

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY
-LIGO-
CALIFORNIA INSTITUTE OF TECHNOLOGY
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Technical Note	LIGO-E080543-00-D	12/23/08
Master and FanOut Board Assembly Instructions Advanced LIGO		
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This is an internal working note
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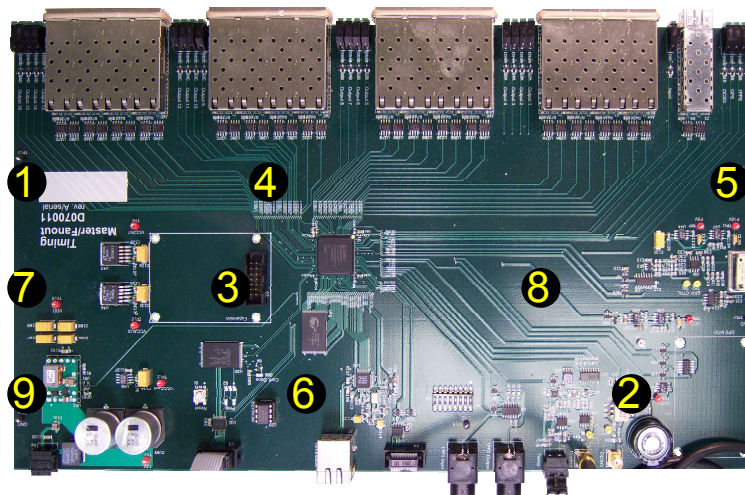
Master and FanOut Board Assembly Instructions for Advanced LIGO

This document provides a step-by-step instruction to the mechanical and wiring assembly of the Master FanOut unit to enable the manufacturing of modules ready for deployment. Parts are referred to with their names as they appear in the Schematic (D080534-A) of the Master FanOut unit.

Assembly person's name:..... Signature:.....

Serial Numbers: Chassis..... Front Board..... Rear Board.....

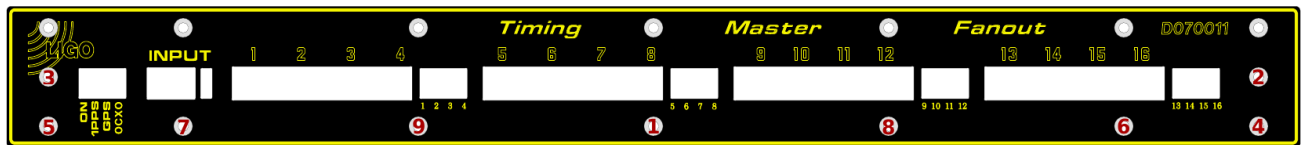
0. Check if the 4 GPS module standoff screws are fastened onto the Master front board with nuts and lock washers.
1. Check if 4 rubber rings are placed on the on the 16 SFP output connectors of the Master/FanOut front board.
2. Place the GPS board onto the 4 standoff screws on the Master front board.
3. Place 4 screws (M10-M13) into the GPS board and fasten them to the 4 standoff screws on the Master front board.
4. Check if there is a heat sink on the FPGA chip on the Master/FanOut front board.
5. Place the Master/FanOut front board onto the Chassis (D070012-A). Make sure the 9 screw-holes on the Master FanOut front board are over the standoff screws on the Chassis.
6. Fasten the 9 screws (M1-M9) with lock washers into the Master FanOut front board in the order given on the figure below:



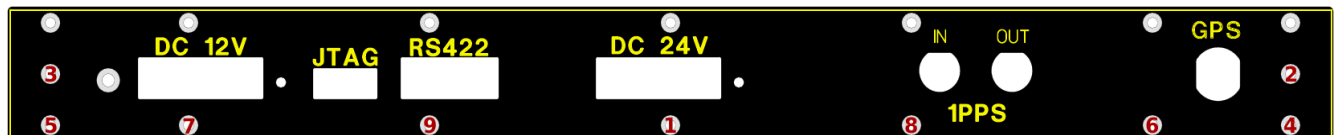
7. Place the Master/FanOut board front panel (D080516-D) onto the chassis. Make sure that the SFP connectors of the Master/FanOut front board are inserted into the front panel.



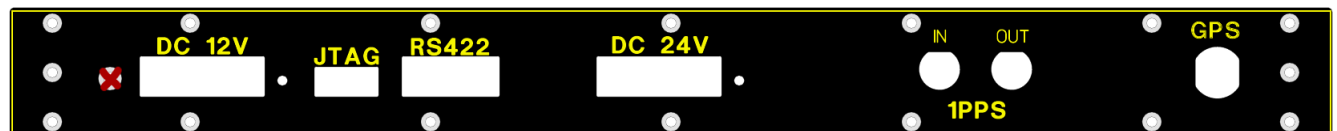
8. Fasten 9 screws (E1-E9) into the front panel in the order given on the figure below:



9. Release and then fasten the even numbered screws (M2-M8) on the Master/FanOut front board
10. Release and then fasten the odd numbered screws (M1-M9) on the Master/FanOut front board.
11. Connect Cable #1 (C1) to the 2x20 header on the Master/FanOut front board. Make sure that you support the front board from under the header while pushing the connector into the header so the board does not bend.
12. Connect Cable #2 (C4) to the SMA female connector (J2, OCXO) on the Master front board.
13. Connect Cable #3 (C2) to the MMCX connector on the GPS board.
14. Place the Master or FanOut board rear panel (D080517-D) onto the Chassis.
15. Fasten 9 screws (E10-E18) into the Master board rear panel in the order given on the figure below: (follow similar order on the FanOut rear panels which look slightly different)



16. Remove the 2 nuts and washers from BNC Female connectors J1 and J2 on Master or FanOut back board (D080094-C).
17. Place the Master or FanOut back board into the Chassis, inserting its connectors into the back side of the Master or FanOut board rear panel.
18. Loosely place the two washers and nuts to the two BNC female connectors J1 and J2 from the outside of the Master or FanOut board rear panel.
19. Place 1 screw (M16) to the back panel into the screw hole shown on the picture below, and fasten it to the screw hole on the Master or FanOut back board.



20. Take the SMA female/N female bulkhead (C3) and place a rubber ring onto its N connector (Master only).



21. Place the SMA female/N female bulkhead into the GPS hole of the Master board rear panel from the inside so the N female connector part is pointing outside.
22. Place a lock washer and a nut onto the N connector of the SMA female/N female bulkhead from the outside of the Master board rear panel.
23. Connect the free end of Cable #1 to the 2x20 header on Master or FanOut back board. Make sure that you support the back board from under the header while pushing the connector into the header so the board does not bend.
24. Connect the free end of Cable #2 to the SMA female connector on the OCXO module on the Master back board.
25. Connect the free end of Cable #3 to the SMA female end of the SMA female/N female bulkhead on the Master board rear panel.
26. Label Chassis, Master/FanOut front board and Master or FanOut back board. Make sure that the assembled components have the same labels.
27. Place the two mounting ears (H1 & H2) onto the two sides of the Chassis. Place 6 screws (E19-E25), 3 for each ear, and fasten the ears to the Chassis.
28. Integrate the assembled Master or FanOut module (E080541, E090002).
29. Test the assembled Master or FanOut module (E080541, E090002).
30. If the test is successful and the Master or FanOut module operates properly, place the top cover onto the chassis.
31. Place 7 screws (E26-E33) into the Master/FanOut front panel to fasten the Chassis top cover to the front panel.
32. Place 7 screws (E34-E41) into Master or FanOut back panel to fasten the Chassis top cover to the back panel.

END.

