

*MEMORANDUM*

DATE: April 4, 2019

TO: ISC team  
FROM: Daniel Sigg  
SUBJECT: Modifications to the common mode boards (DAQ readbacks)  
Refer to: LIGO-E1900103-v1

Version 6 of the AA board, [D070081](#), has AD8622 operational amplifiers at both the input and output which are too slow and exceed their slew rate limit. These OpAmps need to be changed into faster ones for the DAQ channels of the common mode boards.

The common mode servo boards, [D040180](#), suffer from noise in the DAQ readback channels that is due to large high frequency signals and slew rate limitations in the AA boards that follow.

These changes are already done for CM and MC variants, see [E1800338](#).

Capacitors need to be NP0/COG or metal film.

## Change 1:

Add two ~15 kHz low pass to the error signal DAQ readback.

C78 → 1 nF

C79 → 3.3 nF

## Change 2:

Add a 500 Hz & 14kHz low pass to the slow DAQ readback.

C241 → 3.3 nF

C243 → 10 nF

## Change 3:

Add two ~15 kHz low pass to the fast DAQ readback.

C293 → 3.3 nF

C295 → 330 pF



Change 4 (AA board D070081 and channels associated with CM & MC readbacks):

Use faster OpAmps for the differential receiver and drivers.

U2 → ADA4075-2

U3 → ADA4075-2

BOM (for 1 board):

Qty	Item	Distributor	Description
1	81-GRM2165C1H332FA1J	Mouser	C79, 3.3 nF, 1%
2	80-C322C332F5G	Mouser	C241/C293, 3.3 nF, 1%
1	581-08055A331FAT2A	Mouser	C295, 330 pF, 1%
1	81-GRM2195C1H103FA1D	Mouser	C243, 10nF, 1%
1	581-08055A102FAT2A	Mouser	C78, 1nF, 1%
6	ADA4075-2ARZ	Digi-Key	U2/U3