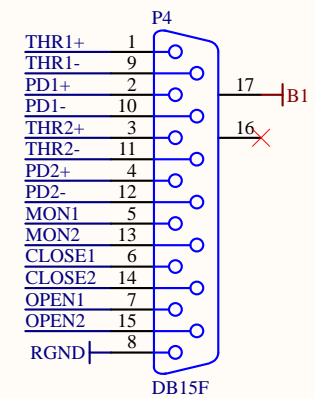


- H1 #4 screw, 3/8"
- H2 #4 lock washer
- H3 #4 nut
- U1_B heatsink

Two D880C Modules are mounted on the PCB. Use 1/2" long standoffs with 6-32. The inputs of module 1 are connected to P2 and the outputs are connected to J1. The inputs of module 2 are connected to P3 and the outputs are connected to J2. The rear power input has to be connected to P1.

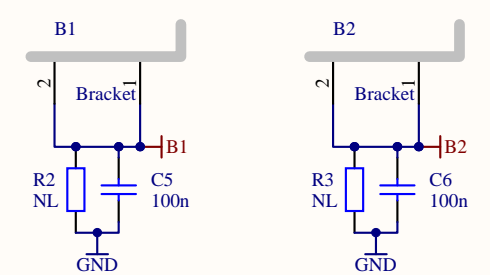
The Signals are
 TRIGGER INPUT--module pin 10, P2,P3---pin1
 SIGNAL GND--module pin 11, P2,P3--pin2
 +24Volt -- module pin 1, P2, P3--pin 3
 POWERGND --module pin 2, P2,P3---pin 4

SYNCOUT --module pin 3, J1,J2--pin 3
 +6.75VDC --module pin 4, J1,J2--pin 4
 SYNCIN -- module pin5, J1,J2--pin 5
 GND -- module pin6, J1,J2--pin 6
 SHUTTERA---module pin 7, J1,J2--pin 7
 SHUTTERB---module pin 8, J1,J2--pin 8
 SHUTTGND---module pin 9, J1,J2--pin9



- J1 DB9 cable
- J2 DB9 cable
- Digi-Key H7WXH-0906G-ND

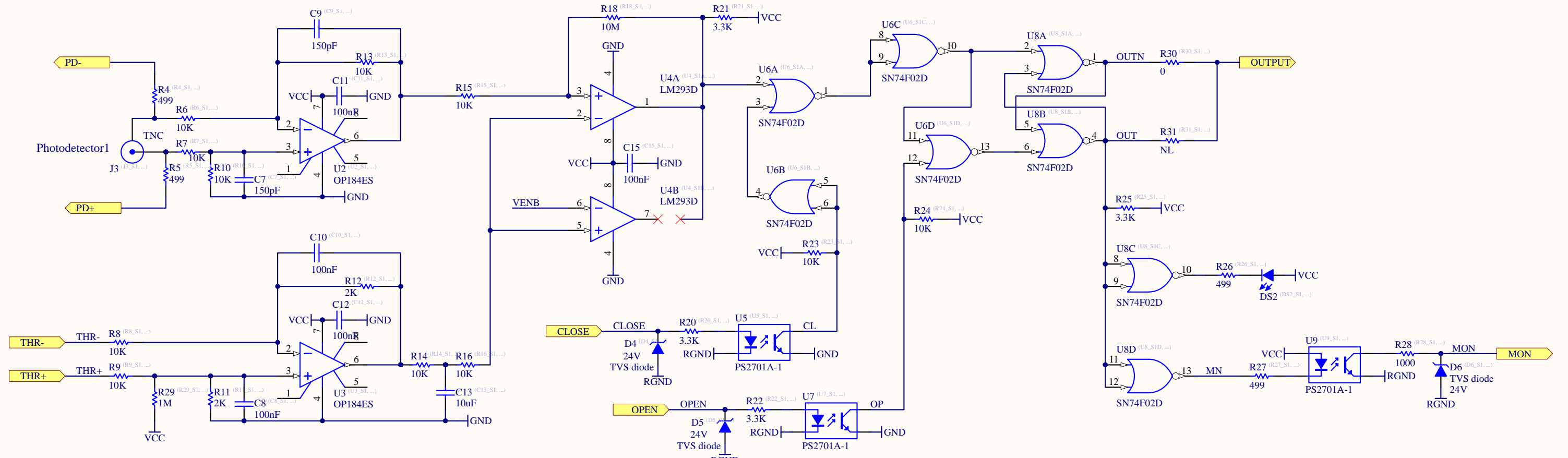
- H4 #4 screw, 3/8"
- H5 #4 screw, 3/8"
- McMaster-Carr 90272A108
- H6 #4 lock washer
- H7 #4 lock washer
- McMaster-Carr 91113A005
- H8 #4 nut
- H9 #4 nut
- McMaster-Carr 90480A005
- H10 #6-32 3/8" flat
- H11 #4 screw, 3/8"
- H12 #4 screw, 3/8"
- McMaster-Carr 90272A108
- H13 #4 lock washer
- H14 #4 lock washer
- McMaster-Carr 91113A005
- H15 #4 nut
- H16 #4 nut
- McMaster-Carr 90480A005
- H17 #6-32 3/8" flat



CH Shutter_Control3

Cable Shutter_Control4

Title Shutter Control 1		
Size B	Number D1102312	Revision 2
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The front panel BNCs are connected as follows:

Close: P5 pin 1, P5 / pin 2 is ground
 Open: P5 pin 3, P5 / pin 4 is ground
 Out: P5 pin 5, P5 / pin 4 is ground
 Monitor: P5 pin 7, P5 / pin 8 is negative (ground on BNC)

V2 Changes:
 Added R30/R31 and move the output to the negated signal.
 Lifted pin 7 of U4 to disable the trigger disable feature.
 Added R29 to bias the threshold just above the trigger.
 Added OUTN to P5.

Title		
Shutter Control 2		
Size	Number	Revision
B	D1102312	2
Date:	7/8/2013	Sheet 2 of 3
File:	D:\Users\...\Shutter_Control2.SchDoc	Drawn By: Paul Schwinberg

Main parts

PN1 PCB board LIGO D1102312-v1	PN9 Enclosure Hamilton Metalcraft D0901991-v1	SC1 Uniblitz shutter driver
PN2 Front panel LIGO D1200181-v1	PN10 Rear panel LIGO D1200182-v1	SC2 Uniblitz shutter driver Vincent Associates D880

BNC hardware

PN23 BNC lock washer
PN24 BNC lock washer
Digi-Key A97567-ND
PN25 BNC nut
PN26 BNC nut
Digi-Key A97566-ND

Rack brackets (optional)

H34 Handle, 3.0"	M1 #6-32 1/4" flat	M7 #6-32 3/8" flat
H35 Handle, 3.0"	M2 #6-32 1/4" flat	M8 #6-32 3/8" flat
Mouser 534-9109	M3 #6-32 1/4" flat	M9 #6-32 3/8" flat
H36 Ferrule	M4 #6-32 1/4" flat	M10 #6-32 3/8" flat
H37 Ferrule	M5 #6-32 1/4" flat	McMaster-Carr 91099A215
H38 Ferrule	M6 #6-32 1/4" flat	
H39 Ferrule	McMaster-Carr 91099A205	
Mouser 534-9121		

Rear panel power entry

PN3 D-sub shell, 3W3C Digi-Key 626-1098-ND	PN11 Jack screw kit
PN4	PN12 Jack screw kit
Power pin, AWG 16-20 PN5	PN13 Jack screw kit
Power pin, AWG 16-20 Digi-Key 626-1140-ND	Digi-Key 626-1256-ND
PN6	PN14 Terminal turret
Power socket, AWG 16-20 Digi-Key 626-1144-ND	Mouser 534-1587-1

Rubber feet (optional)

H40 Rubber feet	H44 #4 washer	H48 #4 screw, 1/4"
H41 Rubber feet	H45 #4 washer	H49 #4 screw, 1/4"
H42 Rubber feet	H46 #4 washer	H50 #4 screw, 1/4"
H43 Rubber feet	H47 #4 washer	H51 #4 screw, 1/4"
Digi-Key 720K-ND	McMaster-Carr 90945A710	McMaster-Carr 90272A106

Cables

PN7 Wire, 20AWG, black Digi-Key A2040B-1000-ND	PN15 BNC jack isol.	PN19 BNC jack isol.
PN8 Wire, 20AWG, red Digi-Key A2040R-100-ND	PN16 BNC jack isol.	PN20 BNC jack isol.
	PN17 BNC jack isol.	PN21 BNC jack isol.
	PN18 BNC jack isol.	PN22 BNC jack isol.
		Digi-Key A32339-ND

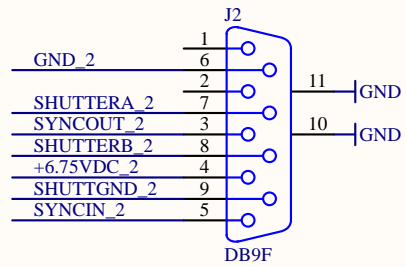
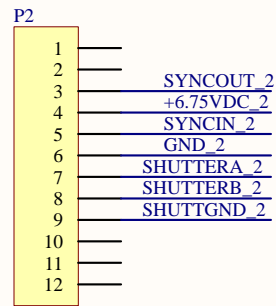
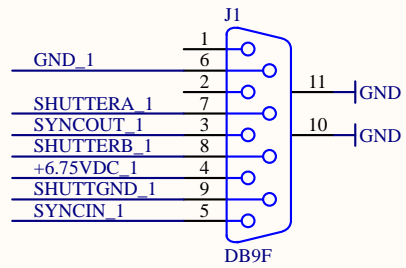
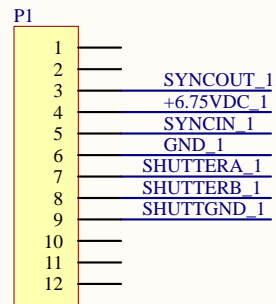
Enclosure hardware

E1 #4-40 3/16" flat	E9 #4-40 3/16" flat	E17 #4-40 3/16" flat
E2 #4-40 3/16" flat	E10 #4-40 3/16" flat	E18 #4-40 3/16" flat
E3 #4-40 3/16" flat	E11 #4-40 3/16" flat	E19 #4-40 3/16" flat
E4 #4-40 3/16" flat	E12 #4-40 3/16" flat	E20 #4-40 3/16" flat
E5 #4-40 3/16" flat	E13 #4-40 3/16" flat	E21 #4-40 3/16" flat
E6 #4-40 3/16" flat	E14 #4-40 3/16" flat	E22 #4-40 3/16" flat
E7 #4-40 3/16" flat	E15 #4-40 3/16" flat	E23 #4-40 3/16" flat
E8 #4-40 3/16" flat	E16 #4-40 3/16" flat	E24 #4-40 3/16" flat
		McMaster-Carr 91771A111

Hardware

H18 Screw 6-32, 3/8"	H24 Screw 6-32, 3/8"	H30 Hex,6-32 standoff
H19 Screw 6-32, 3/8"	H25 Screw 6-32, 3/8"	H31 Hex,6-32 standoff
H20 Hex,6-32 standoff	H26 Hex,6-32 standoff	McMaster-Carr 91920A454
H21 Screw 6-32, 3/8"	H27 Screw 6-32, 3/8"	
H22 Screw 6-32, 3/8"	H28 Screw 6-32, 3/8"	H32 Screw 6-32, 3/8"
H23 Hex,6-32 standoff	H29 Hex,6-32 standoff	H33 Screw 6-32, 3/8"
McMaster-Carr 91920A231		McMaster-Carr 90403A146

Title Shutter Control 3		
Size B	Number D1102312	Revision 2
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File: D:\Users\...\Shutter_Control3.SchDoc	Drawn By: Paul Schwinberg	



Title		
Shutter Control 4, wiring J1,J2		
Size	Number	Revision
B	D1102312	v1
Date:	7/8/2013	Sheet4 of 4
File:	D:\Users\...\Shutter_Control4.SchDoc	Drawn By: Paul Schwinberg