Dynastream's AMP 331 Instructions for Users D00000381 Rev 0.E

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1 TECHNICAL INFORMATION

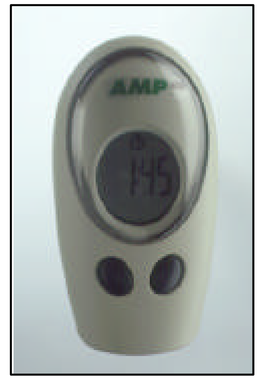
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada has approved the equipment.

Caution: Changes or modifications to this device not expressly approved by Dynastream Innovations Inc. could void your authority to use the equipment.

2 COMPONENTS OF AMP 331

AMP Pod
At the heart of the AMP 331 system is the pod which contains the inertial sensors and the imbedded software used to monitor activity.



AMP Ankle Sleeve
The ankle sleeve, attached to the lower leg just above the ankle, holds the pod in the correct position and orientation to enable accurate activity monitoring.

AMP Link
The Link connects to the USB port of a PC enabling wireless downloading of data from the AMP Pod.

AMP Ware
AMP Ware is a PC application that enables the user to enter subject and trial information, and then download the activity data from the pod. The subject and trial information is presented along with the activity data in MS® Excel.

3 AMP POD

3.1 Pod User-Interface

1. To start the AMP Pod, press and hold the right button until the LCD displays “on”.

2. The pod will display one of the following:
    a. If there is data in the pod memory, the pod will display “DATA”. Go to Step 5.
    b. If the pod is ready to start data collection it will display “CLR” to indicate that there is no data in the memory, then it will display the date and time, then the words “PUSH START”. Go to Step 4 for instructions on data collection.
    c. If the date and time need to be set, the pod will display “CLR”, then “DATE”, then the year with the third digit flashing and the word “SET” at the bottom. For instructions on setting the date and time go to Step 3.

3. Setting the date and time.
    a. When the pod displays the year with the third digit flashing and the word “SET” at the bottom the date and time must be set. This always occurs after changing the battery. The procedure for setting the date and time are as follows:
        i. Use the right button to scroll through the digits of the year, the months of the year, and the digits in the date and time.
        ii. Use the left button to move to the next digit or next selection.
    b. When the time and date have been set, the pod will display “PUSH START” indicating it is ready to start data collection.
    c. To reset the date and time if it is incorrect, the pod must be displaying “PUSH START”. Press and hold the left button until the pod displays the word “DATE” and then year with the third digit flashing and the word “SET” at the bottom.

4. Data collection.
    a. In order to start data collection, the pod must display “PUSH START”.
    b. Press the right button to start the trial.
    c. The pod will display a flashing clock at the top of the LCD to indicate that it is collecting data. The pod also displays the elapsed time since the beginning of the trial, initially in minutes and seconds, then hours and minutes, then days and hours.
    d. To stop data collection, perform the following sequence:
        i. press and hold both buttons simultaneously for 5 seconds, until the pod displays “b1”
        ii. let go of both buttons and press the left button, the LCD will display “b2”,
        iii. let go of the left button and press the right button.
    e. The pod will now display “DATA” to indicate there is data saved in the memory.

5. When the pod displays “DATA”, the user has three options.

a. To upload the data immediately, press and hold both buttons simultaneously for 1 s until the pod displays "UPLd". Once the pod is in upload mode, follow the instructions in AMP Ware (Section 5.3) for uploading the data to the PC.
b. To upload the data later, press and hold the right button to turn the unit off. When the unit is turned back on it will go immediately to "DATA" mode. Follow the instructions above for uploading.
c. To clear the data from the pod memory, press and hold the left button. The pod will display "CLR" once the data has been cleared. It will then scroll through the date and time before displaying "PUSH START", indicating that it is ready to start data collection. See Step 4 for instructions on data collection.

6. To turn the unit off, press and hold the right button until the LCD displays "OFF".

3.2 Pod Power Supply

3.2.1 Battery Life

The pod is powered by a single AAA battery. The maximum duration of data collection depends on the activity level of the user and the type of battery however a fresh battery should allow for at least 7 days of continuous data collection.

3.2.2 Battery Replacement

To replace the battery, open the door on the bottom side of the pod using a coin. If the door does not spring open then knock the bottom corner of the pod, near the door, on a firm surface until the door opens and the battery falls out. Insert a new battery with the positive terminal pointing out (as shown by the "+" sign on the hatch).

3.2.3 Loss of Power

If the battery runs out during data collection the LCD will go blank. When this occurs, the data collected until that time is saved in the pod. To upload the data to the PC, replace the battery then turn the pod on. It will display "DATA" indicating there is data in the memory waiting to be uploaded.

4 AMP ANKLE SLEEVE

The AMP Ankle Sleeve is used to hold the pod in the correct position on the test subject's leg. It is essential that the pod be properly oriented and positioned on the leg to ensure accurate monitoring of activity.

4.1 Starting data collection

At the start of data collection, follow these steps.

1. Turn the pod on and start the data collection before inserting the pod into the ankle sleeve.
2. Insert the pod into the ankle sleeve with the nose first, such that the LCD is visible in the circular window. Close the triangular flap to keep the pod in.
3. Use the Velcro strap to attach the pod on the back of the leg just above the ankle. It is best to tighten the strap around the narrowest part of the leg so that it is unlikely to slide down. The ankle sleeve can go directly over the skin or over a sock or stocking. Check that:
   a. **The ankle sleeve is correctly oriented.** The Dynastream logo on the strap should be right side up and the triangular flap that holds the pod in the pocket should be on top.
   b. The pod is squarely on the back of the leg. The pod should be over the Achilles tendon.
   c. That the strap is tight enough to ensure that the pod does not flap or rotate around the leg as the test subject walks, however loose enough to be comfortable.

4.2 Instructions for test subjects

The AMP pod is waterproof so the test subject can wear the ankle sleeve while bathing. If they find the wet sleeve uncomfortable they may take it off for bathing and put it back on afterward. Similarly, the sleeve may also be worn while sleeping or removed and re-attached in the morning. If the ankle sleeve is removed it is important that it be re-attached correctly. The test subject should be instructed to:

?? **Ensure that the ankle sleeve is right side up** by checking that the Dynastream logo is not upside down and that the flap covering the pod is on top side, not down close to the heel.
?? Ensure that the pod is squarely on the back of the leg over the Achilles tendon.
?? Ensure that the strap is tight enough to keep the pod from flapping or rotating.

If the test subject does not remove the ankle sleeve when sleeping, he or she should still check every morning to ensure that the pod is still properly oriented over the Achilles tendon.

4.3 Care

The ankle sleeve can be washed in warm water using a mild soap and hung to dry.

5 AMP LINK

The AMP Link is used for communication between the pod and a computer. The link should be plugged into the USB port of the PC. You will need to install drivers the first time you use an AMP Link. Follow these instructions the first time you use a new link:

1. Plug the AMP Link into the USB port of your computer. Position the link at least two feet from the computer monitor.
2. The PC will detect the Link and will automatically open a window with the heading “Found New Hardware”, click “Next”.
3. Insert the AMP 331 CD into your CD drive.
4. From the list of options, select the checkbox to “Search for a suitable driver for my device (recommended)”, click “Next”.
5. When prompted to “Select a location”, select the checkbox for “CD-ROM drives”.
6. Wait as the drivers are installed. When Windows has finished installing the drivers, click “Finish”.

6 AMP WARE

AMP Ware is the software application that downloads the data from the pod to your computer and then displays the data in MS® Excel. This application also allows you to associate subject and trial information with the data.

6.1 Installing AMP Ware

1. Insert the AMP 331 CD into the CD drive.
2. Copy the directory called AMP Ware from the CD onto your computer's hard drive. You can create an AMP 331 directory or copy the folder to the "Program Files" directory.
3. To create an icon on your desktop that can be used to start AMP Ware, open the AMP Ware folder on your desktop and right click on the file called "AMP Ware.exe". Select "Create Shortcut" from the drop down menu.
4. A file called "Shortcut to AMP Ware.exe" will be created. Drag this file to your desktop and drop it there.

6.2 MS® Excel Settings

The AMP data will be downloaded to an MS® Excel workbook where macros are used to format and display the data. In order for AMP Ware to be able to run these macros, the security settings in Excel must be set appropriately. Please check that:

1. The macro security level is set to "Medium" or "Low". To do this, open Excel, go to the "Tools" option on the task bar, select "Macro" from the drop down list, and then "Security" from the following list. Under the "Security Level" tab of the dialog box, select "Low" or "Medium".
2. For Office XP users only: select the "Trusted Sources" tab on the same dialog box as above and select the checkbox that says "Trust access to Visual Basic Project".
3. If prompted to enable macros following downloading, do so. (This will happen if the security level is set to "Medium". If the security level is set to "Low" you will not be prompted.)

6.3 Using AMP Ware

Follow the instructions below to download data from a pod.

6.3.1 Downloading Data For a New Subject

1. Start AMP Ware by double-clicking on the AMP Ware icon on your desktop.
2. On the palette that opens, click on the "Create Subject" button.
3. Selecting "Create Subject" opens a window titled "Subject".

a. Assign a subject number to the test subject.
b. Enter the name of the test subject, if desired. This field is not required.
c. Enter the remaining subject information.
d. In the "Subject Notes" and "Medical Conditions" fields, you may record information about the test subject. (Note: Avoid using commas or carriage returns in these fields as they will be lost upon transfer to Excel.)
e. Click on the "Create Trial" button. This action saves the subject information so that the next time you want to download data from the same subject, the subject information can be opened. The subject information is also saved to a subject database.

4. Pressing "Create Trial" opens a window titled "Subject # -- Trial".
   a. Enter a short string in the "Trial ID" window. This can be a number or a string of letters that identify the particular test that was performed.
   b. Enter the name of the test supervisor and the pod number found on the back of the pod.
   c. In the "Trial Notes" field you may record any information about the test. (Note: Avoid using commas or carriage returns in these fields as they will be lost upon transfer to Excel.)
   d. In the "Desired Output" field, it is suggested that you leave the "All Activity Data" option selected.
5. Make sure that the pod is in upload mode. The display should read "UPLd". If the pod display reads "DATA", press and hold both buttons simultaneously for 1 s until the display reads "UPLd".
6. Make sure that the AMP Link is plugged into the USB port and that it is "breathing".
7. Click on the "DOWNLOAD" button on the "Trial Information" window in AMP Ware.
8. Messages regarding the download progress will appear in the black window. After the message "SUCCESSFUL", AMP Ware will automatically launch MS® Excel to display the data. Wait as Excel generates the workbook to display the data, this can take up to 20 s. Enable macros if prompted. Then a window will pop up informing you of the filename and the directory where the data is saved. The filename has the following format:

   subj#_trialstartdate_trial_ID.xls, for example:

   subj1300_16-06-03_trial_8.xls.

   The data is saved in a directory that is automatically created on the hard disk called C:\AMPDATA, and in a sub-directory called Subject_#. Where "#" represents the subject number.
9. The "Overview" tab of the workbook contains information about the data presented and the layout of the workbook.
10. All the normal features of Excel are available (e.g. functions, charts, …), and the data can be saved as a different name if desired.
11. Save the workbook before closing it to avoid being prompted to enable macros the next time you open the workbook. (Note: After the first time, it does not matter whether or not you enable the macros.)
12. To open the data later, either double-click on the file in Windows Explorer or use the File > Open function within Excel.

6.3.2 Downloading Data for an Existing Subject

To download data for a subject for whom a subject file already exists, it is not necessary to re-enter the subject information, simply use the "Open Subject" button. This feature can also be used to create Subject Information profiles in advance of collecting data.

1. Click on the “Open Subject” button on the AMP Ware top palette.
2. A window will open prompting the user to enter the subject number. Enter the subject number and click “OK”.
   Note: To see a database of subjects tested, select the “Open Database” button to open the Excel workbook called “AMP Subject Database.xls”. This data based can be found in the AMPDATA directory (C:\AMPDATA). This database contains Subject Information for every subject tested.
3. To proceed with downloading, click on the “Create Trial” button.
4. Follow Steps 4-10 in Section 5.3.1 above for downloading the data.

6.3.3 Editing Subject Profiles

1. Open an existing subject profile.
2. Click on the “Edit” button to enable updating of the fields.
3. To proceed with downloading, click the “Create Trial” button. This will save the changes to the subject profile.
4. To save the changes without proceeding with the download, click the “Save” button at the top and then close the window. This feature can also be used to create and save subject information profiles for later use.

6.3.4 Desired Output

The Desired Output field in the Trial Information window allows the user to specify what data gets written to the Excel workbook. The default selection is “All Activity Data”. To specify a subset of the data:

1. De-select “All Activity Data” by clicking on the adjacent checkbox.
2. AMP Ware will open a window warning the user that once the data is cleared from the pod the other activity data will not be available. Click “Continue” to proceed and select a subset of the available data, or “Cancel” to undo this choice.
   Note: It is possible to disable this warning by selecting the checkbox entitled “Don’t show me this warning again.”
3. With the “All Activity Data” checkbox disabled, the other checkboxes become available. Deselect types of data that are not desired. For example, to see only the number of steps taken, deselect everything except “Step Count”.
   Notes: Any combination of data is permitted however it is impossible to deselect everything.
   Before the pod is cleared, the data can be downloaded again and different output can be selected.

7 FREQUENTLY ASKED QUESTIONS

During downloading, the AMP Link can't connect with the pod ("No Connection" message).

- ?? Ensure that the pod is in the upload mode (pod displays "UPLd").
- ?? Follow the tips below for "No Connection" during downloading.

During downloading, the pod establishes a connection but then the connection is lost during downloading ("Connection lost." message).

- ?? Move the pod closer to the link.
- ?? Make sure that there are no other pods nearby in the upload mode.
- ?? Turn off other sources of RF such as cell phones or PDAs, and move the link away from the computer monitor.
- ?? Try downloading again.

After downloading, Excel does not open properly to display the data.

- ?? AMP Ware uses Excel macros to produce charts and compute totals. Ensure that the security level setting in Excel is set to "Medium" or "Low" so that the macros can run. To set this, open Excel, select "Tools" > "Macro" > "Security".
- ?? For Office XP users only: select the "Trusted Sources" tab on the same dialog box as above and select the checkbox that says "Trust access to Visual Basic Project".
- ?? If Excel is already open, make sure that control is not within a cell (use the "Esc" key or close Excel).

Some subjects find the ankle sleeve uncomfortable.

- ?? Sometimes the ankle sleeve may be uncomfortable if it is attached too tightly. It may be possible to loosen the ankle sleeve and still have a secure fit.
- ?? Some subjects may have to wear the ankle sleeve over a sock or stocking to eliminate skin irritation.

Can the ankle sleeve be worn in the shower, in the rain, or in the bath?

- ?? The AMP pod is tested to 1 atm for 24 hours so it will not be damaged by showering or bathing. The ankle sleeve however may be uncomfortable when wet.

Why is there a special button sequence to stop data collection?

- ?? This ensures that the test subject will not accidentally or intentionally stop data collection during the trial.

Once I have collected data, can I wait to download it later?

- ?? Yes, if the pod is turned off while it is in "DATA" mode, the next time it is turned on it will immediately display "DATA". Press and hold both buttons for 1 s to put the data in the upload mode.

Once I have downloaded data off the pod, can I download it again later?

?? Yes, after downloading the data, the pod goes back to “DATA” mode.

?? If the pod is turned off while in “DATA” mode, the next time it is turned on it will still be in “DATA” mode, ready for downloading.

?? However, you cannot collect new data until the old data is cleared off the pod.

The dates and/or times in the Excel workbook do not make sense.

?? Ensure that the date and time settings on the pod are correct. The date and time are displayed when the pod is first turned on and can be reset by pressing and holding the left button when the pod displays “PUSH START”.

?? Always set the time correctly after changing the battery.