Oregon
Research
Electronics

Product ERRATA

Acceleration Logger - Models AL100/101
Acceleration Sense

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Special Notices

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Document Access

This errata note may be found at http://www.orelectronics.net/documentation. The revised AL101 manual (Version 7) can be found at the same place. The revised AL100 manual, when ready, will also be there.

Table of Contents

PART 1: INTRODUCTION

A design flaw in both the AL100 and AL100 resulted in some axes having incorrect plus/minus sense in some places where acceleration values can be seen.

While this flaw should not have happened, it has no effect on sway frequency observations. This flaw can effect other acceleration sensing applications, such as motor vehicles or machinery.

The flaw affects both AL100 and AL101 equally. It has been present since the first units were produced.

PART 2: PROBLEM DESCRIPTION

There are two "issues" that combine to produce this flaw. The first is that the graphic representation of the three acceleration axes on the instrument label (inside the lid and visible through the lid) is incorrect, The second is that the representation of these axes in the manual is both confusing and inconsistent with the label.

ORE considers the axis representation on the label to be the "system reference". It provides a coordinate system that can be seen while installing the instrument. It MUST be consistent with the axes in the sensor for the senses to be correct. For at least one axis, it is not consistent with the sensor!

In several places in the manual, the front panel of the instrument is shown. These images are, therefore, similarly inconsistent. In a few places, images that attempt to show axis orientation are confusing (and not consistent with other manual images).

PART 3: CORRECTING THE FLAW

The correction is conceptually simple but requires some one-time fine work to replace the instrument label. A companion effort by ORE will edit the manual to make that consistent with the label.

PART 3A: CORRECTION PRINCIPLES

Several basic principles will be used to guide how the correction is done. Those principles are:

1. Internal instrument software will NOT be changed. There are a number of reasons for this: (1) both AL100 and AL101 are past the end of their production life.; (2) changes are expensive; (3) during an update, it is easy to make errors that could leave the instrument unusable; (4) correction by software change would leave raw date from before the change incompatible with raw data taken after the change; legacy data can be reversibly updated but many users would find this an undesirable task.

2. No software change means that after the correction, the physical sensor axes will have the same orientation with respect to the enclosure as they did before the correction.

3. Without change in sensor axis orientation, the only practical correction is to make documentation references to the sensor axes consistent with the physical sensor axes.

4. The standard reference for the instrument coordinate system is printed on the instrument label. All other references are subordinate to the label. If there is a remaining conflict, the label coordinates are the correct ones.

5. For coordinate system consistency, the reference coordinate system will be arranged so that rotating the instrument enclosure until one particular axis is vertical and the positive sense of that axis is up, the gravity acceleration will read negative on that axis. This will result in the reference axes being redrawn and corresponding manual references being updated to agree with the label.

6. The new coordinate system may be used with legacy data, and it will be correct. The data,. itself, needs no modification.

PART 3B: CORRECTING THE LABEL

"Correcting the label" means replacing the label inside the instrument lid with a label that shows the correct axis orientation. Once this is done, and the manual is corrected, nothing further needs to be done.

A template for AL100 and AL101 labels can be found at the end of this document. They appear as two complete images that can be copied and pasted into another document for printing. You should be able to get four of these labels on a single sheet of paper. Rescaling or resizing may be necessary if the labels are not the correct size.

The label is printed on ordinary paper. It is cut and folded to fit inside the instrument lid and held in place with two pieces of "office tape". The steps are as follows:

1. Remove the lid from the instrument. Note how the lid (and its label, inside) are oriented with respect to the status LEDs at the top of the instrument.

2. Carefully remove the label. It is held in place with a piece of "office tape" on each long side of the lid. You should be able to lift the tape from the plastic lid without scratching the lid. Scratches, if shallow, do not damage the lid but do affect appearance.

3. Observe how the label is folded to fit inside the lid.

4. Print a new label from the template at the end of this note. The dimension shown on the template gives the final printed size. The template may be scaled so that it is the correct size. The size is important; otherwise, it will be too large or too small to fit, correctly. You should be able to fit four labels onto a single piece of paper. To avoid confusion or errors, print only the label for the instrument model number you have,

5. After printing, use scissors to trim away the surplus paper from around the label. Check the original label to see how it should be trimmed. In most cases, cutting down the center of the label outline should be correct.

6. Before folding, add the instrument serial number on the line at the bottom of the label. Use the number from the old label. The serial number should also be written on the outside bottom of the instrument enclosure. Use a good black-ink ball-pen. Wait for the ink to dry if it has a tendency to smear.

7. Carefully fold the three "tabs" of the label. They fold ON the fold lines. If you place the printed face down on a table, the tabs fold upward. The author creases them hard, against a firm surface. Leave the the two side tabs bent slightly outward; this helps keep the label in place during the remaining steps.

8. Fit the label into the lid. Slide the label down so that the tab at the bottom of the label is firmly against the end of the lid.

9. Cut a piece of office tape about 2cm long. With scissors, cut the tape lengthwise, close to the center of the tape. You should now have 2 pieces, each about 2cm long and `about 1/2 cm in width.

10. The folded label tabs will not quite reach the top edge of the "wall" around the lid. This leaves a small space where tape can stick to the plastic. With tweezers or small needle-nose pliers, hold one of the tape pieces and place it over the tab and extending onto the plastic of the lid. Do not let it extend above the edge of the lid wall as this can prevent proper weather seals. Place the tape near the middle of the side of the lid. Press firmly to make certain that the tape sticks to both the label and the lid.

11. Repeat with the second piece of tape on the other side of the lid.

12. The label should be secure and not fall out of the lid.

13. Place the lid onto the other part of the enclosure. Nothing should keep the lid from sitting evenly, all the way around, on the enclosure.

14. If no other work is to be done, secure the four screws that hold the lid.

15. Repeat this process for any other AL100/AL101 instruments you have.

16. Job is done.

PART 4: LABEL TEMPLATES

Each of the two templates, below, should appear as a separate image. You should be able to copy either image, and paste it onto a separate document page that supports images. You may be able to get 4 images on a page. If necessary, rescale or resize the image until the horizontal dimension is the indicated size in the printout.