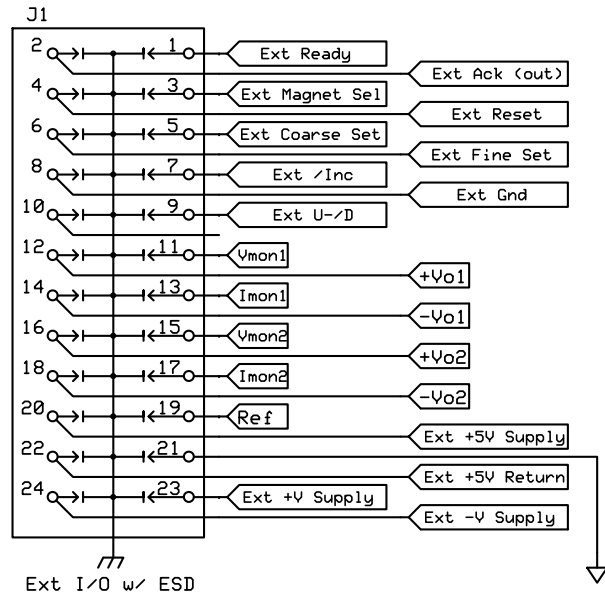
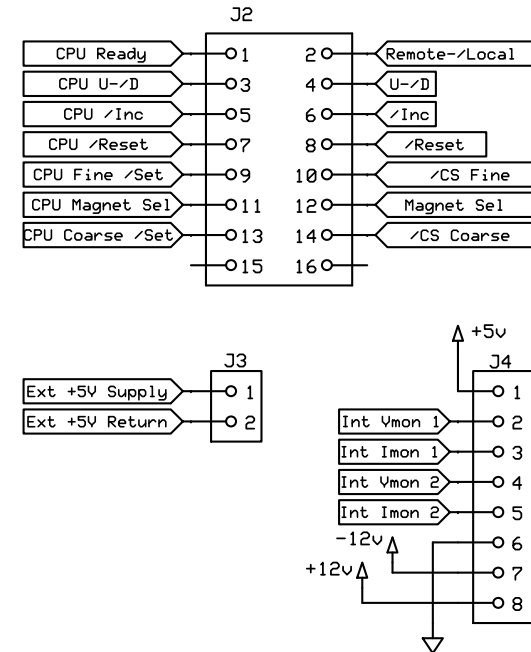


# Connectors

## External Interface



## Control Board Interface



## J1 Pinout looking into connector on board

Connector key positioned on right, as shown

DAQ Ready In	1 0	0 2	Remote Acknowledge Out
Magnet 1 (Low) - 2 (Hi) Select	3 0	0 4	Reset Magnet Current (Hi)
Coarse Current Set Enable (Hi)	5 0	0 6	Fine Current Set Enable (Hi)
Increment Current (Low->Hi->Low)	7 0	0 8	DAQ Control Ground Return
Step Up (Hi) - Down (Low)	9 0	0 10	Spare Control Input
Magnet 1 V Monitor Out	11 0	0 12	Magnet 1 Bias Out
Magnet 1 I Monitor Out	13 0	0 14	Magnet 1 Bias Return
Magnet 2 V Monitor Out	15 0	0 16	Magnet 2 Bias Out
Magnet 2 I Monitor Out	17 0	0 18	Magnet 2 Bias Return
Monitor 0V Reference Out	19 0	0 20	+5V Power
+/-12V Power Return (Ground)	21 0	0 22	+5V Power Return
+12V Power	23 0	0 24	-12V Power

## Notes:

J1: ESD protection includes a 0.008in spark gap between each solder pad and Chassis Ground

J1: connector mounted on rear of board

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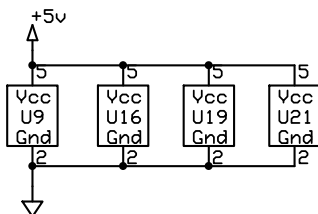
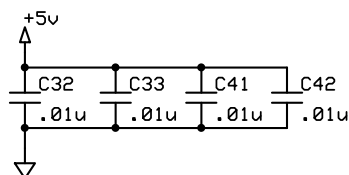
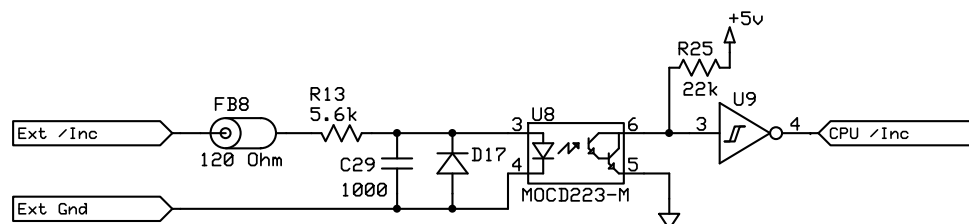
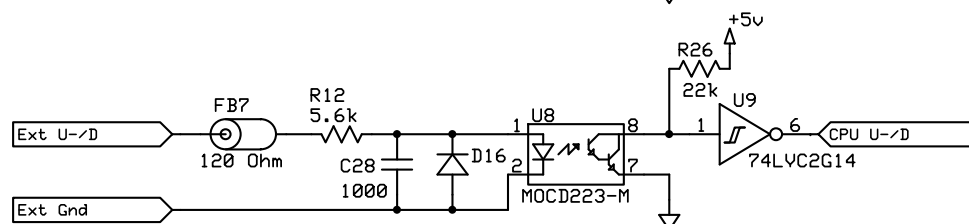
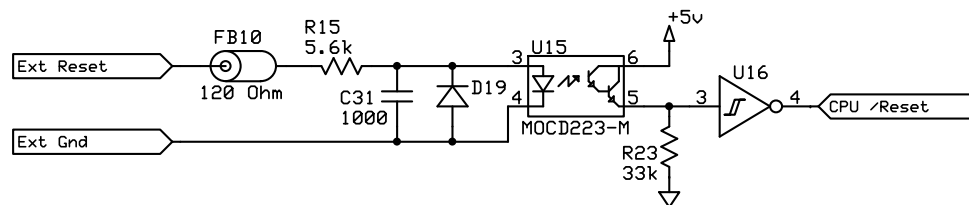
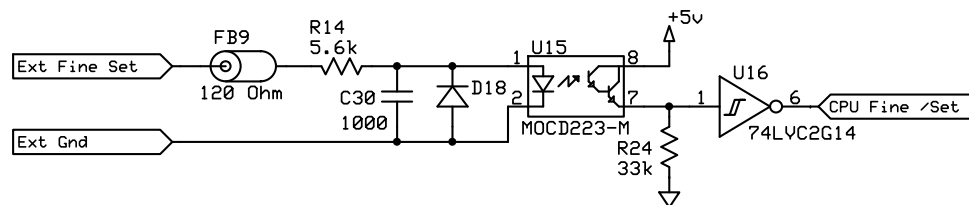
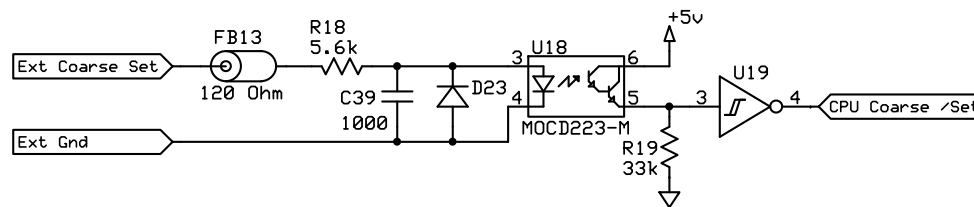
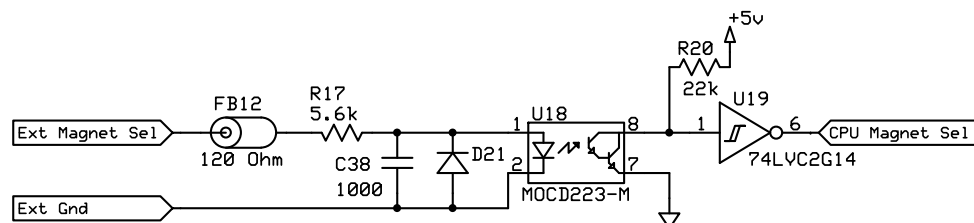
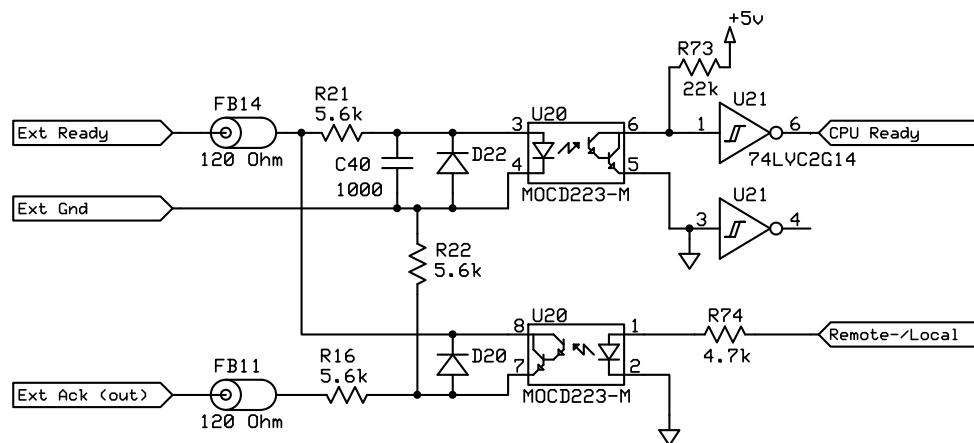
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# External Logic Signal Isolation

## Notes:

- (1) 5.6k resistors are size 1206, 1/4W
- (2) All resistors shown may be thick film or carbon film
- (3) diodes are 1N4148W



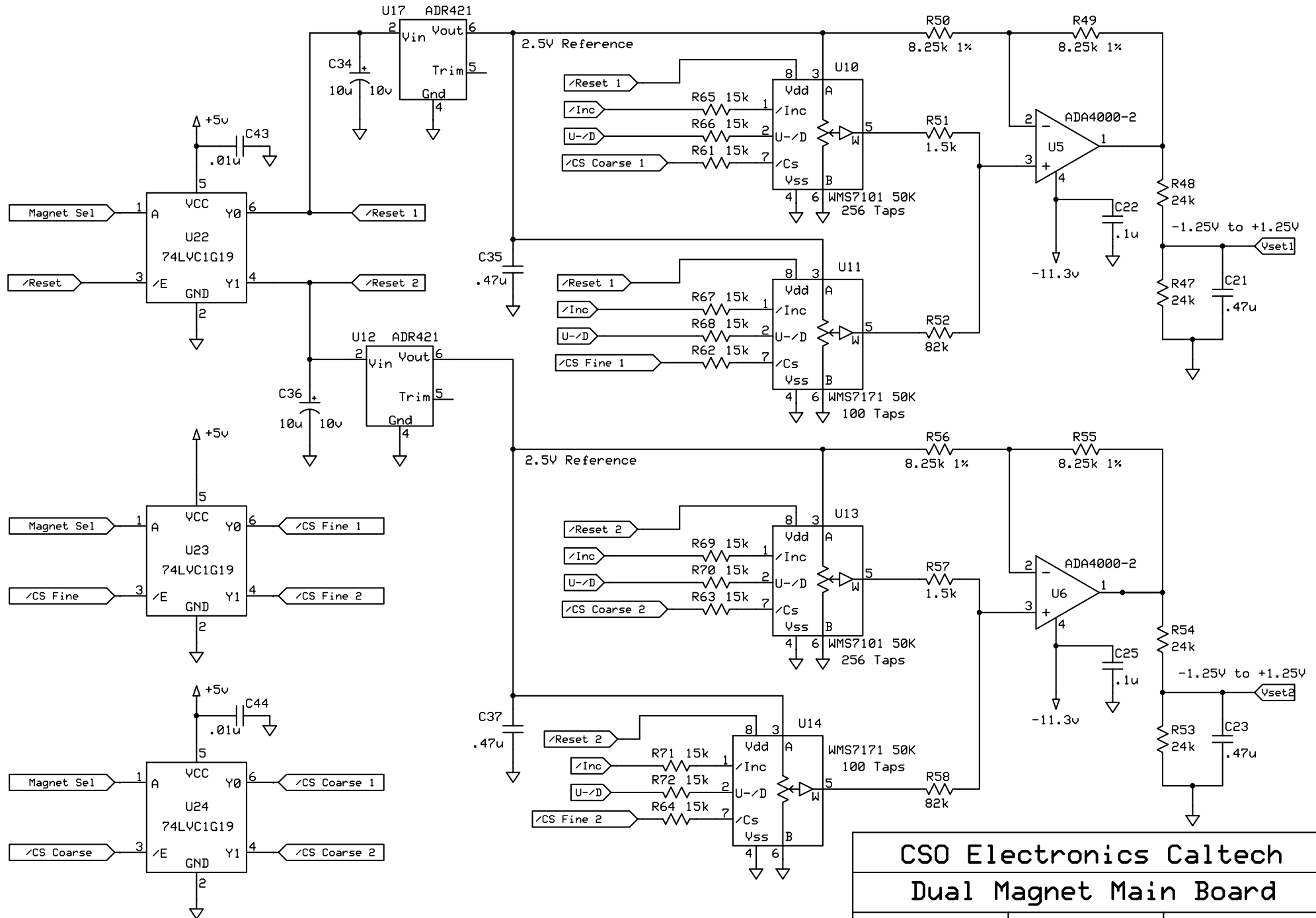
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# Magnet Set-Point Control



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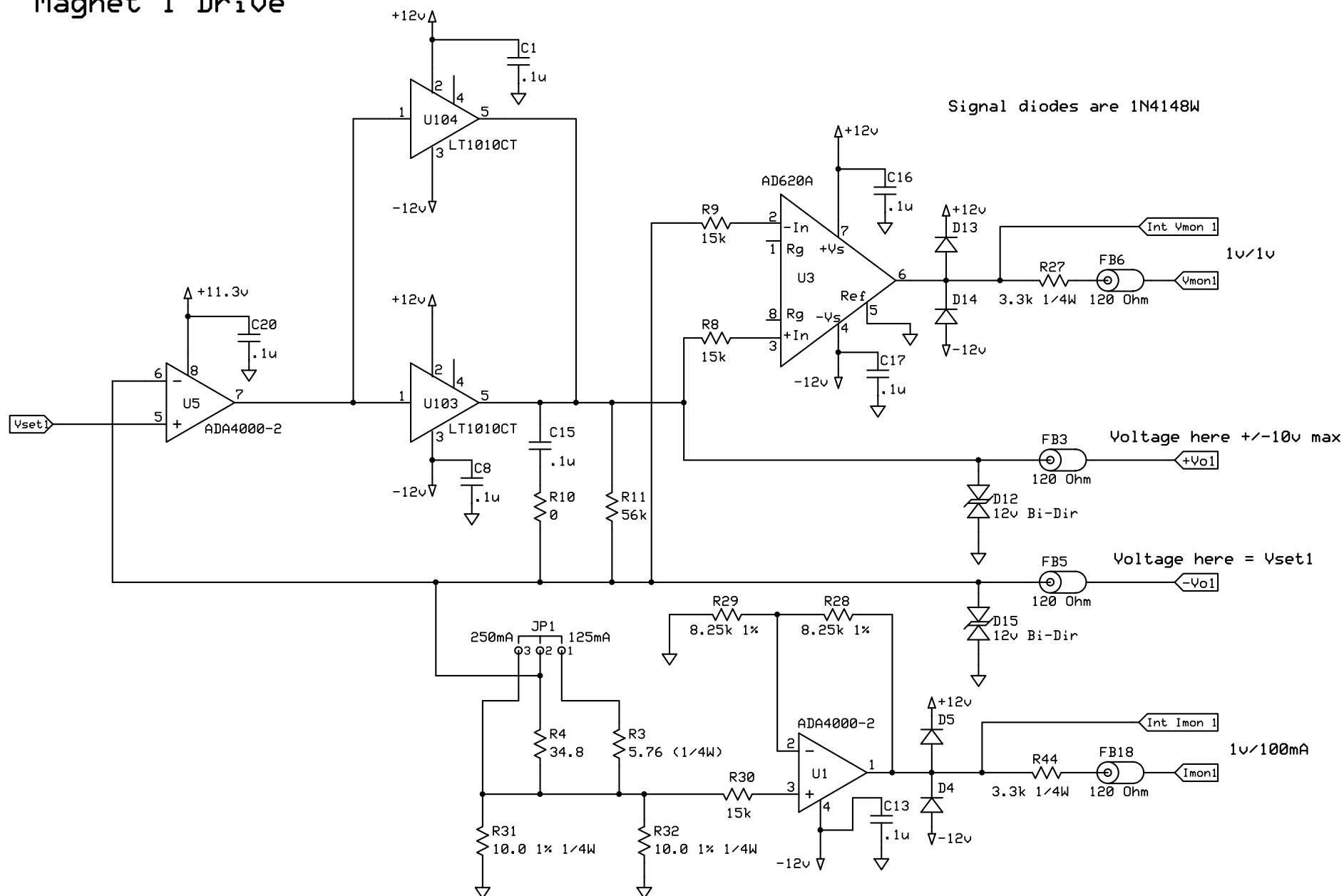
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## Magnet 1 Drive



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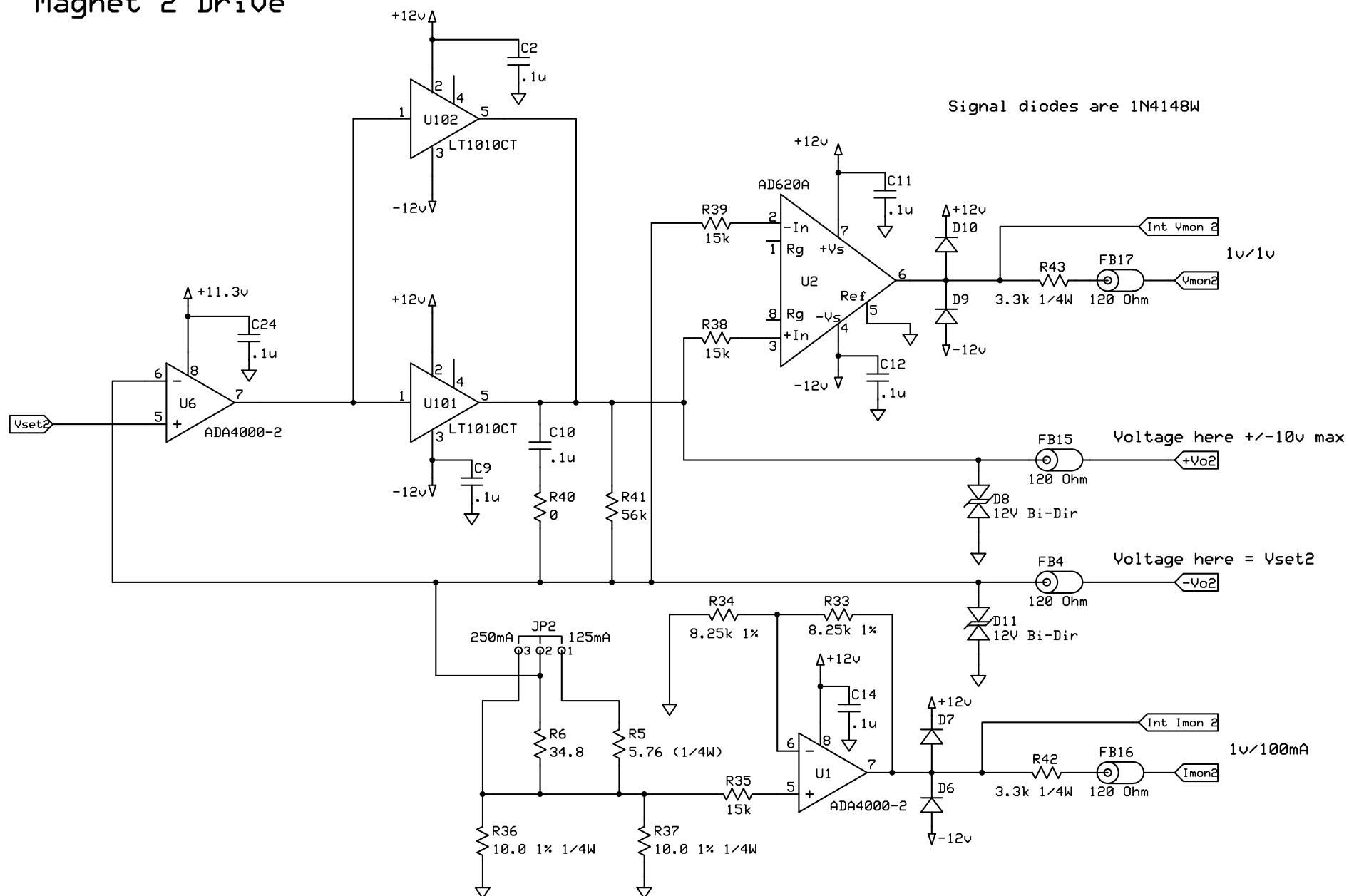
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## Magnet 2 Drive



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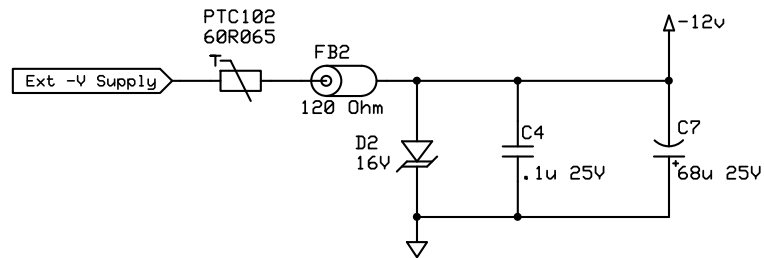
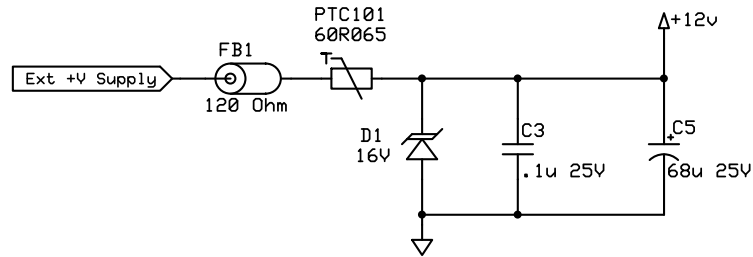
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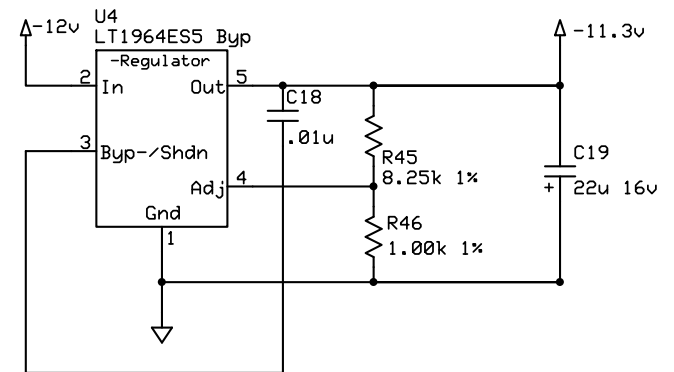
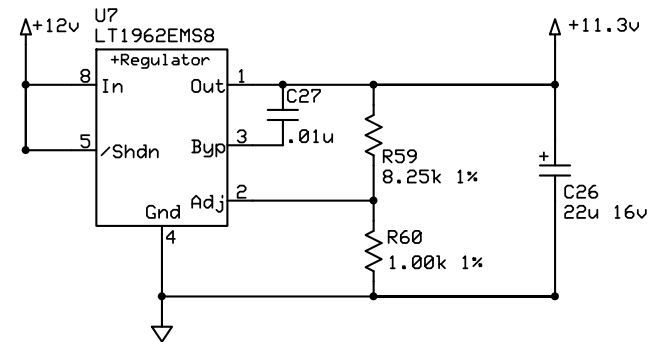
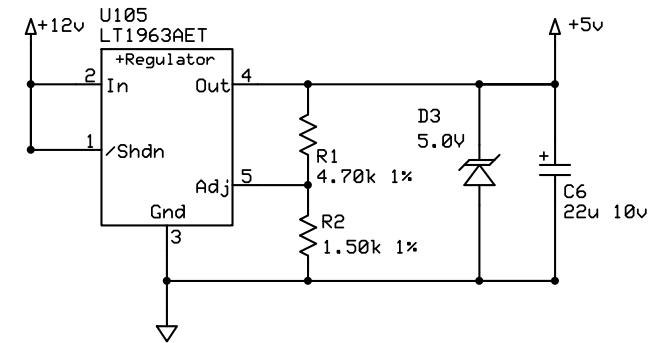
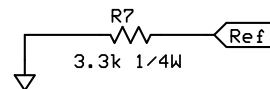
# Power Supply



JP3: on-board provision to connect chassis to system ground



0V reference for analog monitor outputs:



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## General Notes

### Changes From Rev 1.1

Changed values of R3 - R6

### Resistors

Unless otherwise specified, resistors are thin film (metal film), 1/10W or 1/16W, 5% (or better), size 0805

Unless otherwise specified, actual value used may be a standard 5% or 1% value within 10% of value shown

1/4W resistors are size 1206

### Capacitors

Unless otherwise specified, capacitors are X7R ceramic 16V (or higher), 20% (or better), size 0805

10uF and 22uF capacitors may be X5R ceramic or low-ESR tantalum 16V (or higher), 20%, size B/3528/3216/1210/1206

68uF capacitors are tantalum 25V (or higher), 20%, size C/D/6032/7343

### Ferrite Beads

Ferrite beads are Murata BLM31PG121SN1L 120 Ohm 3000 mA size 1206 or equivalent

### Diodes

All diodes except avalanche diodes are case size SOD-323

Avalanche diodes are silicon TVS 400W DO-214AC (Littelfuse SMAJ series or equivalent)

### Circuit Board

The circuit board for this design is labeled "Magnet Main v1.0" with date 6/6/09

The following components are mounted on the back side of the board:

J1; PTC101-PTC102; U101-U105

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