



LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

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Advanced LIGO

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Test Procedure for Slow Controls Concentrator Auxiliary 11

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1 Overview

The slow controls concentrator auxiliary 5 supports 4 DC photodiode amplifiers.

2 Test Equipment

- Multimeter, scope and signal generator.
- Second slow controls concentrator auxiliary mockup ([D2300326-v1](#)).
Use 2 quad TNC/GND breakouts instead of the legacy LSC photodetector board. Either use no front panel or use a slow controls concentrator auxiliary 1 front panel.
- Legacy LSC Photodetector with 15-pin D-sub extension cable.
- Flashlight
- DC power supplies.

3 Documentation

- Schematics—[D2300326-v1](#)

4 Tests

Power up the measurement equipment and open the lid of the DUT. Connect a DB37 cable (male-male) between the DUT and the second slow controls concentrator.

4.1 Power

Check the voltages on the concentrator power board. The voltage should be within 5% of nominal. Test that the OK signal is a TTL low ($<0.8V$).

TP6 (+5V) _____

TP8 (+15V) _____

TP3 (-15V) _____

TP9 (OK) _____

4.2 LED

Check that the LED on the front panel and the 2 LEDs on the rear panel are lit.

Front panel LED _____

Rear panel LEDs _____

4.3 Testing

4.3.1 Legacy LSC Photodetector

The 8 BNCs of the 2 quad TNC/GND breakout boards located in the second chassis have the connectors assigned as: not used, not used, status, D2, D1, D0, not used, PD monitor.

Connect the legacy LSC photodetector and watch the LED turn on. Check the status on the second chassis, which should be TTL levels.

Front panel LED of legacy PSC PD _____ TTL level at status _____

Hook up a DVM to the front-panel monitor output of the legacy LSC PD, and the PD monitor of the second chassis. Use a flash light to illuminate the legacy LSC PD and monitor that the DVM readback changes.

Signal	Voltage at DUT	Voltage at 2 nd unit	Cable
Photodetector monitor			Not used

Mount the flashlight at fixed position and make sure the monitor readback does not read more than 100 mV. Using Gray-encoding ground D0-D2 on the second chassis in turn to cycle through all the gain stages.

Gain	D2	D1	D0	Voltage at DUT	Voltage at 2 nd unit	Cable
0 dB	open	open	open			Not used
10 dB	open	open	GND			Not used
20 dB	open	GND	GND			Not used
30 dB	open	GND	open			Not used
40 dB	GND	GND	open			Not used
40 dB	GND	GND	GND			Not used
40 dB	GND	open	GND			Not used
40 dB	GND	open	open			Not used