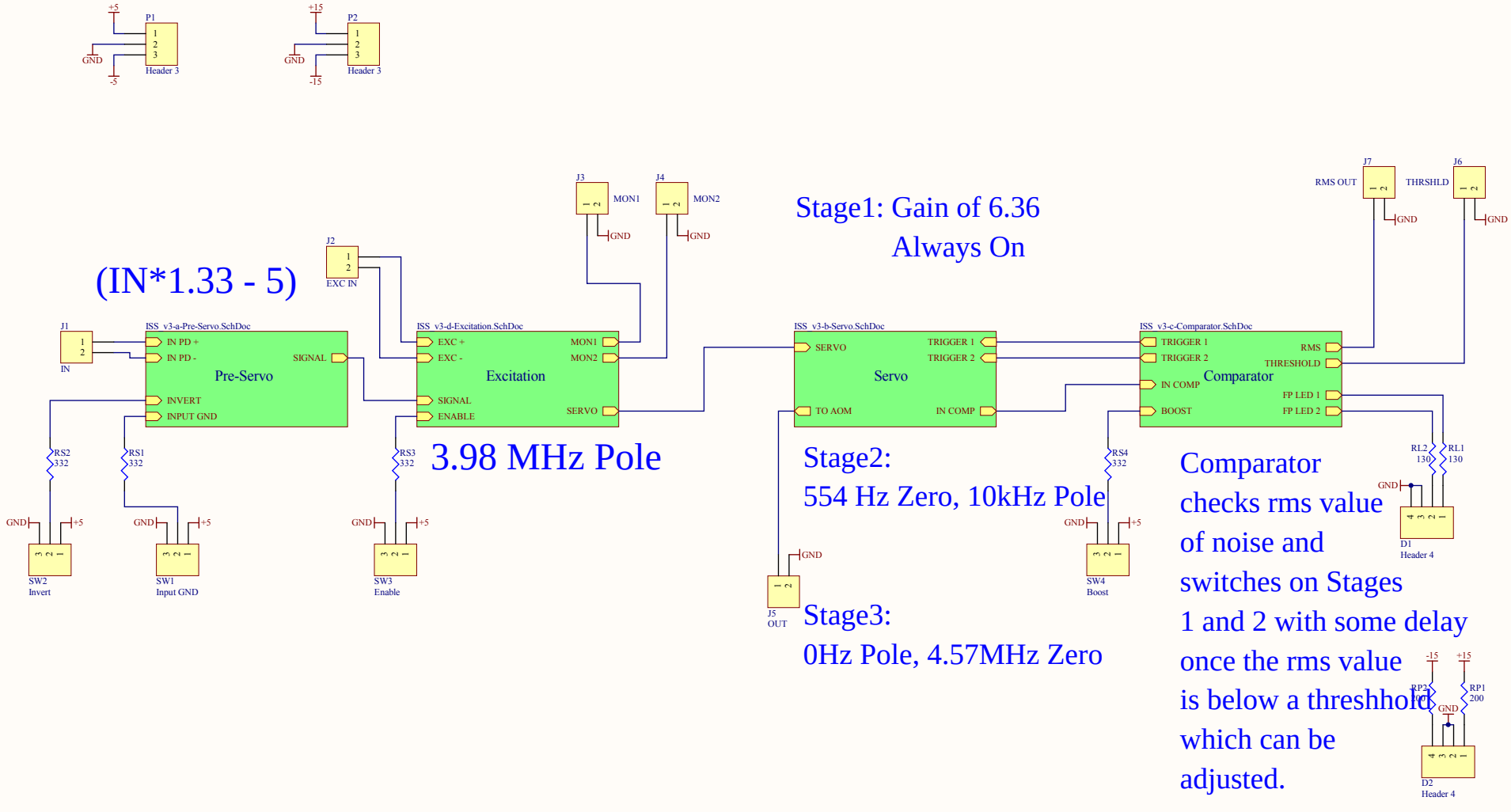
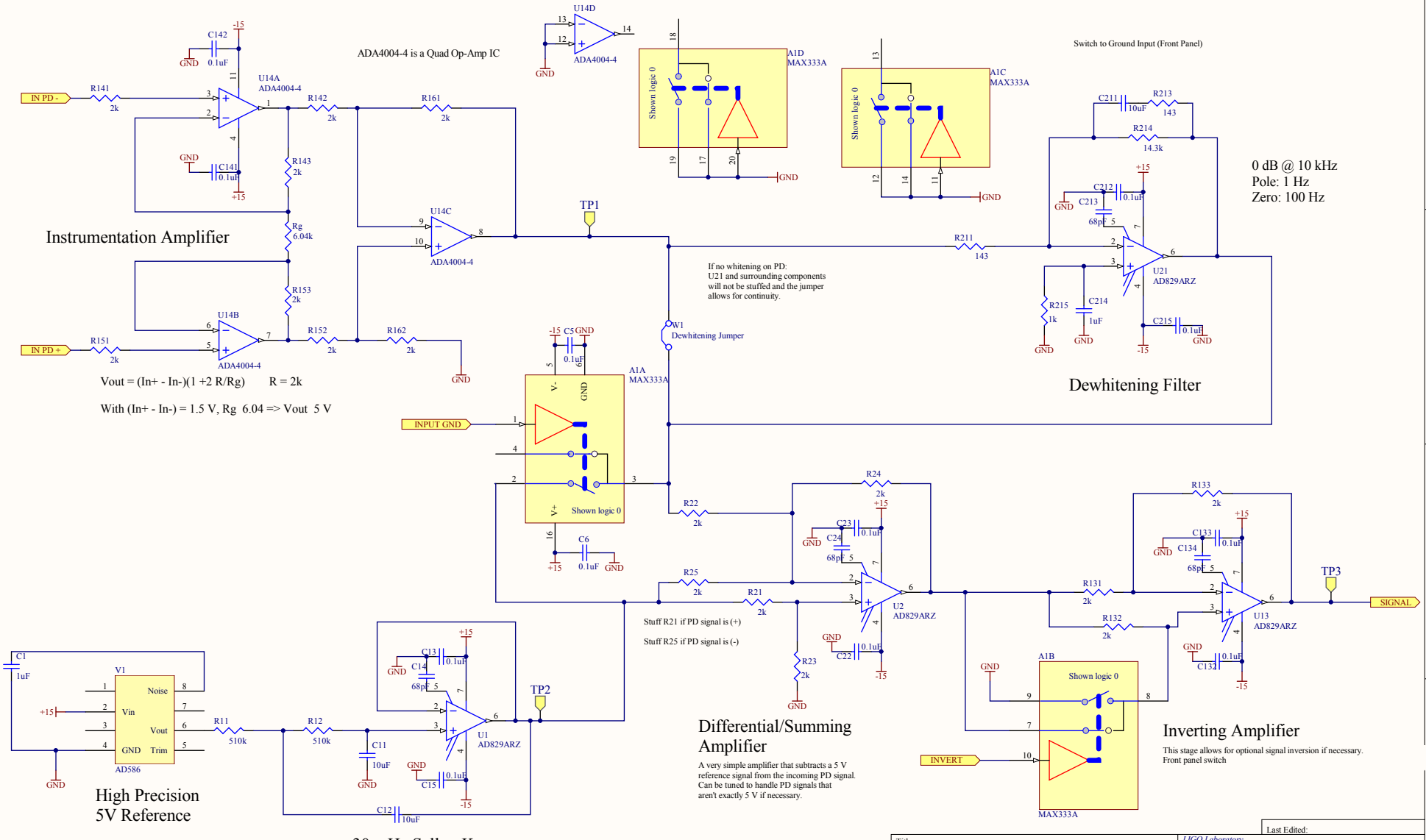


Title: *ISS: Layout + Front Panel Ports/Switches*			*LIGO Laboratory, California Institute of Technology, Massachusetts Institute of Technology*	LIGO
Size: B	DCC Number: *	Revision: *	Engineer: *Charles Blakemore*	Last Edited: Date: 8/30/2013, Time: 1:34:00 PM, Sheet 1 of 5
File: C:\Users\cit40m\Documents\ISS Schematics - Chas\40m\v1\ISS_v3.SchDoc				



Title: *ISS: Pre-Servo*		*LIGO Laboratory* *California Institute of Technology* *Massachusetts Institute of Technology*	LIGO
Size: B	DCC Number: *	Revision: *	Engineer: *Charles Blakemore*
File: C:\Users\cit40m\Documents\ISS Schematics - Chas\40m\v1\ISS_v3-a-Pre-Servo.SchDoc			Last Edited: Date: 8/30/2013 Time: 1:34:00 PM Sheet 2 of 5

If Trigger1 is logic 1: 554Hz Zero, 10kHz Pole

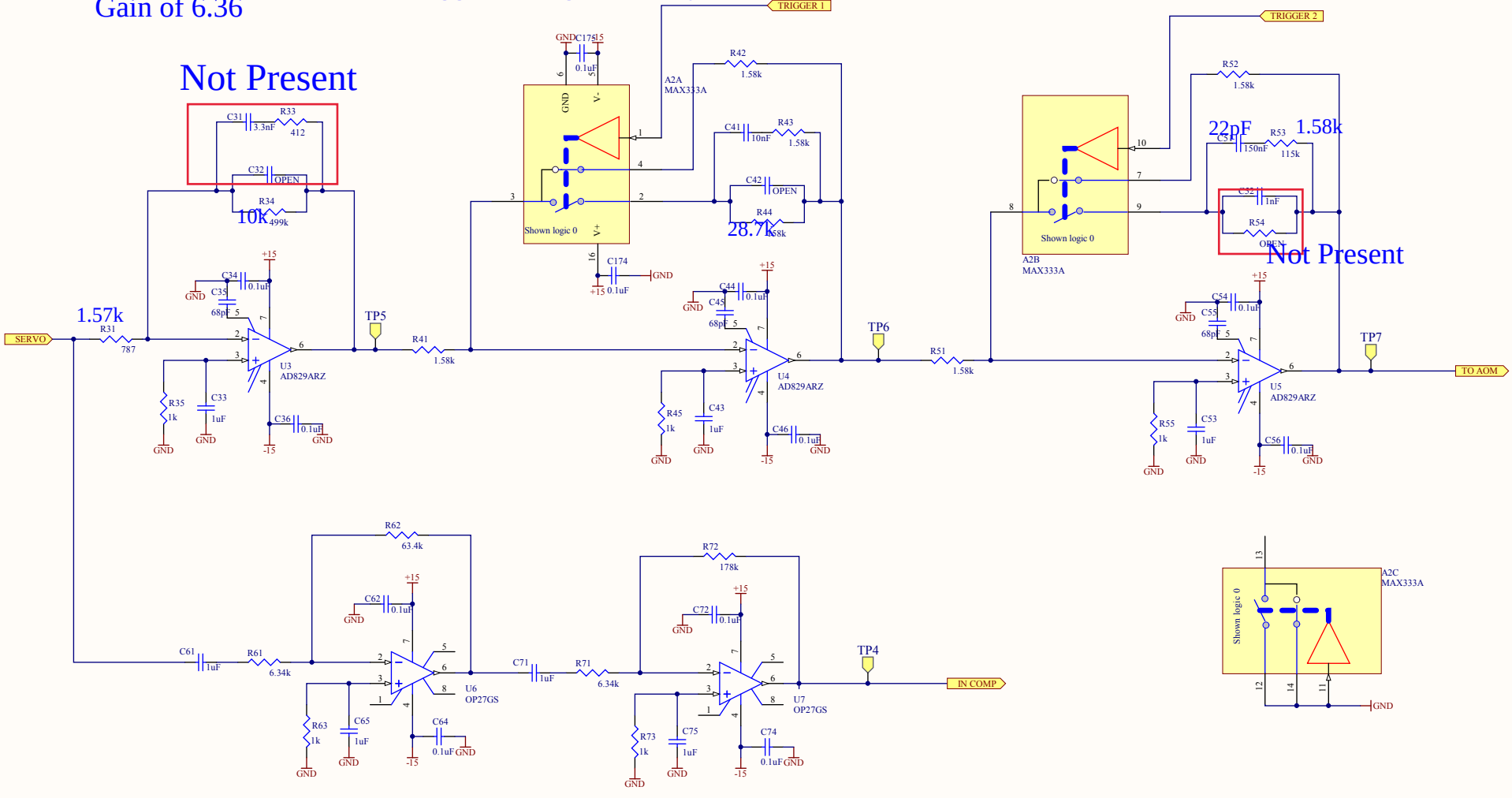
If Trigger1 is logic 0: Unity Gain Buffer

If Trigger2 is logic 1: 0Hz Pole, 4.57MHz zero

If Trigger2 is logic 0: Unity Gain Buffer

Gain of 6.36

Not Present



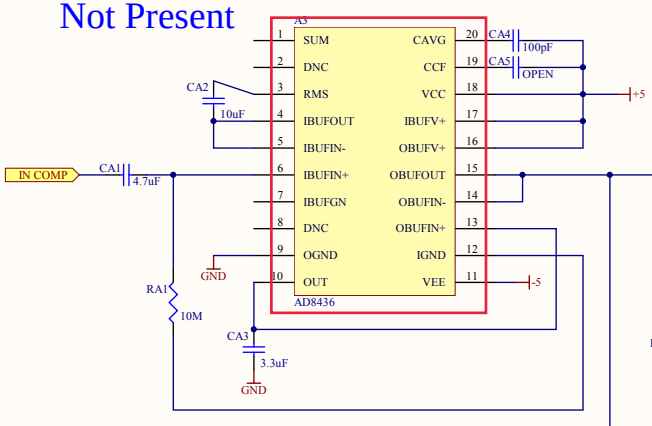
Title: ISS: Servo			LIGO Laboratory, California Institute of Technology, Massachusetts Institute of Technology	LIGO
Size: B	DCC Number: *	Revision: *	Engineer: Charles Blakemore	Last Edited: Date: 8/30/2013 Time: 1:34:00 PM Sheet 3 of 5
File: C:\Users\cit40m\Documents\ISS Schematics - Chas\40m\v1\ISS_v3-b-Servo.SchDoc				

AD8436 RMS-to-DC Converter

Here, the AD8436 is connected according to the manufacturer reccomendations. Pin connections on the AD8436 come directly from the manufacturer's datasheet. (www.analog.com/static/imported-files/data_sheets/AD8436.pdf)

This is a very simple design to accomplish basic RMS-to-DC conversion and should work quite effectively for the type of inputs we're interested in.

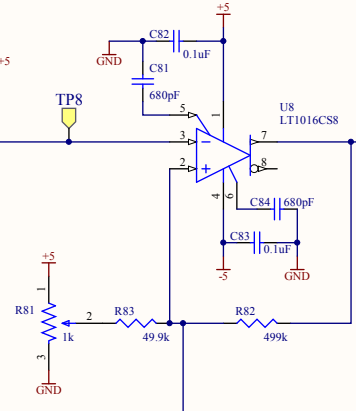
Not Present

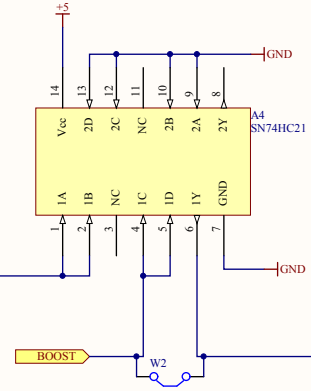


The LT1016 and accompanying circuitry has two states. If the DC-voltage from the AD8436 is larger than the threshold established by the potentiometer then the LT1016's output is set at 0 V.

If the DC-voltage input is lower than the threshold, then the LT1016's output is 3.5 V (based on datasheet).

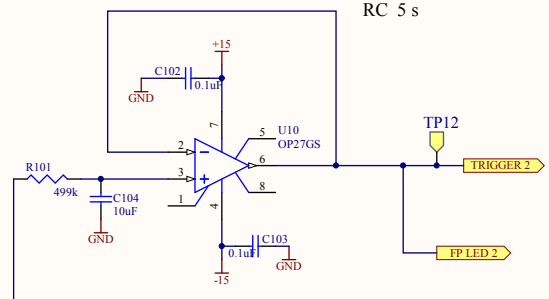
The ratio R83/R82 sets the hysteresis. If Voh is the high level output of the comp. and Vol is the low level then deltaV (R83/R82)*(Voh - Vol)



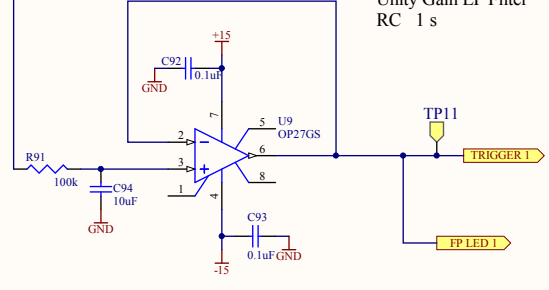


1A/1B	BOOST	Boosts (1C/1D)	enabled
1	0	0	
0	1	0	
1	1	1	

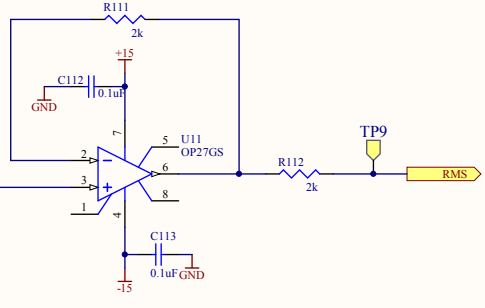
Unity Gain LP Filter
RC 5 s



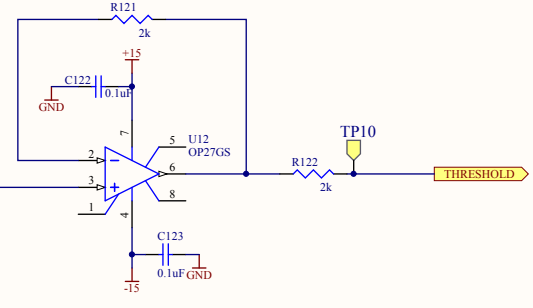
Unity Gain LP Filter
RC 1 s



Unity Gain Buffer



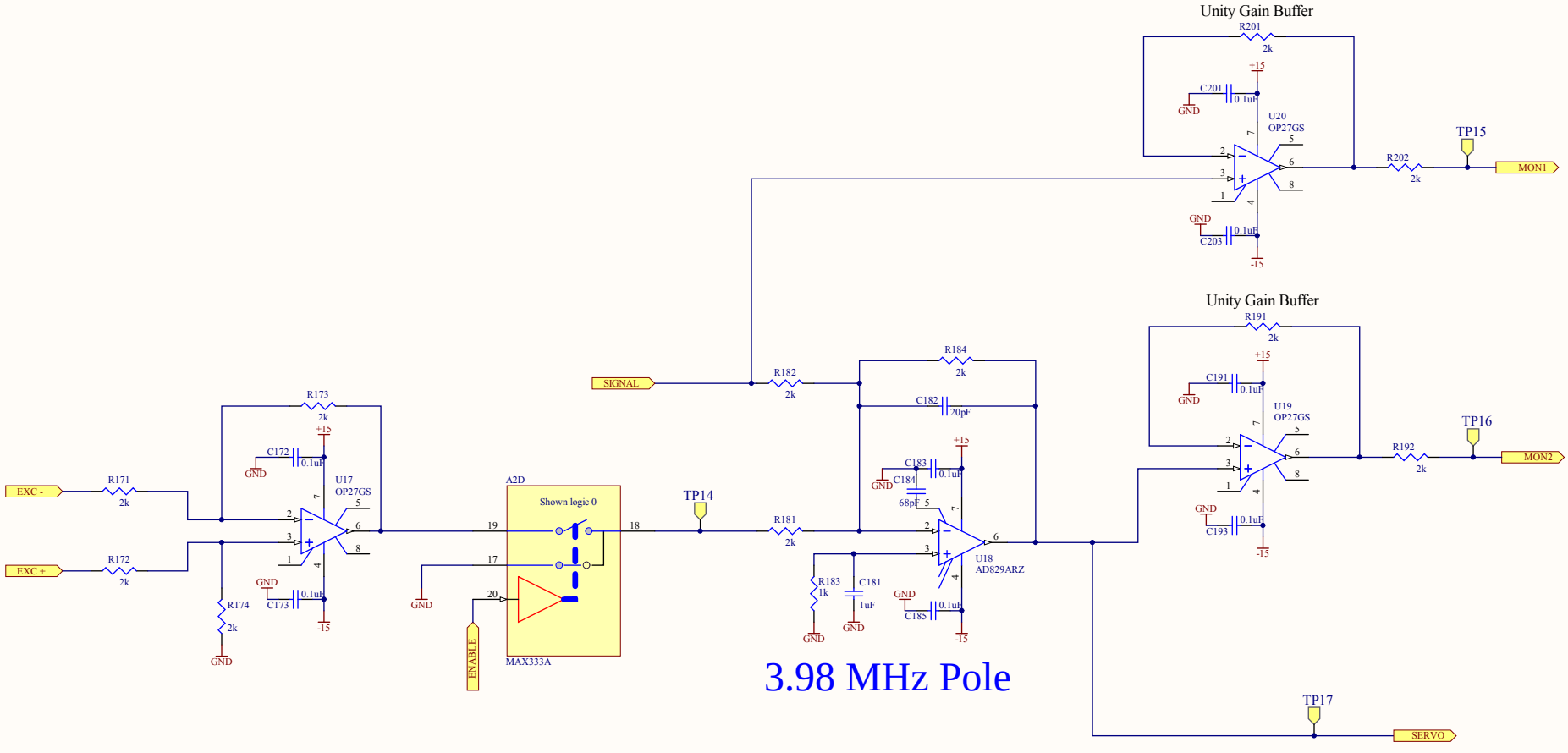
Unity Gain Buffer



U9 and U10 serve as buffer stages so that there is not a significant amount of current drawn from the LT1016, and to slightly delay activation of the second and third filter stages by the indicated time constants.

Last Edited:

Title: *ISS: Comparator + Triggering*		*LIGO Laboratory* *California Institute of Technology* *Massachusetts Institute of Technology* LIGO	
Size: B	DCC Number: *	Revision: *	Engineer: *Charles Blakemore*
File: C:\Users\cit40m\Documents\ISS Schematics - Chas\40m\v1\ISS_v3-c-Comparator.SchDoc			Date: 8/30/2013 Time: 1:34:00 PM Sheet 4 of 5



Title: *ISS: Excitation*			*LIGO Laboratory* *California Institute of Technology* *Massachusetts Institute of Technology*	LIGO
Size: B	DCC Number: *	Revision: *	Engineer: *Charles Blakemore*	Date: 8/30/2013 Time: 1:34:00 PM
File: C:\Users\cit40m\Documents\ISS Schematics - Chas\40m\v1\ISS_v3-d-Excitation.SchDoc				Sheet 5 of 5

Last Edited:

D1300694-v1
40m/Caltech ISS Board

Serial Number