

CVR+ Cell Voltage Recorder Plus

Quick Start Instructions for Standalone Use

Quickly Record and
Review DC Cell Voltages

Quickly Upload and
View Hydrometer Data

Immediately Analyze
Data Onsite

Easily Transfer Data to
Alber Battery Analysis
Software



Basic Operation

These instructions describe the standalone operation of the Albér CVR+ Cell Voltage Recorder.

A

Powering ON the CVR+

1. Press and release the **POWER** button.
 - *The unit date/time and firmware revision appear.*
 - *The **Main Menu** appears.*



B

Powering OFF the CVR+

1. Press and hold the **POWER** button until the unit powers off.
 - *Optionally, the unit automatically powers OFF after about three minutes of inactivity.*
 - *Powering OFF does **NOT** erase any stored readings from memory.*



C

Manually Set the Date and Time

1. Select Date & Time from from the **MAIN MENU**.
2. Press the UP and DOWN arrow buttons to select the date or time parameter. Press **ENTER** when correct.

*When all the date and time parameters have been entered, the CVR+ displays the new date and time before exiting to the **MAIN MENU**.*



- i. Pressing **CANCEL** during the process exits to the **MAIN MENU** and no date or time setting will change.
- ii. The current date and time are saved for about two minutes while replacing the three AA batteries. After that, the date resets to Jan 01, 2010.

Taking Voltage Readings

1. Connect the voltage probes to the CVR+ and select **VDC Mode** from the **MAIN MENU**.

The CVR+ displays VDC strings A thru H, with the number of stored readings and the date when last reading was added.

2. Select a **VDC** string (A-H).

The stored string voltage data and date and time of last reading are displayed.

3. Press **MENU** and select **Add/Delete** from the submenu.

The stored voltage data, current test voltage, and total string voltage are displayed.

4. Place the probes on the cell.



Do not measure voltages greater than 20V DC.

When the unit beeps, the voltage reading is stored and added to the total string voltage.

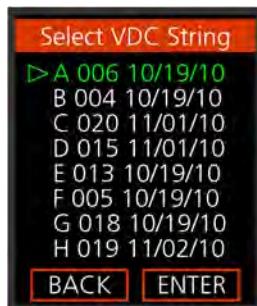
The stored string voltage data and date and time of last reading are displayed.

5. Remove the probes.

The cell number advances.



- i. If voltage limits are enabled, out of tolerance readings display in RED (high) or BLUE (low).
- ii. To invert the display (when using the magnetic clip to fix the CVR+ battery cabinets), press **MENU** and select **Invert**.
- iii. To delete the selected reading, press **MENU** and **Delete # XXX**, where XXX is the number of the selected reading.



Transferring Hydrometer Readings from the DMA-35 Hydrometer



- i. Transferring hydrometer data into a string location erases **ALL** existing data.
- ii. This process **cannot** be undone.

1. To initiate data transfer from the DMA-35 hydrometer to the CVR+, on the DMA-35 hydrometer, select **MENU**, press **OK**, select **Export**, then press **OK**.
2. On the CVR+, select **HYD Mode** from the **MAIN MENU**.

*The CVR+ displays **HYD** strings A thru H with the number of stored readings and the date when last reading was added.*

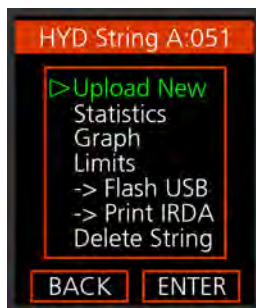
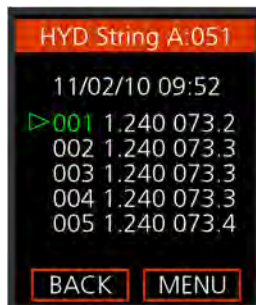
3. Select an **HYD** string (A-H).

The stored string hydrometer data and the date and time data which was transferred are displayed.

4. Line up the IRDA ports of the CVR+ and DMA-35 (About 6 to 12 inches apart).

5. On the CVR+, press **MENU** and select **Upload New** from the submenu.

The DMA-35 data transfers within 10 to 40 seconds.



Transferring Hydrometer Readings from the DMA-35N Data Logging Module



- i. Transferring hydrometer data into a string location erases **ALL** existing data.
- ii. This process **cannot** be undone.

1. Select **HYD Mode** from the **MAIN MENU**.

CVR+ displays HYD strings A thru H with the number of stored readings and the date when the last reading was added.

2. Select an **HYD** string (A-H).

The stored string hydrometer data and the date and time data which was transferred are displayed.

3. Connect the DMA-35N data logging module to the CVR+ using the supplied RS-232 cable.

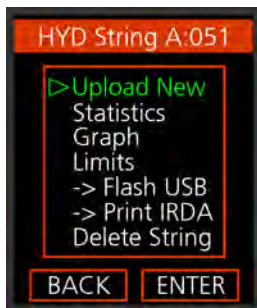
4. On the DMA-35N data logging module, select a channel (A-H) of data to transfer.

5. On the CVR+, press **MENU** and select **Upload New** from the submenu.

The DMA-35 data transfers within 10 to 40 seconds.



Never leave the RS232 cable connected when measuring voltage.



RS232 Connector



Exporting One String of Stored Data to a USB Flash Drive

1. Select **VDC Mode** or **HYD Mode** from the **MAIN MENU**.

The CVR+ displays VDC or HYD strings A thru H with the number of stored readings and the date when the last reading added.

2. Select a string (A-H) to export.
3. Connect a USB flash drive to the CVR+ using the supplied USB adapter cable (USB mini-A male to USB female).
4. Press **MENU** and select **-> Flash USB** from the submenu.

The CVR+ creates and exports a .cdf file (cell data file) for the selected string.



- i. The created file and location for the stored file (for example **VDC String A**) will be: **[Root]\CVR_PLUS\mm_dd_yy\VDC_A_00.cdf**
- ii. If the "**CVR_PLUS**" folder or the **mm_dd_yy** folder does not exist, the CVR+ creates it.
- iii. **mm_dd_yy** refers to the date the file was exported.

- iv. The file name suffix **_00** increments if a second string of the same base name is exported on the same date.
- v. NO data is deleted from the CVR+ during the export process.
- vi. The CVR+ is configured to only create .cdf files on a USB flash drive. It cannot delete or overwrite existing files.



Never leave the USB flash drive connected when measuring voltage.



Exporting ALL Stored Data to USB Flash Drive

1. Select **Export All** from the **MAIN MENU**.

2. Connect the USB flash drive to the CVR+ using the supplied USB adapter cable (USB mini-A male to USB female).

3. Press **YES**.

The CVR+ creates and exports a .cdf file for all strings.

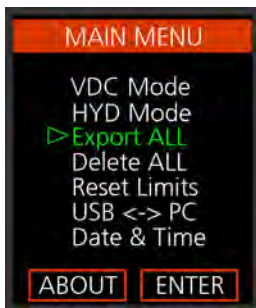


- i. The created file and location for each stored file (for example **VDC String A**) will be: **[Root]\CVR_PLUS\mm_dd_yy\VDC_A_00.cdf**
- ii. If the “**CVR_PLUS**” folder or the **mm_dd_yy** folder does not exist, the CVR+ creates it.
- iii. **mm_dd_yy** refers to the date the file was exported.
- iv. The file name suffix **_00** increments if a second string of the same base name is exported on the same date.
- v. **NO** data is deleted from the CVR+ during the export process.

- vi. The CVR+ is configured to **ONLY** create .cdf files on a USB flash drive. It cannot delete or overwrite existing files.



Never leave the USB flash drive connected when measuring voltage.



Basic Instructions (Continued)



Printing String Data to a Compatible IRDA Printer

1. Select **VDC Mode** or **HYD Mode** from the **MAIN MENU**.

The CVR+ displays VDC or HYD strings A thru H with the number of stored readings and the date when the last reading was added.

2. Select a string (A-H).
3. Press **MENU** and select -> **Print IRDA** from submenu.
4. Line up the IRDA ports of the CVR+ and compatible IRDA printer (about 6-12 inches apart)
5. Press **YES**.

The CVR+ prints out all the string data, including statistical analysis, for the selected string.



IRDA Port

Basic Instructions (Continued)

J

Deleting ALL Stored Data from the CVR+

1. Select **Delete ALL** from the **MAIN MENU**.

2. Press **YES**.

The CVR+ deletes all stored VDC and HYD string data.



- i. This process **cannot** be undone.
- ii. Threshold limits are not reset when string data is deleted.

K

Deleting VDC Data for One String

1. Select **VDC Mode**.
2. Select a **VDC** string (A-H).
3. To erase existing **VDC** string data, press **MENU** and **Delete String**.



This process cannot be undone.

4. Press **YES**.

The CVR+ deletes all stored VDC string data.

L

Deleting HYD Data for One String

1. Select **HYD Mode**.
2. Select an **HYD** string (A-H).
3. To erase existing **HYD** string data, press **MENU** and **Delete String**.



This process cannot be undone.

4. Press **YES**.

The CVR+ deletes all stored HYD string data.



Graphical and Statistical Analysis

M

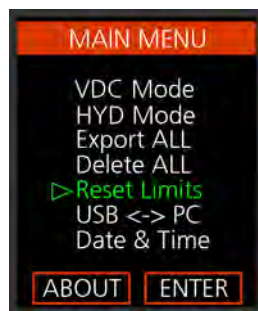
Reset ALL Threshold Limits

1. Select **Reset Limits** from the **MAIN MENU**.
2. Press **YES**.

The CVR+ resets all threshold limits for ALL strings (voltage, SG and temperature).



This process cannot be undone.



Setting Threshold Limits for a String

1. Select **VDC Mode** or **HYD Mode** from the **MAIN MENU**.

*The CVR+ displays **VDC** or **HYD** strings A thru H with the number of stored readings and the date when the last reading was added.*

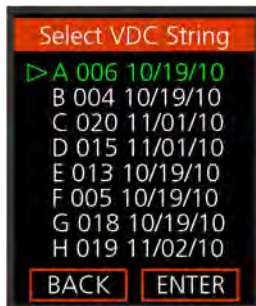
2. Select a string (A-H).
3. Press **MENU** and select **Limits** from the submenu.
4. To **Remove Limits** for the string, select **Y** using up and down buttons, and press **ENTER**.

The string limits reset and the CVR+ displays string data.

5. To **Set Limits**, select **N** using up and down buttons, and press **ENTER**.
6. Press the **UP** and **DOWN** buttons to select the threshold limits. Press **ENTER** when correct.
7. When all limits have been entered, the CVR+ exits and displays the string data screen.



Pressing CANCEL during the process exits to the display string data screen and entered limits are not stored.





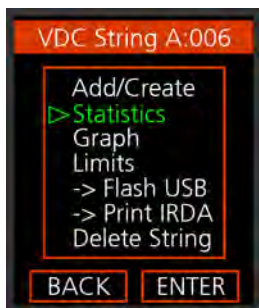
Display String Data Statistics

1. Select **VDC Mode** or **HYD Mode** from the **MAIN MENU**.

*The CVR+ displays **VDC** or **HYD** strings A thru H with the number of stored readings and the date when the last reading was added.*

2. Select a string (A-H).
3. Press **MENU** and select **Statistics** from the submenu.

The CVR+ displays statistics for the selected string data.



Display String Data Graphs

1. Select **VDC Mode** or **HYD Mode** from the **MAIN MENU**.

*The CVR+ displays **VDC** or **HYD** strings A thru H with the number of stored readings and the date when the last reading was added.*

2. Select a string (A-H).
3. Press **MENU** and select **Graph** from the submenu.

The CVR+ displays the graph for the selected string data.



- i. If the threshold limits are enabled for the selected string, the out of tolerance readings display in RED (high) or BLUE (low).
- ii. If in **HYD** mode, press **SG/T** to toggle between the SG and Temperature graphs.
- iii. To move the cursor, press the **UP** and **DOWN** buttons.
- iv. The cursor automatically pages up or down if more than 24 readings are displayed.
- v. The CVR+ is best held sideways in Graph mode.





Albercorp

3103 N. Andrews Avenue
Pompano Beach, FL 33064

Technical Support
770-433-8551

Sales Support
954-623-6660

Fax
954-623-6671

www.alber.com