DCS1100 & ETM1000

IOS App User Manual

VERSION 2.0 (JULY 19TH, 2024)

CONSIDERATIONS

- THE **IOS APP IS NOT AN STC APPROVED** COMPONENT OF THE DCS1100 OR ETM1000. IT IS PROVIDED STRICTLY FOR REFERENCE ONLY TO ASSIST THE PILOT IN HELICOPTER EXTERNAL SLING LOAD OPERATIONS (HESLO)
- THE IOS APP FOR THE AS350B3 (H125) IS REFERRED TO AS THE "**FLI REPEATER**". FOR THE AS350B2 OR B407, IT IS REFERRED TO AS THE "**REMOTE GAUGE APP**". IN ANY CASE, THE SAME APP IS USED FOR ALL AVAILABLE AIRCRAFT MODELS AND IS USER SELECTED
- THE APP IS DESIGNED FOR THE IPAD MINI OR IPHONE. IT IS DISPLAYED IN LANDSCAPE VIEW ONLY. IT IS RECOMMENDED THAT AN IPAD MINI 5 - 6 OR IPHONE 10 -15 IS USED. WE ALSO RECOMMEND INSTALLING THE LATEST IOS OPERATING SYSTEM
- IPADS MUST BE CELLULAR CAPABLE WHICH WILL INCLUDE THE NEEDED GPS CHIP. IT ALSO REQUIRES THE IOS SYSTEM LOCATIONS SERVICES BE ENABLED FOR RECORDING OF THE GPS COORDINATES
- DOWNLOAD THE APP FROM THE APPLE APP STORE BY SEARCHING AS350B3, H125, FLI REPEATER, AS350B2 OR B407
- FOR THE AS350, MOUNTING OF THE IPAD OR IPHONE IS RECOMMENDED USING THE SWISS HELICOPTER ENGINEERING (SHE) KITS AVAILABLE FOR THE STANDARD WINDOW OR THE MVPK. CONTACT SHE FOR MORE INFORMATION AT ENGINEERING@SHE-AG.CH. OTHERS MOUNTS MAYBE DEVELOPED IN THE NEAR FUTURE AS DEMAND INCREASES FOR OTHER MODEL HELICOPTERS
- A USB POWER SOURCE FOR THE IPAD AND IPHONE IS RECOMMENDED AS THE INTERNAL BATTERIES ARE LIMITED
- NOT AVAILABLE FOR ANDROID

CHANGE LOG

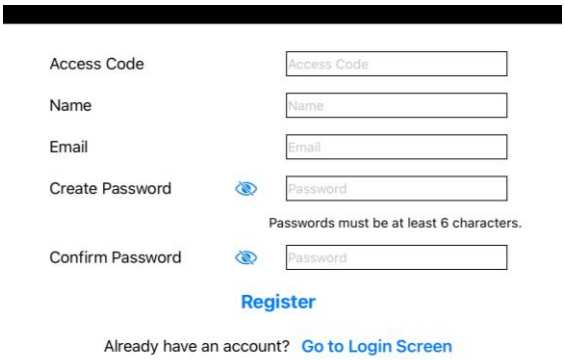
v1.0 – v1.5	Initial Release
v2.0	- Improved App layout and added pinch zoom. Added new background recording of loads and GEO position of pickup and drop-offs with formatted report via email.

Initial setup of the App

If it is the first time installing the App then do the following, otherwise skip to **Using the App** on Pg. 3

1. Download and Install the App
2. From the main screen, select the “Heli Gauges” icon 

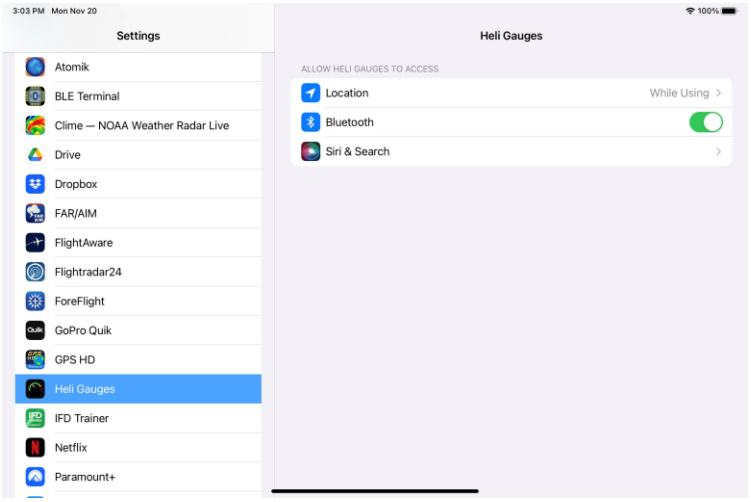
3. The following registration screen will appear after downloading the App for initial setup only.



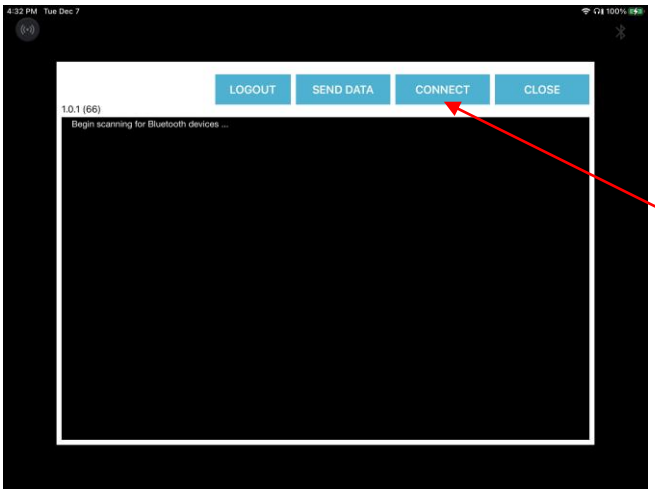
4. Enter the following:
   a. Access Code - **contact AKV at sales@akvinc.com for the code**. We will need your IOS Apple ID email address associated with the device which is found in the IOS settings.
   b. Name - Your name
   c. Email - Your personal or company email address.
   d. You must create a NEW App specific password. The “eye” icon when selected, allows you to see your password as you enter it. Make sure to save this password in case you log out of the App.

5. Once registration is complete and you login, the initial “connect” screen will appear. The App will ask you to allow for the IOS Bluetooth to be used, select OK.

6. Go to the iOS settings, scroll down the list of Apps and locate “Heli Gauges” and turn on Bluetooth. In addition, the **location services must also be turned on** by selecting either “while Using the App” or “Always”.



NOTE: As long as you do not log out, clicking on the FLI Repeater icon will launch the App without having to login again. If you do log out you will need the password you created above to log back in.

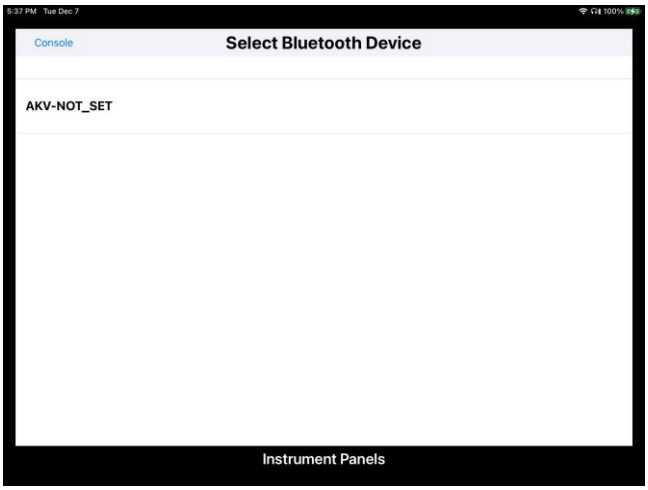


Connect to the DCS1100 or ETM1000 Bluetooth

Using the App

1. Turn the aircraft battery switch ON
2. After launching the App, the “Connect” screen will appear
3. Select “Connect”
4. The “Select Bluetooth Device” screen will appear and display available AKV Bluetooth devices named as “AKV-XXXXX (*aircraft registration)*”. The App will only display Bluetooth connections beginning with “AKV-”

5. If “AKV-NOT_SET” is displayed as shown below, then the DCS1100 or ETM1000 has not been programmed with the aircraft registration which is required. Ref the DCS1100-UIM manual or ETM1000 Configuration and Graphing User Manual Sect 5.5 to add or change the aircraft registration number.

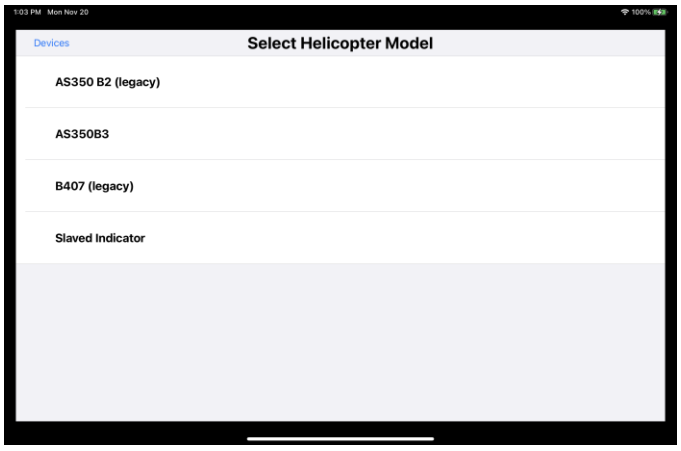


NOTE: For a new installation and when connecting for the first time, the programmed aircraft registration number may not show. If you have already added your registration number via the PC settings, then select “AKV-NOT_SET” then disconnect. It will then show your registration going forward.

6. Select the Bluetooth “AKV-XXXXX” of the aircraft you’re sitting in as there may be other aircraft that are powered up next to you that are in range.

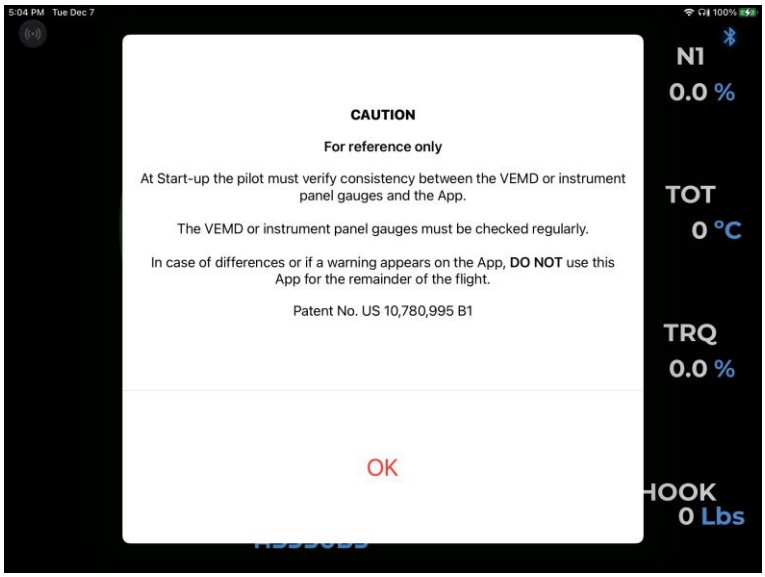
7. A helicopter model list will appear which requires you select the model helicopter your flying.

   NOTE: The ETM1000 must be used for the B407 and AS350B2 and the DCS1100 must be used for the AS350B3. **The Slaved Indicator selection in the system menu shown below is not used with the DCS1100 or ETM1000**



8. After selecting the AS350B3, a sub-selection for the 2B/2B1 or H125 is displayed. It is ***VERY*** important you select the correct sub-model due to the T4/TOT limit differences.

9. After selecting a model helicopter, the App will ask that you accept the **CAUTION** screen that is displayed below. To accept and continue, select OK.

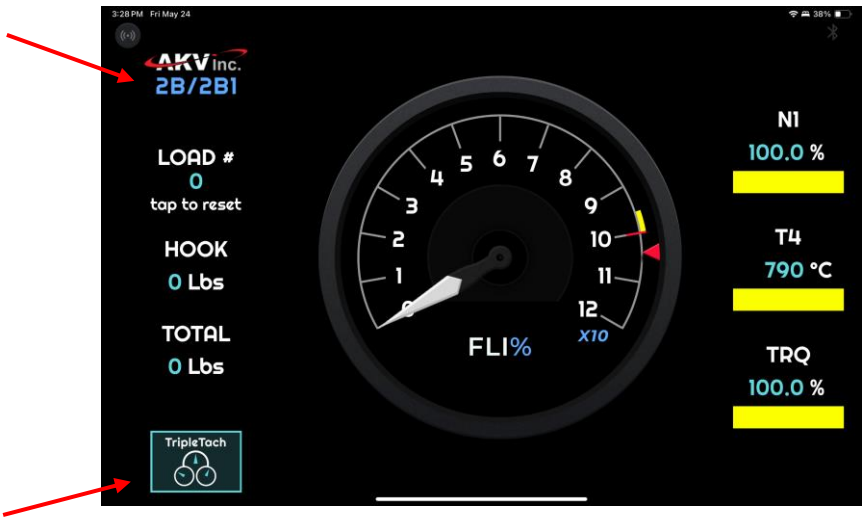


IMPORTANT: As indicated above, this App is supplied as a **"for reference only**" tool to assist the pilot in helicopter external sling load operations only. The App is never to be used as a replacement for the primary VEMD, instruments or aural limit tones generated by the helicopter.

10. A Flight Data pop-up screen will appear. Enter your organization information (needed one-time unless it changes) and the customer organization information.

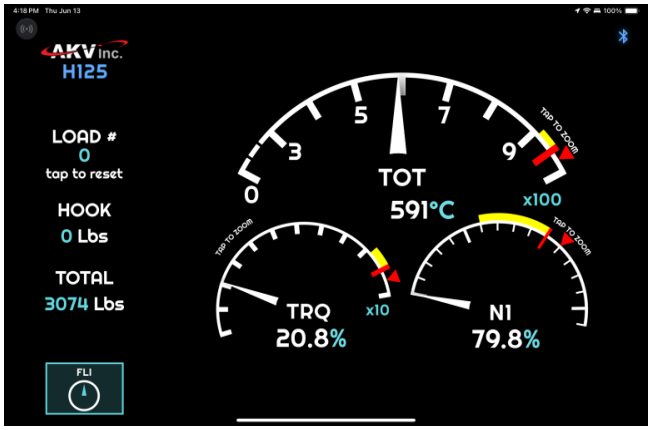
<u>For explanation purposes, the AS350B3 H125 is referenced in the following information.</u>

11. The FLI or Triple Tach is then displayed. The sub model selected is verified (top left arrow) and the display can be switched to Triple Tach (bottom left arrow).

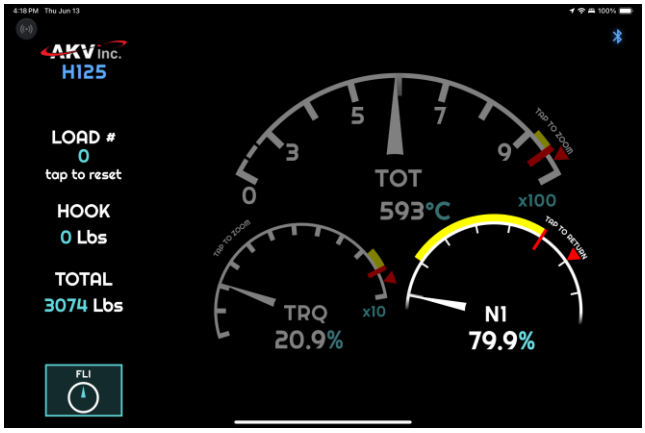


AS350B3 (H125) FLI

NOTE: On engine start, the FLI will become active when Ng is => 60%. If the Triple Tach is displayed, the T4 or TOT indicates the startup limits and is live from the time the starter is engaged. The T4 or TOT switches to flight limits when Ng is => 60%.

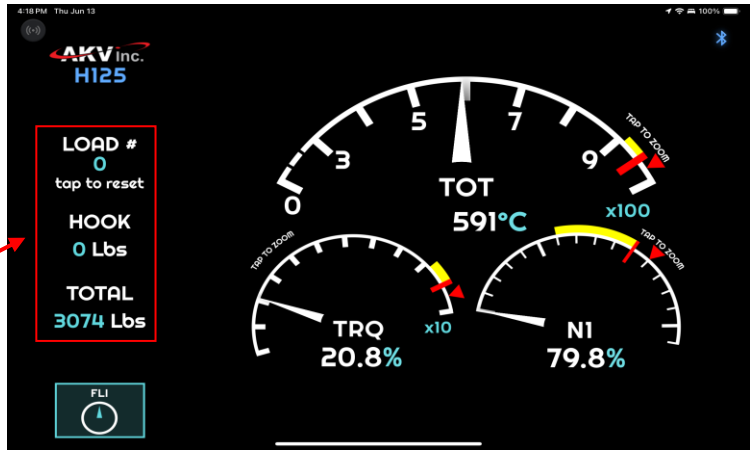


N1 Standard view



Example of N1 zoomed

Regardless of which display is shown, when N1 => 60% each instrument will then display a “Tap to Zoom” on the outer right arc. By tapping the instrument, it will zoom the upper arc power limit area for higher resolution. A “Tap to Return” will then be displayed to return to the standard view.



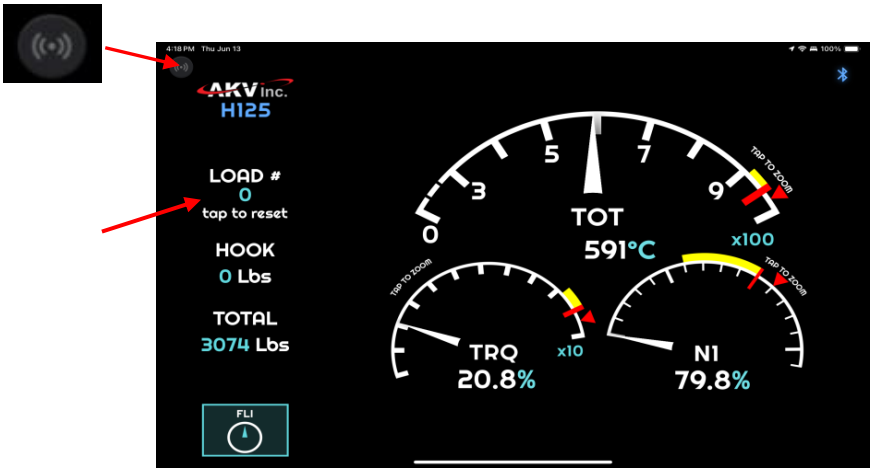
AS350B3 (H125) Triple Tach

12. The displayed "**HOOK**" value which is received from the MSI or Onboard load indicator via a wired connection to the DCS1100 is then transmitted in Kg from the DCS1100 to the App which can then be displayed in Lb or Kg. The signal is calibrated within the DCS1100 using the PuTTy PC interface scaling factor and the AKV Load Calibration tool P/N LC-100 to match the MSI or Onboard load indicator. Alternately, the "**HOOK**" weight can be configured to receive the weight from the VEMD crosstalk via the DCS1100 settings if the aircraft is configured as such.

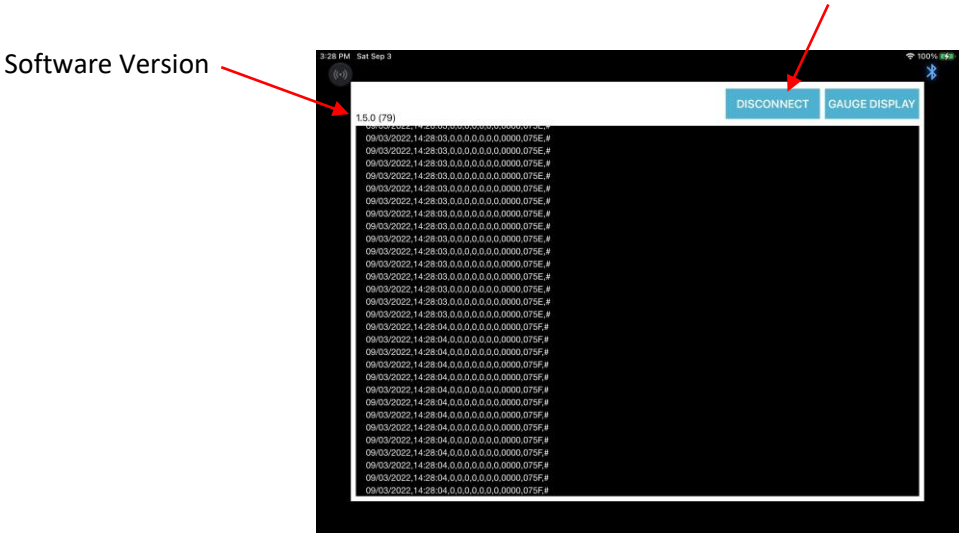
13. The weight unit value can be changed from Kg to Lb by touching the current displayed weight on the App.

NOTE: The weight is always transmitted in Kg from the DCS1100 by default and the App re-computes it for Lb.

14. The "**LOAD #**" is an incremental number controlled by the pilot via a momentary "Load Count" pushbutton. When the pushbutton is pressed and released, the **LOAD #** increments by "1" and the GPS coordinates are recorded. The **HOOK** weight is also then added to the **TOTAL** weight**.** The **LOAD #** can be reset to zero by touching the "tap to reset" but should not normally be needed since when re-connecting for the next mission, the displayed values are automatically reset to zero.

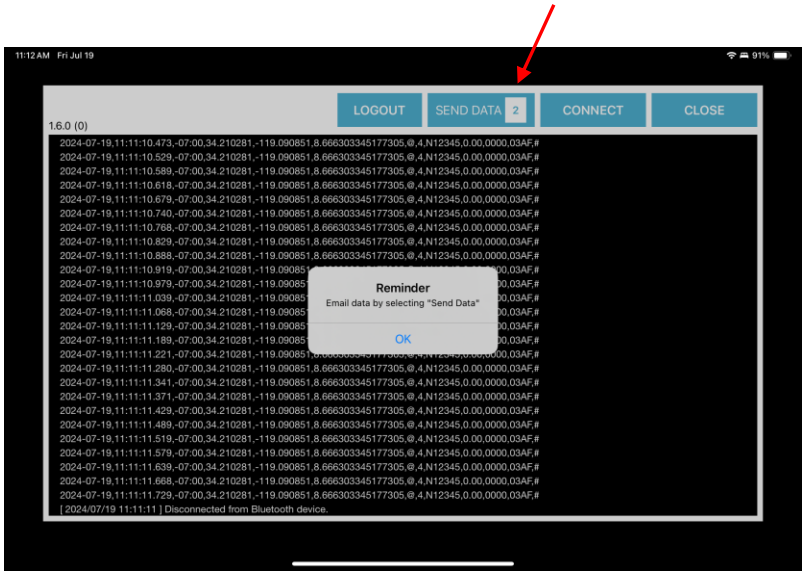


15. From the gauge screen, touching the radio button shown above in the very top left corner displays the disconnect screen below.



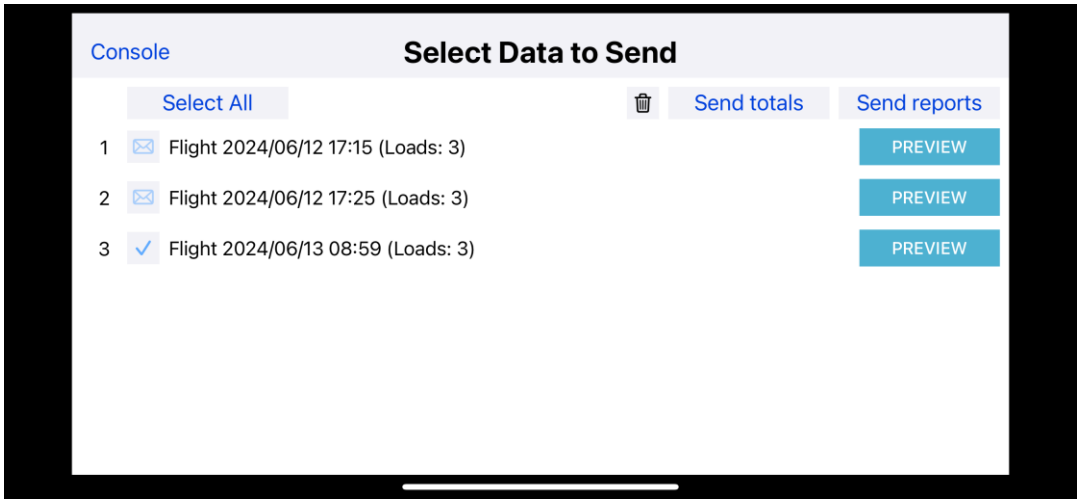
16. Live streaming data is displayed in the window area. This is a useful way to confirm connection via Bluetooth is established and the DCS1100 or ETM1000 is sending data and that it is being received by the App. Select “Gauge Display” to return to the previous screen.

17. When “Disconnect” is selected above, it disconnects the App from the transmitted Bluetooth signal. The following screen is then displayed with the pop-up reminder to email the recorded data.



18. Selecting “**Send Data**” will open the “**Select Data to Send**” which will indicate available reports.

NOTE: A number next to the “**Send Data x**” button indicates there are reports to be emailed or a ~ symbol will be shown if there are none



a. Each flight report is numbered in sequence and is stored with the date, time and loads carried
b. Each flight report can be previewed by selecting the “preview” button for the desired flight
c. Individual flight reports or multiple flight reports can be emailed by selecting the appropriate check box(s) next to the flight report number, then selecting “send reports”
d. You can also elect to send a “total-of-totals” only report by selecting the desired check box(s) and selecting “**send totals**”. This totalizes the selected reports and sends it as a stand-alone report without the other Lift Report data that is when using “**Send Reports**”

   NOTE: The “**Send Totals**” report is also sent with “**Send Reports**” as standard

e. After sending the selected report, the App will ask if you want to “Delete selected reports”. If you select OK, the selected reports are deleted. If you select cancel, the reports remain stored in the App in definitely
f. After sending a report, the check box will indicate a letter symbol to indicate that report has already been sent. You can resend a report even if it has already been sent before
g. To delete a report, select the desired report(s) and select the trash bin symbol to delete

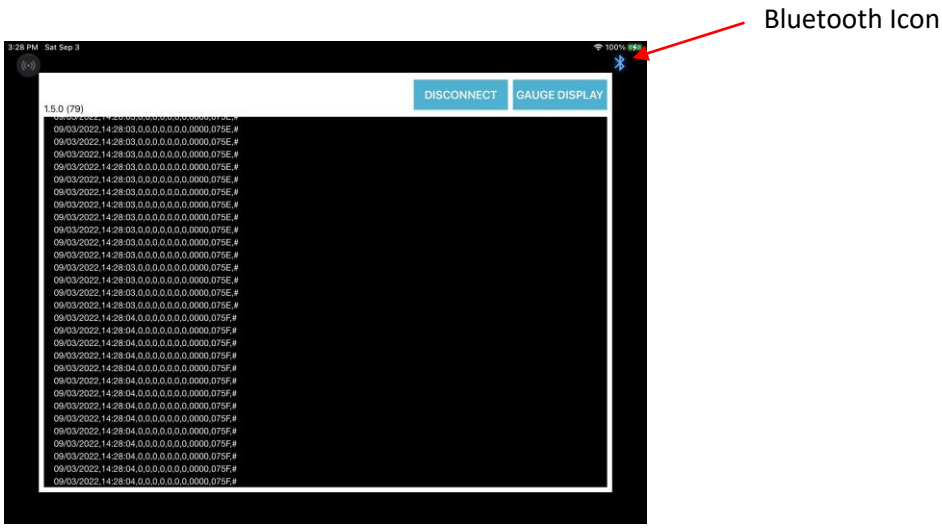
NOTE: If no Wi-Fi or cellular signal is available, the sent email will remain in the email service “Outbox” until a signal is established. For additional information on the load reports, refer to the DCS1100-UIM (User Interface Manual)

19. When “**Logout**” is selected, you will have to log back in to use the App again. It is therefore the reason to **store your password**. Do not logout unless required.

20. The “**Close**” button will minimize the App but not shutdown the App. Double clicking the home button and/or swiping up is the only way to shut down the App. This is typical of all iOS Apps.

    NOTE: The App will stay in the forefront when other Apps are opened. This means the App will not disconnect from the DCS1100 or ETM1000 if opening other Apps.

21. The Bluetooth connection icon is blue when connected to the DCS1100 or ETM1000 and greyed out when disconnected.

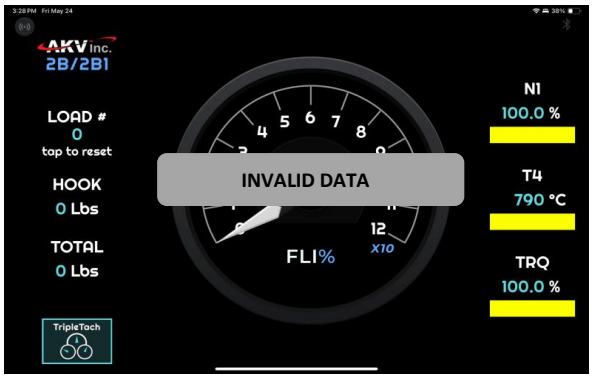


Pop-up App Messages

INVALID DATA

NO DATA

CHECKSUM ERROR



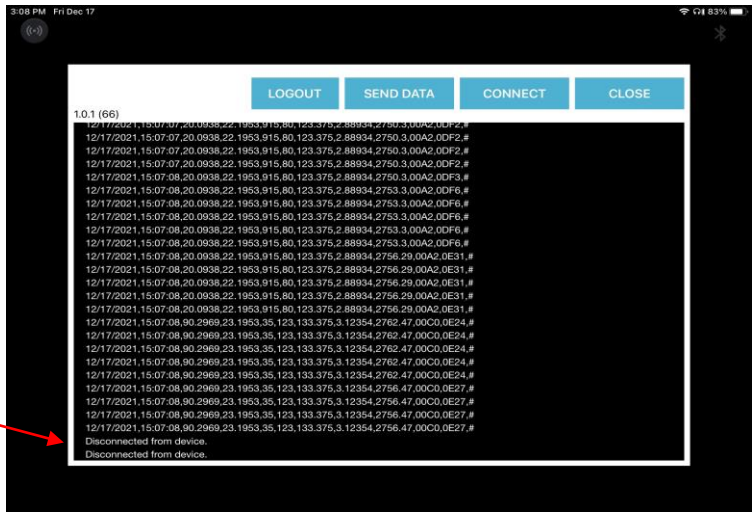
22. The DCS1100 monitors and accomplishes the following during operation:

    a. If a VEMD error is detected, the VEMD warning flag bit is set. The DCS1100 will then produce the pop-up message "**INVALID DATA**" on the App.

    b. In addition, both VEMD CHA and Ap crosstalk data channels are compared and if there is a mis-compare, it will also produce the pop-up message "**INVALID DATA**" on the App.

23. The App itself also monitors and accomplishes the following during operation:

    a. When a connection is established, the App checks for constant data flow from the DCS1100 or ETM100 and if data is interrupted due to a weak signal or if it stops due to power loss, the pop-up message "**NO DATA**" is displayed. This message will disappear after 3 seconds and then the "Connect" screen will be shown with frozen data indicated below. At the bottom of the frozen data, the words "**Disconnected from device**" will be seen as indicated below.



b. With DCS1100 **software v1.0.2** and later installed you can re-connect by selecting “Connect” and repeating the connection process.

c. A checksum value is added to each transmitted data packet from the DCS1100 or ETM1000. When the App receives the data packet, it compares the length of the data received with the checksum value. If it does not match, it will produce a “**CHECKSUM ERROR”** pop-up message on the App.

CAUTION: If any pop message occurs, do not use the App for the remainder of the flight. **Advise maintenance**.

Trouble shooting disconnect issues

If the App disconnects due to a poor signal or loss of power, the pop-up reminder to email the data is shown as indicated in Sect. 15. Re-connecting is possible by selecting “Connect”.

- Disconnect issues can be related to other Bluetooth devices competing with the App. Turning off other Bluetooth devices can help with issues related to repeated disconnects.

We are confident you will enjoy the App and we appreciate your feedback and comments to sales@akvinc.com.

**Please “like” the App on the Apple store…!