

AEAS-7000 Plug and Play Installation Considerations

Application Note 5048

Introduction

AEAS-7000 comes in the form of an absolute encoder read-head and absolute code disk. The AEAS-7000 plug and play concept basically eliminates the need for tedious manual alignment of photodiodes and code disk. Design of the AEAS-7000 gives the user the ease of use during installation with minimum alignment required.

Mounting Considerations for AEAS-7000

Figure 1 shows the package outline of the AEAS-7000. The device comes with a standard 1.27 mm pitch header pin.

Figures 2 and 3 are guidelines for mounting the AEAS-7000 to a motor bearing stage.

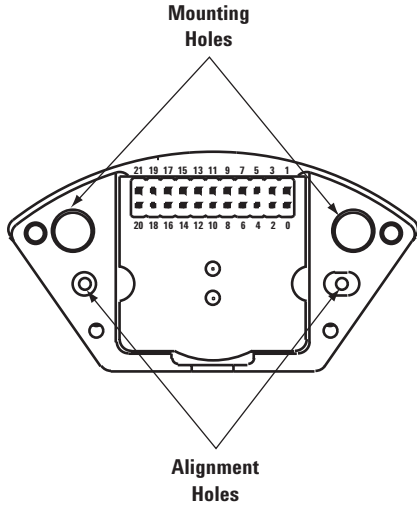
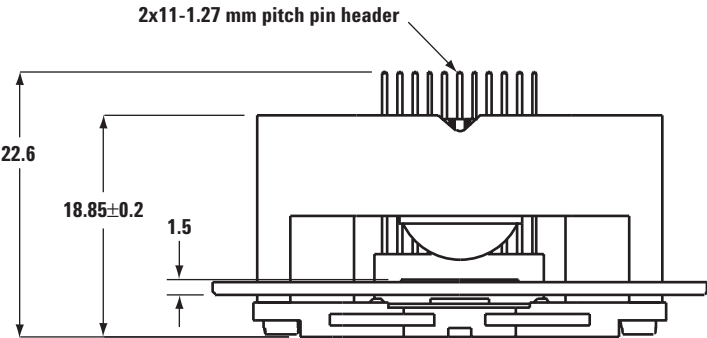
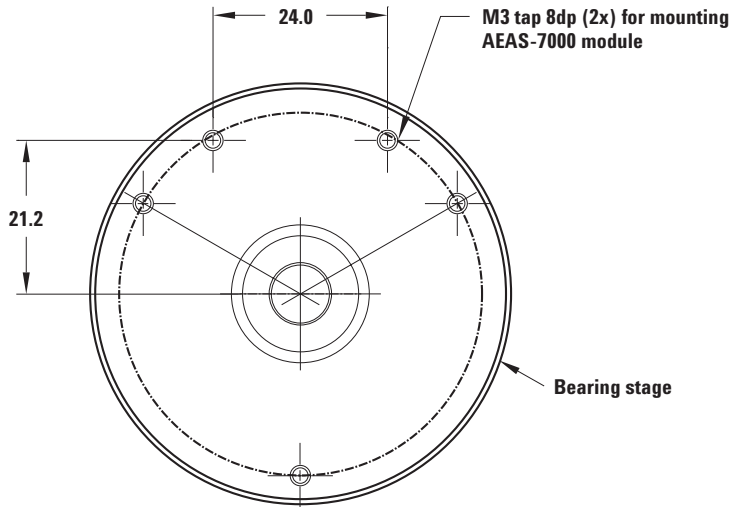


Figure 1. Package outline of the AEAS-7000.



Dimensions are in millimeters.

Figure 2. Mounting hole dimensions for AEAS-7000.

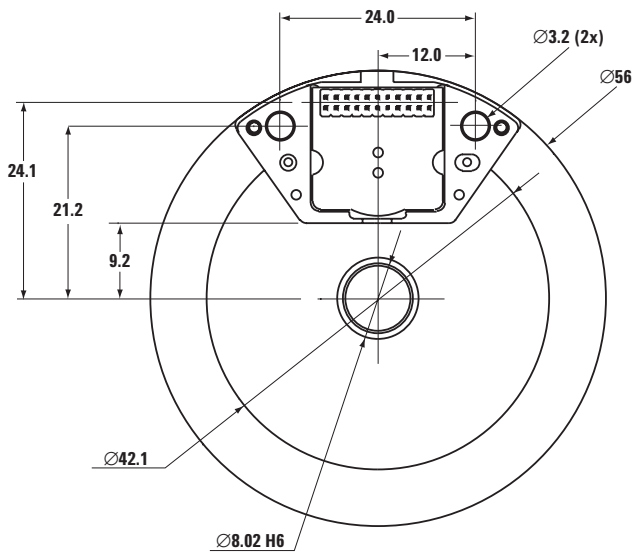


Figure 3. Mounting of AEAS-7000 on a bearing stage as shown in Figure 2.

In Figure 4, an example is given of an application whereby the AEAS-7000 is mounted onto a bearing stage with the code disk attached to a hub-shaft. The code disk hub-shaft is *not* provided by Agilent Technologies.

Figure 5 details the design of the hub-shaft of which the dimensions must be strictly followed for the plug and play feature of the AEAS-7000 to work.

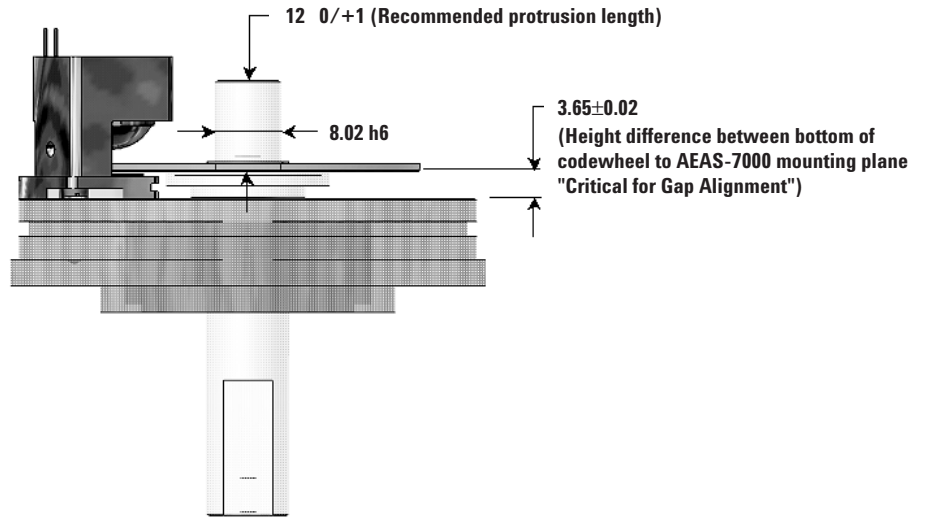


Figure 4. Mounting of AEAS-7000 on a housed-encoder flange.

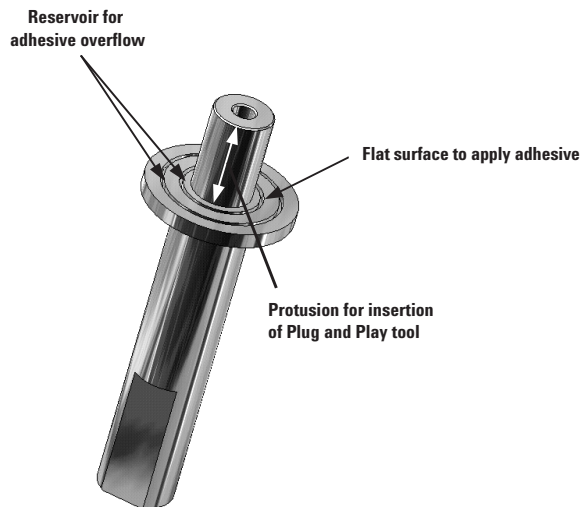


Figure 5. Illustration of the hub-shaft design.

Codewheel to Hub Assembly

Step 1

The code disk is secured on the code disk hub-shaft with adhesive. Adhesive must be applied on the flat surface of the hub as detailed in Figure 5.

Step 2

Referring to Figure 7, ensure the code disk orientation is correctly positioned. The artwork of the code disk needs to be facing down toward the detector. The artwork is the opposite to the protrusion on the inner diameter of the code disk.

Step 3

Pressing near the ID of the codewheel is required to ensure the codewheel sits flush to the hub.

Step 4

Adhesive Curing

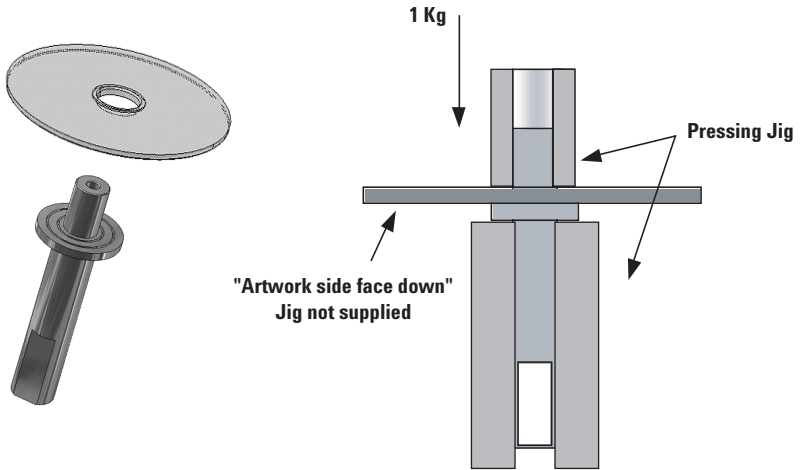


Figure 7. Attaching the codewheel to hub-shaft assembly using a pressing jig.

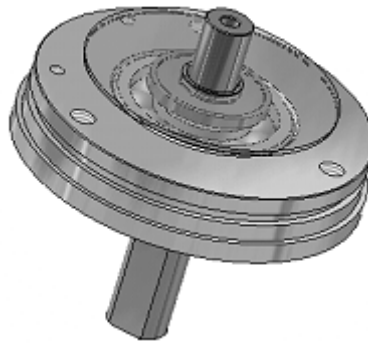


Figure 8. Shows a shafted code disk assembled onto a bearing stage.

AEAS-7000 Installation

Step 1

AEAS-7000 must be carefully positioned on the bearing stage. Care must be taken to avoid knocking the code disk during this process, which has a risk of damaging the code disk. Check to ensure that the code disk still can make a smooth rotation.

Step 2

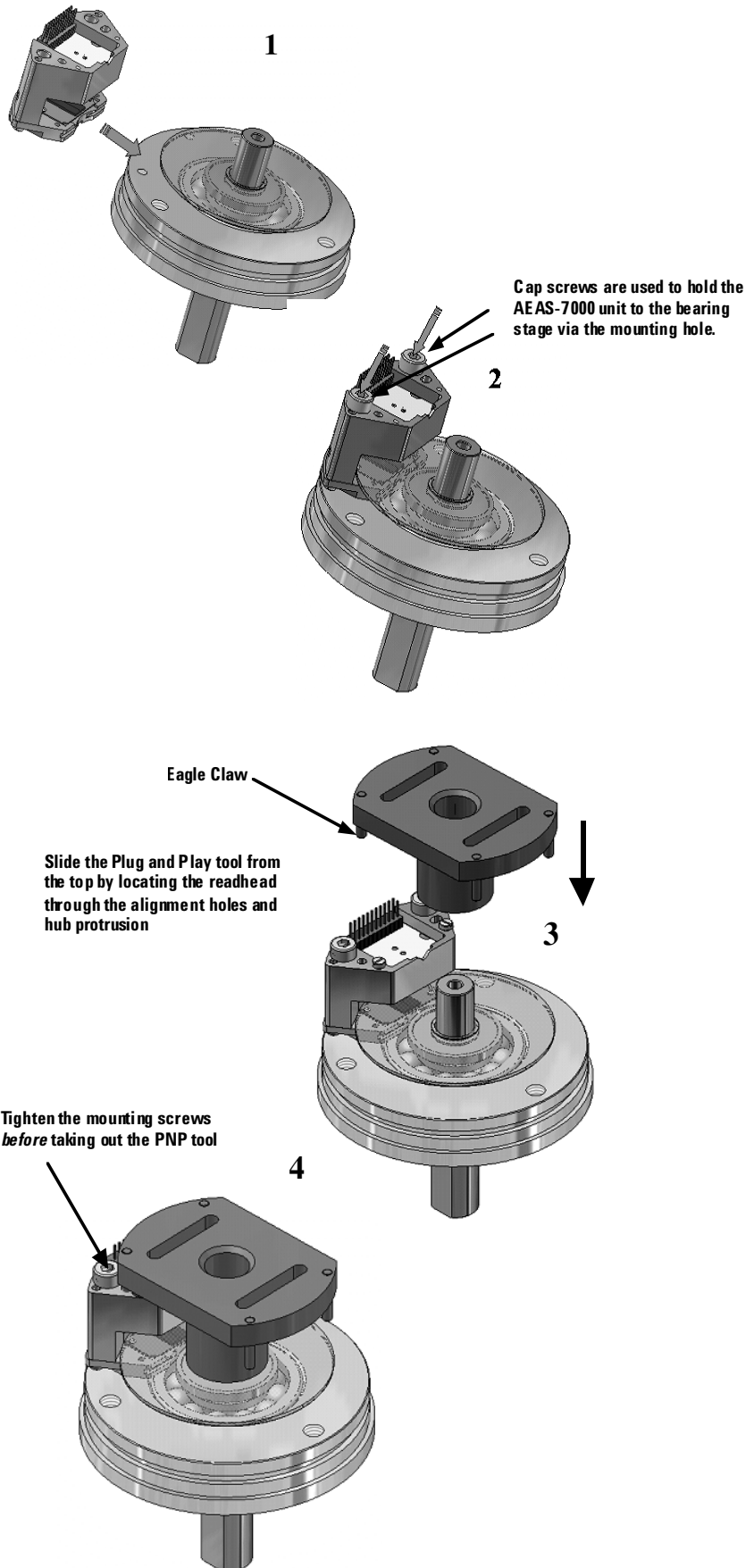
The encoder is secured with 25 mm length M3 size screws. The mounting holes are used for this purpose. At this point the screws are not tightened, as the alignment process is next.

Step 3

Next is the alignment process. Locate the plug and play tool eagle claw in the readhead alignment holes and the hub protrusion. In this position the AEAS-7000 is correctly aligned to the code disk.

Step 4

With the plug and play tool in place, the AEAS-7000 is correctly aligned to the code disk. Tighten the mounting screws to fix the location of the AEAS-7000 unit in the aligned position. While tightening the screws, lightly press a finger at the center of the plug and play tool. This will ensure the tool sits flush on the codewheel. Recommended torque force to secure the screw is 7 lb in or 0.79 Nm, which will able the unit to withstand vibrations of up to 5G.



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