



# ADVENT LINEAR AXIS/ Z-AXIS/ ROTATION MOTION CONTROL CALIBRATION

Doc. No.: TP-AD-006

Revision: 1

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Effective Date: 04/15/2008

## 1. INTRODUCTION

This procedure is used to calibrate an ADVENT System linear motion axis, z-axis or rotation axis control function to assure accurate and reliable motion control. This procedure applies to all ADVENT Systems.

## 2. RESPONSIBILITIES

Performer	Responsibility
Technician	After assuring prerequisites are met, performs a calibration check of the ADVENT motion control function(s) using steps 4.1 through 4.12.  Performs basic troubleshooting per step 4.13 and 4.14 if required.  If the motion control function fails to calibrate properly, initiates troubleshooting with assistance of AMET Technical Support.

## 3. PREREQUISITS

Record the ADVENT unit serial number in Appendix A, Table A-1. The following tools and equipment are required by this calibration procedure:

- 3.1 Non-permanent pen or pencil.
- 3.2 Measuring device (accurate rule or dial indicator).

## 4. INSTRUCTIONS

- 4.1 Launch CALIBRATION Mode from the ADVENT Control Panel.
- 4.2 Choose the “Controller” pull down menu from the top of the screen and select EDIT Mode. Expand the “Hardware Configuration” section by clicking on the arrow next to “Hardware Configuration.” Expand “Servo Control” by clicking on the arrow next to “Servo Control.” Select the servo axis that you are working on by double clicking on the servo name. Record the “Encoder Resolution” and “Drive Ratio” in Appendix A, Table A-1.
- 4.3 Expand the “I/O Channels” section on the left side of the screen by clicking on the arrow next to “I/O Channels”.
- 4.4 Expand the “Servo Channels” section on the left side of the screen by clicking on the arrow next to “Servo Channels”.
- 4.5 Double click on the axis for which you would like to check calibration.
- 4.6 HOME the selected axis by using the associated **HOME** button located in the middle of the dialog box that you just opened. The button has a pictorial



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representation of a “House”. Once the selected axis has completed travel and is in the home position, it is ready for calibration.

- 4.7. Mark the location of the slide by using a non-permanent pen or pencil. This mark will allow you to measure the actual distance that the axis has traveled. Another option for this step is to use a dial indicator to measure the travel distance.
- 4.8. In the “Position” box enter 5 inches travel (360 degrees for rotation motion) in order to check the calibration.
- 4.9. In the “Velocity” box enter in a velocity value that you would like the slide to travel in order to reach the 5 inch (360 degree) position.
- 4.10. Select “Move Absolute” from the mode box.
- 4.11. Press the **Start** button in the axis dialog box and let the slide finish its move.
- 4.12. Once the axis is done moving, measure the distance of travel by using an accurate measuring device. Record the measurement in Appendix A, Table A-1. If the measurement is within the expected range, the calibration is complete. If the measurement is incorrect then continue with step 4.13.
- 4.13. Verify that all electrical and mechanical connections are sound and there is no slippage of the motor shaft to the encoder or gear box. If corrections were made repeat steps 4.3 through 4.12.
- 4.14. If the travel distance continues to be incorrect or there are no mechanical or electrical discrepancies then contact AMET Technical Support (208-356-7274) for the correct “Encoder Resolution” and “Drive Ratio” values.

### 5. RECORDS

The records for this calibration are in Appendix A, *ADVENT Linear Axis/Z-Axis/Rotation Motion Control Calibration Data*.

### 6. DEFINITIONS

None

### 7. REFERENCES

- ADVENT System Manual, SM-[TBD] - DRAFT
- ADVENT Maintenance Manual, MM-[TBD] - DRAFT

### 8. APPENDIXES

- 8.1. Appendix A, *ADVENT Linear Axis/Z-Axis/Rotation Motion Control Calibration Data*.



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**Appendix A**

**ADVENT Linear Axis/Z-Axis/Rotation Motion Control Calibration Data**

\_\_\_\_\_  
Technician:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
ADVENT Unit Serial Number:

**Table A-1 – ADVENT Wire Feeder Calibration Data**

<b>Parameter</b>	<b>As Set</b>	<b>As Measured</b>	<b>Expected</b>
Step 4.11 – ENCODER RESOLUTION			
Step 4.11 – DRIVE RATIO			
Step 4.6 – INCHES COMMANDED	5 inches (360 degrees)		
Step 4.10 – INCHES OUTPUT			5 ± 0.1 inches (360 ± 1 degree)