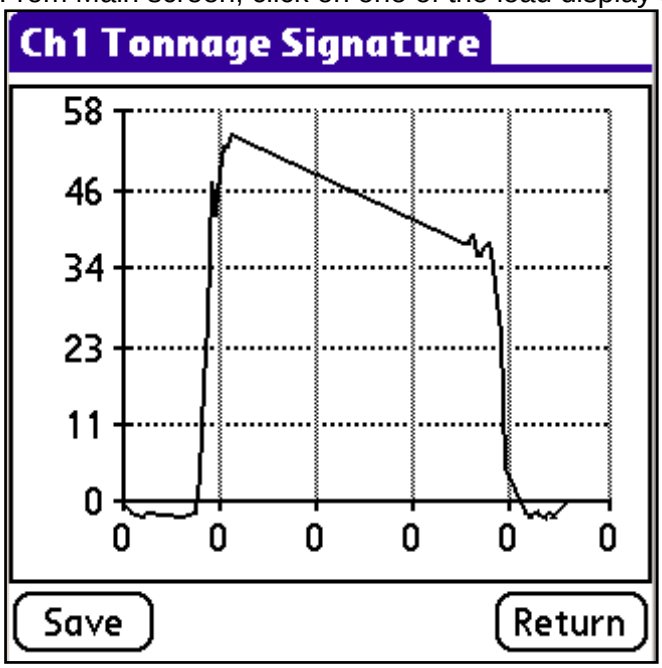
COMPASS PLM-4 SOFTWARE SCREEN REFERENCE

Main Screen



2. Signature Display

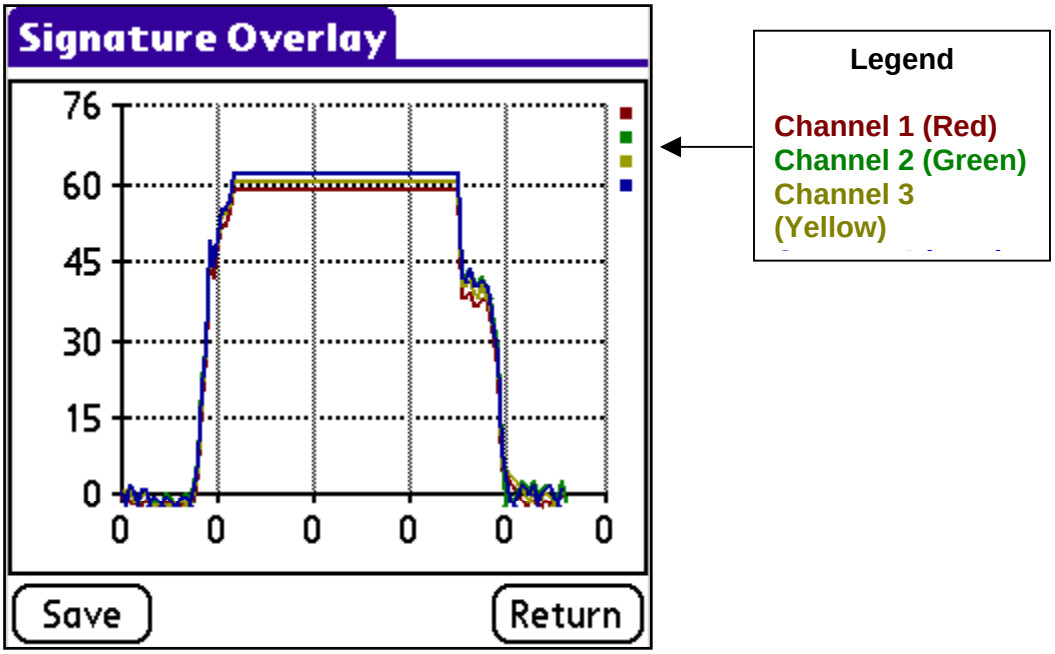
From Main screen, click on one of the load display to access signature screen



This screen shows the current captured load signature of the selected channel.
Click Save button to save current signature data to palm memory which you can retrieve and view later from View Stored Load Data screen.

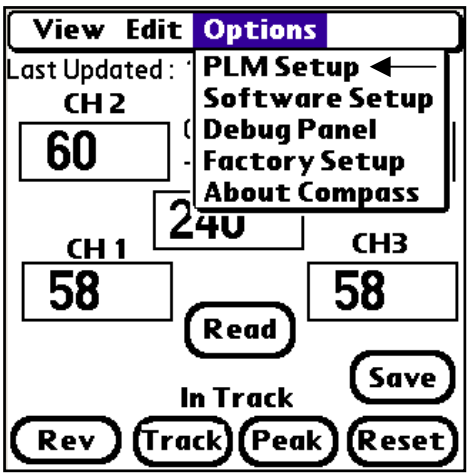
3. Signature Overlay Display

From Main screen, click on the total load display to access “Signature Overlay” screen.



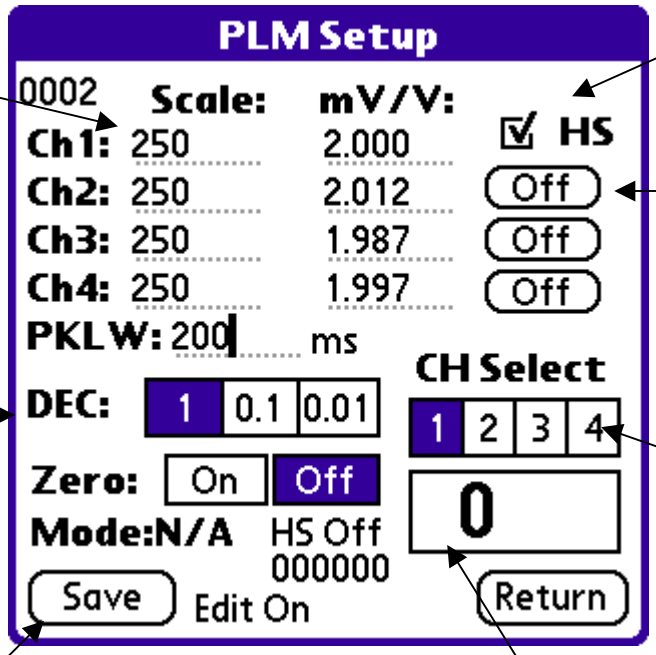
This screen shows all 4 channels of load signatures on one screen. Please refer to the color legend for channel designation.

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. To do this, from top menu, go to Options->PLM Setup.

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



Enter Max Capacity of the load cell for the connected channel x Decimal multiplier

High Speed (2Ch) Mode

Click Off button to clear the scale value to 0. This can be use to turn off the channel(s) that load cell is not connected

Select decimal point to be shown on the load 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.

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

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

IV. TROUBLE SHOOTING

A. Palm unit will not respond:

Click Recvr (Recovery) button from main CompassPLM4 screen. If there is still no communication from the Compass PLM-4 unit, make sure that power is on at the Compass PLM-4 unit and the I/R window has a clear path to the Palm unit.

B. A given channel will not balance to zero:

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

C. 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.