



LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

LIGO- E1100962-v1

Advanced LIGO

30 September 2011

Test Procedure for the Picomotor Feedthrough and Breakout

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Distribution of this document:
LIGO Scientific Collaboration

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1 Overview

The picomotor feedthrough, [D1101691-v1](#), connects to the front panel of a picomotor controller, [D1100323-v2](#), using a DB25 cable. The 2 DB9 outputs connect to a picomotor breakout box, [D1101738-v2](#), which contains 4 RJ-11 sockets to connect to 4 different picomotor axes. The picomotor controller is connected to a EtherCAT/Beckhoff system. The test software is described in [T1100458-v1](#).

2 Test Equipment

- Picomotor controller, [D1100323-v2](#).
- Computer with EtherCAT/Beckhoff software for controlling picomotors.
- 1 DB25 m-f cable.
- 2 DB9 m-f cable.
- 1 picomotor with RJ-11 connector.
- DC power supplies.

3 Feedthrough Test

Power up the measurement equipment and connect the picomotor feedthrough (DUT) as well as 1 or 2 picomotor breakout boxes. Connect the picomotor to the first axis and use the computer to drive it. Continue this for all 8 axes.

Breakout	Axes	Pass/Fail
1	1X	
1	1Y	
1	2X	
1	2Y	
2	1X	
2	1Y	
2	2X	
2	2Y	

4 Breakout Box Test

Power up the measurement equipment and connect a picomotor feedthrough as well as the picomotor breakout box (DUT). Connect the picomotor to the first axis and use the computer to drive it. Continue this for all 4 axes.

Axes	Pass/Fail
1X	
1Y	
2X	
2Y	