AMP 231

Activity Monitoring System

DYNASTREAM™ TECHNOLOGY

DYNASTREAM™

AMP

HIGHLY ACCURATE • STEP COUNT • DISTANCE • SPEED • CALORIES
ACTIVITY MONITOR • WORN ON THE ANKLE • WORLDWIDE RF •
PERSONALIZED • DURABLE • COMFORTABLE • UNOBTRUSIVE • UNIVE
MONITORS LIFESTYLE PATTERNS • ADVANCED • DOWNLOADABLE •

A Step Ahead
in Activity Monitoring

USER GUIDE

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Features

Objective and accurate calculations of step count, activity class, distance, speed, and caloric expenditure.

LCD screen displays immediate information and feedback.

Wireless download to your computer using ANT, the worldwide 2.4 GHz radio frequency.*

Breakdown of daily or weekly activity into 10-minute intervals.*

Versatile text output for further analysis of data.*

*Available with AMP USB Stick and AMP Ware

Components

The AMP 231 Monitoring System offers valid, objective activity data in real time display and stores this data for further analysis. The system includes the monitoring pod, ankle sleeve, USB stick, AMP Ware application and documentation.

AMP Activity Monitoring Pod
The pod is the central device that monitors, records, and displays activity data. It features an easy-to-use four-button interface and a large LCD screen to provide immediate feedback.

AMP Ankle Sleeve
Made from washable, medical-grade, hypoallergenic materials, the comfortable sleeve stabilizes the pod on the ankle for optimal measurements.

AMP USB Stick
The small USB stick uses the ANT wireless communication protocol to upload the data from the pod to your computer.

AMP Ware
The AMP Ware software application controls the data uploads to your computer. The data is formatted in a comma delimited text file for easy import into your preferred analysis software.

AMP Documentation
The AMP Activity Monitoring System is supported by this User Guide, the AMP Quick Start Guide, the Help files included on your AMP Ware CD, and information on the Dynastream website (www.dynastream.com).

<<graphic – photo of complete system: pod, sleeve, USB stick, CD, help booklet? >>

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AMP Activity Monitoring Pod

The AMP Activity Monitoring Pod is the central device that monitors, records, and displays daily activity.

Power On and Off

To turn the pod on or off, hold down the UP button for 2 seconds. AMP displays briefly as the monitor powers up before moving to the three main modes. Note that the pod can be turned off only when there is no active monitoring session. Powering off the pod will not erase previously collected data.

Modes

The SETUP mode allows you to configure your AMP Activity Monitoring Pod.

Use the TRIAL mode to manage a monitoring session. Data collected during a monitoring session includes the amount of time spent in each of three activity classes (Inactive, Active, and Locomotion), number of steps taken, caloric expenditure, distance traveled, and locomotion speed.

Use the DATA mode to manage the collected data. View activity measurements from previous days, upload data to your computer, or clear the collected data.

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Basic Navigation

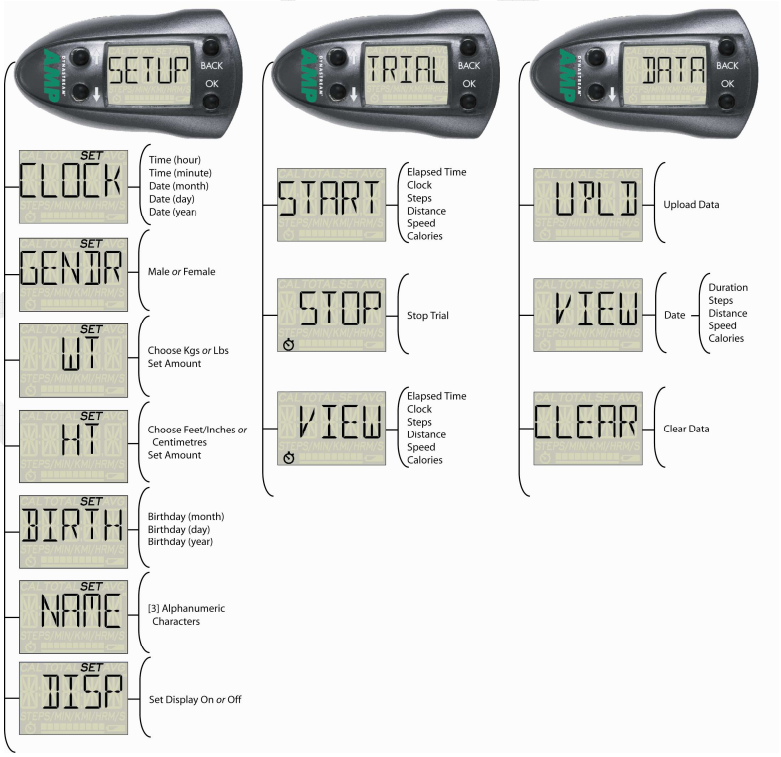
To navigate the menus on your AMP Activity Monitoring Pod:

Use the arrow buttons to navigate through the menus and to adjust settings up or down.

Use the OK button to choose a mode (SETUP, TRIAL, DATA) or a menu item (under each mode). The OK button is also used to accept and save a change. Changes are shown as flashing text.

Press BACK to return to the previous menu level without saving changes.

Menus



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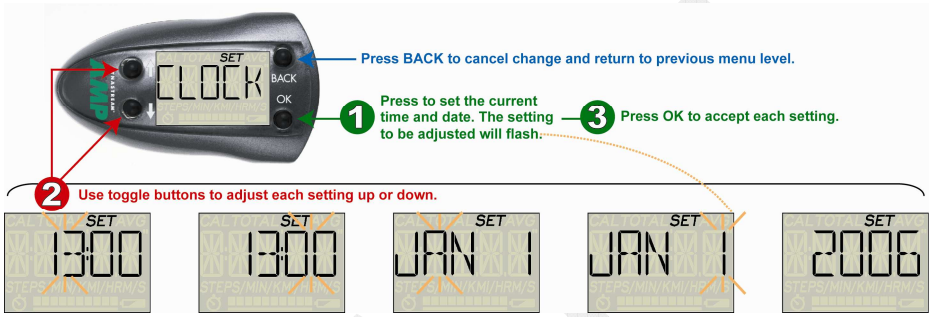
Setup

Date/time and user information must be entered before starting a trial. Once the monitor is powered on, press the arrow buttons to scroll to SETUP mode. Press OK to enter the SETUP mode to customize your pod. Use the arrow buttons to change settings. Press OK to accept a setting and move to the next setting. You can also use the arrow buttons to move directly to specific settings.

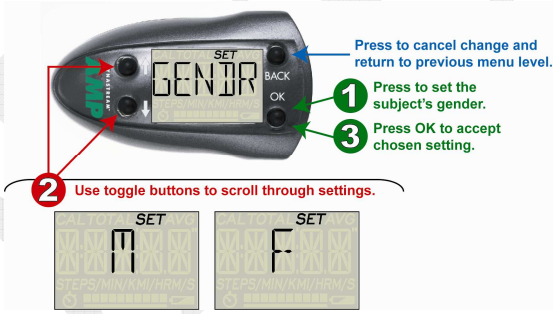
Clock

Set the current date and time in 24-hour format.



User Information

Enter settings for the user, including the gender, weight, height, birthday, and name/ID (optional). Weight and height can be entered in either metric or imperial measure.



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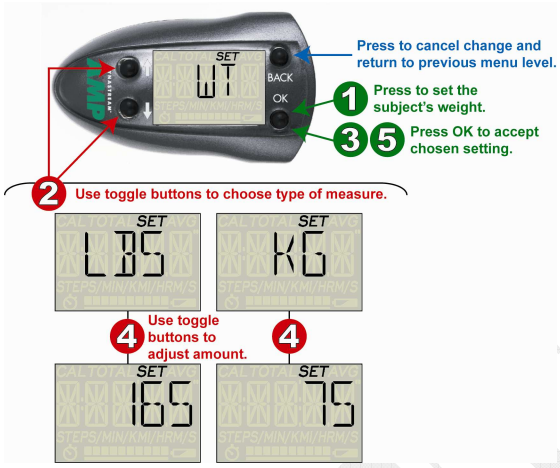

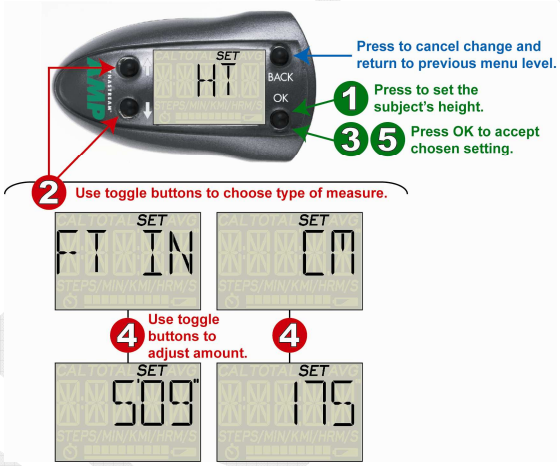

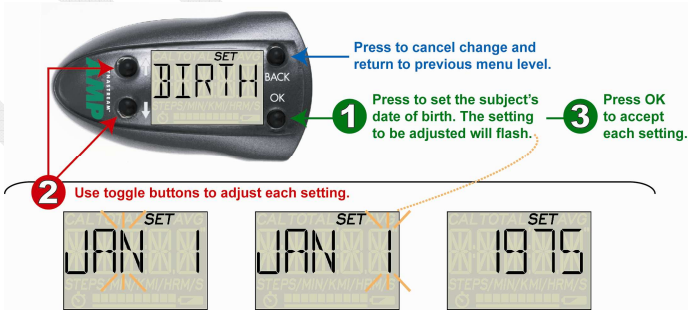

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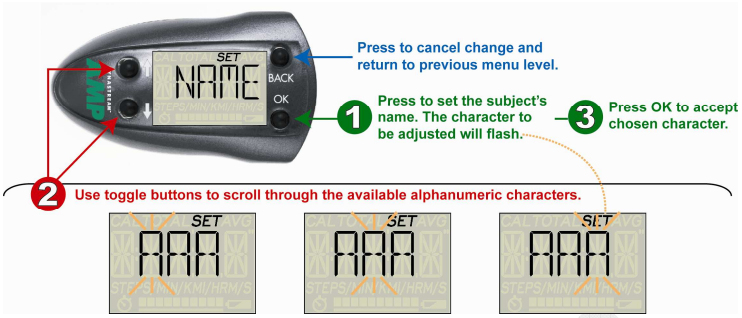
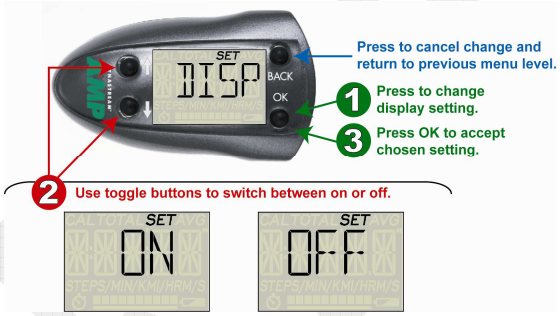


Display

The LCD display can be set to ON or OFF to enable or hide viewing of data during a trial. Viewable data includes the elapsed time since start of trial, number of steps, caloric expenditure, distance travelled, locomotion speed, and current time. If the Display setting is turned off, only the elapsed time (ELAP) and current time (CLOCK) screens are available. Elapsed time is displayed in hours, minutes and seconds (hh:mm:ss) until ten hours; after ten hours, elapsed time is displayed in days and hours (0D10).



Sleep Mode

During a trial, the LCD goes into sleep mode after five minutes without a button press. From sleep mode, the first button press will simply "wake up" the monitor; the press will not be recognized as UP/DOWN/BACK/OK. If a trial is not running, the pod will shut down after five minutes without a button press.

Trial

Use the TRIAL mode to gather activity data. The pod records the elapsed time since start of trial, number of steps, energy expenditure, distance, and speed. Initially elapsed time is displayed in hours, minutes and seconds (hh:mm:ss); after ten hours elapsed time is displayed in days and hours (0D10). The pod also records the amount of time spent in each of three activity classes (Inactive, Active, and Locomotion). Activity-class data is available in the downloaded *.csv file.

Start Trial

Use START to begin a monitoring session. The device must be properly configured (see SETUP mode) before starting a trial. Starting a session with the Display setting turned on makes the session data available for viewing; use the toggle buttons to scroll through data types. If the Display setting is turned off, only the elapsed time (ELAP) and current time (CLOCK) screens are available.

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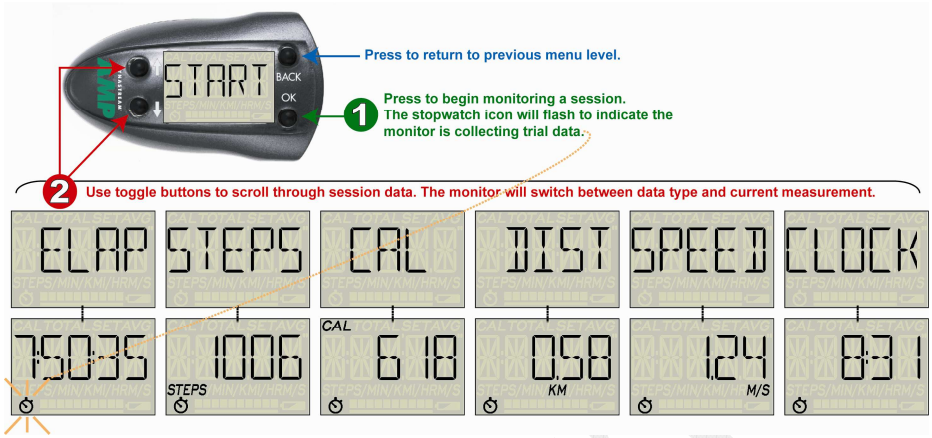
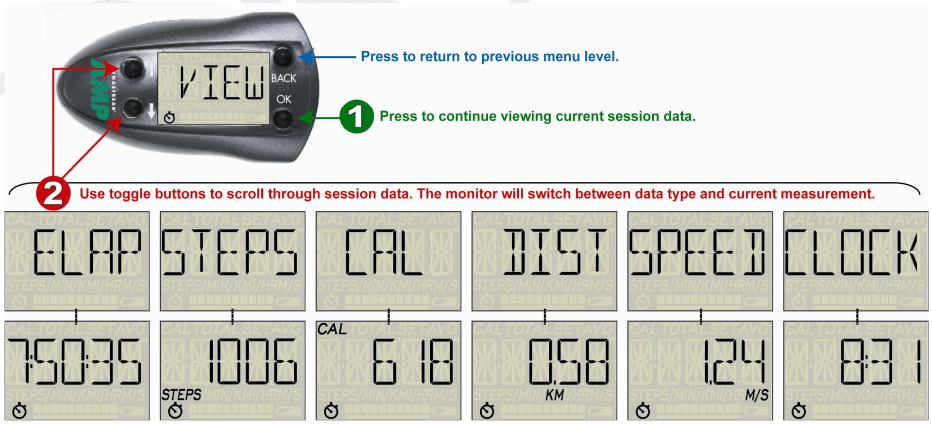


Stop Trial

Use STOP to end a monitoring session. Once started, a trial will continue until STOP is pressed. The pod will not power off until a trial is stopped.

View Trial

Use the VIEW menu to view updated data for the current monitoring session. This menu is automatically entered when a new session is started. If you have backed out to a different menu, navigate to VIEW and press OK to return to viewing the current session data. Use the arrow buttons to navigate through the viewable data.



Data

Use the DATA mode to view, upload, and erase user data. Further analysis of data may be performed after downloading it to your computer.

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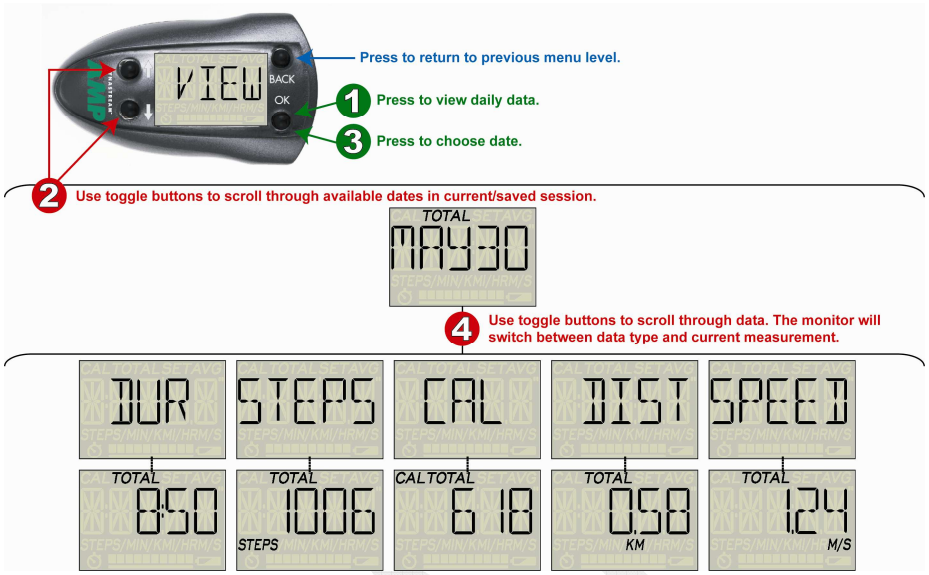
View

View data from previous days gathered during a monitoring session.



Clear

Erase data gathered during a monitoring session.

Upload

Upload data to your computer via the AMP USB Stick. The UPLD display flashes until the upload is complete. If the pod is unable to find the USB Stick after 30 seconds, the upload will be cancelled. Data cannot be uploaded until the AMP USB Stick drivers and the AMP Ware application are installed and running properly. For further instructions, see Using AMP Ware, page xx.

AMP Ankle Sleeve

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The ankle sleeve is used to position the pod on the user's ankle. The pod is inserted nose down into the pocket on the ankle sleeve. The sleeve is placed around the user's ankle with the pod to the back of the ankle and the pocket facing up. The strap should be tightened so the sleeve fits snugly, but comfortably. The firm fit is required to prevent the sleeve from sliding or side-to-side motion.

Ankle sleeves are available in three sizes to fit children age 6 to adults.

<<graphic – photo/illustration of 1] pod in sleeve and 2] sleeve on ankle >>

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Taking Care of Your AMP Activity Monitoring Pod and Ankle Sleeve

The pod should be stored with the battery removed (see Replacing the Battery, below, for instructions on removing the battery). The ankle sleeve can be washed in warm water with a mild detergent and hung to dry.

Replacing the Battery

The pod uses one AAA battery, which is estimated to last more than seven days. When the battery is low, the battery icon will flash. As the battery gets weaker, the icon will turn solid.

Power off the monitor before replacing the battery. The battery hatch is located on the flat end of the pod and can be opened by turning the cap counter-clockwise with a coin. Insert the battery with the positive end first. Data collected to this point will not be lost. However, date and time settings must be updated before a new session is started.

<<graphic – battery hatch >>

AMP USB Stick and AMP Ware

The AMP USB Stick enables the AMP Activity Monitoring Pod to wirelessly upload data to your computer using the supplied AMP Ware application.

Use the accompanying AMP 231 CD to install the AMP USB Stick drivers and the AMP Ware application.

Computer System Requirements

Computer type	PC with USB port and CD-Rom
Operating system	Windows® 2000, Windows ® XP
Processor speed	Minimum Pentium 266
Available RAM	64 MB
Available hard disk space	100 MB

<<graphic? USB stick photo, amp ware splash screen, etc.>>

Using AMP Ware

Follow the basic installation instructions to install the AMP USB Stick drivers and AMP Ware.
When AMP Ware is launched, the following session information screen will appear. The User ID# and Trial ID# fields must be filled in prior to data transfer. All other fields are optional. Optional fields are saved as notes in the data file. With the appropriate fields filled in, ensure that the USB stick into an available USB port on your computer, set the AMP Activity Monitoring Pod to the upload mode (see Data – Upload, page xx), and click on Download to begin the data transfer.

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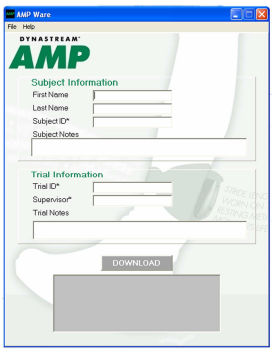

Trial Data

Trial data is downloaded to a comma delimited text file (*.csv). The file includes the optional information entered through the AMP Ware application; the user information entered when configuring the pod; the totals of the data measurements viewed on the pod; and time spent in each of the three activity classes as calculated by the pod.

Data File

The following chart details the data fields of a downloaded *.csv file.

DATA ELEMENT (TEXT STRING APPEARS IN FILE)	DATA FORMAT	NOTES
Subject ID	Alphanumeric string Max length =	Required data, obtained through AMP Ware application.
Subject Notes	Alphanumeric string Max length =	Data is optional.
Trial ID	Alphanumeric string Max length =	Required data, obtained through AMP Ware application.
Trial Notes	Alphanumeric string Max length =	Data is optional, obtained through AMP Ware.
Supervisor	Alphanumeric string Max length =	Data is optional, obtained through AMP Ware.
Pod Name	Alphanumeric string Length = 3	Data is optional, obtained from the pod.
Name	Alphanumeric string Max length =	Data is optional, obtained through AMP Ware, format is First Name+#+Last Name.
Height	Alphanumeric string (?) Imperial or Metric?	Required data, obtained from Activity Monitoring Pod.
Weight	Alphanumeric string (?) Imperial or Metric?	Required data, obtained from pod.
Gender	Alphanumeric string Length = 1	Required data, obtained from pod, either “M” or “F”.
Birthday	Alphanumeric string Max length = 10	Required data, obtained from pod, format is day/month/year, no zero padding
Etc.		

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AMPWare Version AFW0.002

SW Version AFG0.030+0000

HW Version 3.4
Start time Time in class

Date Time of Day Inactive Active Locomotion Total Cal Total Steps
Locomotion Steps Total Distance Locomotion Distance Locomotion Ave
Speed Notes

Activity Classes

Every second of the monitoring session is classified into one of three activity classes: Inactive, Active, and Locomotion.

Inactive Class

Time spent sitting, lying, or standing still is accumulated into the Inactive Class. To be classified as Inactive the wearer must not take any steps for at least 20 seconds.

Active Class

Time spent "up and about" is accumulated into the Active Class. Typical indoor movement activities in the Active class are preparing a meal, cleaning the house, or short trips around the office.

Locomotion Class

Time spent "walking somewhere" is accumulated into the Locomotion Class. The wearer must take at least 20 consecutive steps for the activity to register in the Locomotion Class. Examples include going for a walk, walking in a shopping mall, or walking across a parking lot. Speed is calculated for locomotion within this class.

FAQS

How do I know if the pod is collecting data?

- The flashing clock icon at the bottom of the screen on the pod flashes during data collection. If this icon is flashing, then you know data are being collected. If this icon is not visible then the pod is not collecting data.
- The pod shows the elapsed time since the start of the trial. Initially elapsed time is displayed in minutes and seconds (mm:ss), then hours and minutes (hh:mm), then days and hours (e.g. 3d04 for three days and four hours).

How do I stop data collection?

- Use STOP under the TRIAL menu.

If I accidentally press a button during data collection, will it affect the data or stop the trial?

- No, button presses will navigate through menus/data; only STOP under the TRIAL menu will stop the trial.

Can the pod be worn in the shower, in the rain, or in the bath?

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

What happens if the battery runs out during data collection?

· If the battery has run out, the pod display will be blank. The data collected before the battery ran out is still saved in the pod. To download the data, replace the battery as instructed in Section 2.2, then upload the data as usual.
· Always replace used batteries immediately.
· Use a fresh battery for each 7-day trial.

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

· Yes, the data is saved on the pod until it is cleared.

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

· Yes, however, you cannot start a new trial until the data is cleared off the pod.

Why can't I install the USB drivers and AMP Ware application?

· In order to install new hardware you need to have administrator privileges on the computer. If you are working on an institutional computer you may not have the necessary permissions. In order to install the drivers you may need to contact the IT coordinator.

AMP Ware Error Messages

<<chart – message number/error/solution>>

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Troubleshooting

AMP Activity Monitoring Pod and Ankle Sleeve

Possible Problem #1

Solution

Possible Problem #2

Solution

Etc. ...

AMP USB Stick and AMP Ware

Possible Problem #1

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

Solution

Ensure that the pod is in the upload mode (displays UPLD). Follow the tips below for "Connection lost" during downloading.

Possible Problem #2

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

Solution

Move the pod closer to the link.
Make sure that there are no other pods nearby in 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.

Additional help can be found on-line at www.dynastream.com.

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Warranty

Warranty blurb to come…

Specifications and Regulatory Information

Size (max dimensions):	73 x 41 x 25 mm (L x W x H)
Weight:	35 g
Strap:	Detachable elastic ankle strap, 320-520 mm (L)
Power:	Single user-replaceable AAA battery
Battery life:	Minimum 1 week of constant use
Storage temp:	-40°C to +85°C
Operating temp:	-10°C to +40°C
User-interface:	4-button LCD screen
Water resistance:	1 ATM for 24 hrs
Available data and accuracy:	Step Count: > 98% Speed and distance: > 95% Time in Activity Classes (Inactive, Active, Locomotion) Caloric expenditure
RF frequency/protocol:	2.4 GHz / Dynastream ANT protocol
Communication range:	> 1 m (receiver dependent)
Regulatory compliance:	FCC, IC, and CE ready

FCC Compliance

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

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- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the product warranty and the user's authority to operate this equipment under Part 15 regulations.

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