

## 4-CHANNEL CONTROL BOX WIRING LIST

J2	TO	SIGNAL
2	GRT-L (A)	ERROR
3	SP3-L (D)	ERROR
6	TB2-5	LSCOM
7	GRT-J (A)	HOME
8	DWF-J (B)	HOME
9	SP2-J (C)	HOME
10	SP3-J (D)	HOME
11	TB1-12	OPWR
12	SP2-L (C)	24DISABLE_C
14	TB1-11	ORTN
17	TB2-5	INCOM
18	SP2-L (C)	ERROR
22	GRT-I (A)	REV_LIM
23	DWF-I (B)	REV_LIM
24	SP2-I (C)	REV_LIM
25	SP3-I (D)	REV_LIM
27	DWF-L (B)	24DISABLE_B
32	DWF-L (B)	ERROR
36	GRT-H (A)	FWD_LIM
37	DWF-H (B)	FWD_LIM
38	SP2-H (C)	FWD_LIM
39	SP3-H (D)	FWD_LIM
41	GRT-L (A)	24DISABLE_A
42	SP3-L (D)	24DISABLE_D

J1	TO	SIGNAL
2	SP2-F (C)	STEP
5	SP2-G (C)	DIRECTION
7	GRT-E (A)	ENABLE
8	SP3-E (D)	ENABLE
16	GRT-F (A)	STEP
18	SP3-F (D)	STEP
19	GRTG (A)	DIRECTION
21	SP3-G (D)	DIRECTION
23	SP2-E (C)	ENABLE
31	DWF-F (B)	STEP
34	DWF-G (B)	DIRECTION
37	DWF-E (B)	ENABLE

### WIRE COLORS

MS PIN	COLOR	SIGNAL
E	BRN	ENABLE
G	BLK	STEP
F	RED	DIRECTION

JA1	TO	SIGNAL
1	GRT-K (A)	INDEX
5	GRT-D (A)	GND
15	GRT-C (A)	+5V

JB1	TO	SIGNAL
1	DWF-K (B)	INDEX
5	DWF-D (B)	GND
15	DWF-C (B)	+5V

JC1	TO	SIGNAL
1	SP2-K (C)	INDEX
5	SP2-D (C)	GND
15	SP2-C (C)	+5V

JD1	TO	SIGNAL
1	SP3-K (D)	INDEX
5	SP3-D (D)	GND
15	SPD-C (D)	+5V

### WIRE COLORS

MS PIN	COLOR	SIGNAL
K	BRN	INDEX
D	BLK	GND
C	RED	+5V

### WIRE COLORS

MS PIN	COLORS	SIGNAL
N	RED	ERROR
J	ORN	HOME
I	GRN	REV_LIM
H	YEL	FWD_LIM
L	BLU	24DISABLE

A	ISO5V
B	ISO_RTN
C	ENCODER +5V
D	ENCODER GND
E	ENABLE
F	DIR
G	STEP
H	FWD_LIM
I	REV_LIM
J	HOME
K	INDEX
L	24DISABLE
M	24V_RTN
N	ERROR

GRT-A	TB2-1
B	TB2-2
C	JA1-15
D	JA1-5
E	J1-7
F	J1-19
G	J1-16
H	J2-36
I	J2-22
J	J2-7
K	JA1-1
L	J2-41
M	TB1-1
N	J2-2

DWF-A	TB2-1
B	TB2-2
C	JB1-15
D	JB1-5
E	J1-37
F	J1-34
G	J1-31
H	J2-37
I	J2-23
J	J2-8
K	JB1-1
L	J2-27
M	TB1-1
N	J2-32

SP2-A	TB2-3
B	TB2-4
C	JC1-15
D	JC1-5
E	J1-23
F	J1-5
G	J1-2
H	J2-38
I	J2-24
J	J2-9
K	JC1-1
L	J2-12
M	TB1-3
N	J2-18

SP3-A	TB2-3
B	TB2-4
C	JD1-15
D	JD1-5
E	J1-8
F	J1-21
G	J1-18
H	J2-39
I	J2-25
J	J2-10
K	JD1-1
L	J2-42
M	TB1-3
N	J2-3

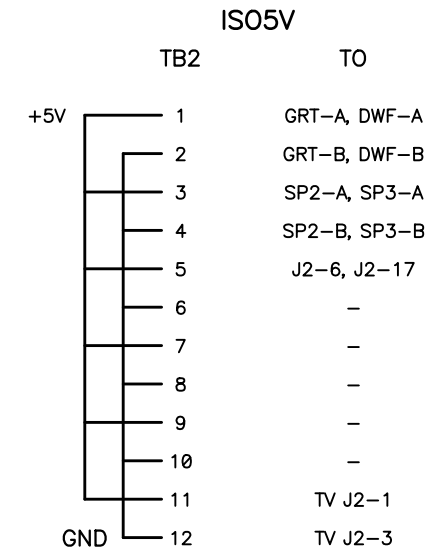
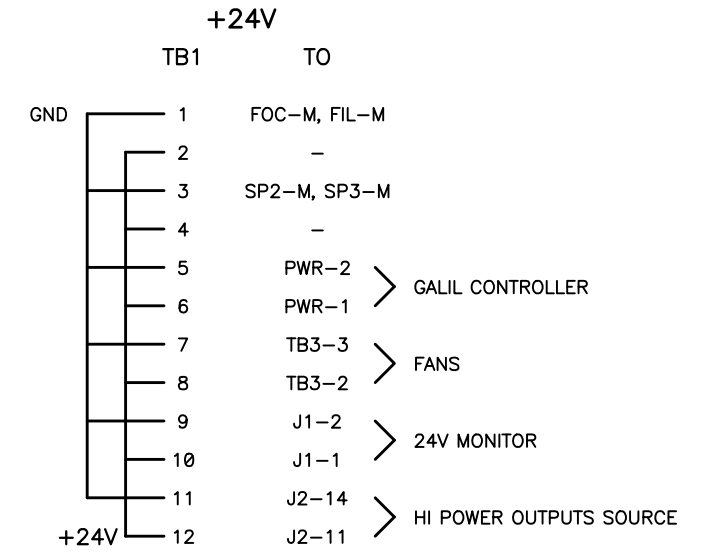
TV CAMERA J1	TO	SIGNAL
1	EXT I/O-7	FWD
2	EXT I/O-37	REV
3	EXT I/O-23	CLOSE/FAR
4	EXT I/O-33	GND
5	EXT I/O-1	CLOSE LIMIT OUT
6	EXT I/O-16	FAR LIMIT OUT

TV CAMERA J2	TO	SIGNAL
1	TB-11	ISO5V
2	-	-
3	TB2-12	ISORTN

TV CAMERA J3	TO	SIGNAL
1	TV-I	GND
2	TV-J	CLOSE LIMIT IN
3	TV-H	FAR LIMIT IN

TV CAMERA TB1	TO	SIGNAL
1	IN	AC-H
2	-	-
3	IN	AC-N

TV CAMERA TB2	TO	SIGNAL
1	TV-A	N
2	TV-C	FWD (FOCUS)
3	TV-B	REV (FOCUS)
4	TV-D	N
5	TV-E	CLOSE (TV)
6	TV-F	N
7	TV-G	FAR (TV)



UNIVERSITY OF CALIFORNIA  
LICK OBSERVATORY

SECOND CONTROLLER BOX  
WIRING LAYOUT  
HAMILTON SPECTROGRAPH II

REVISIONS [http://loel.ucolick.org/manual/Hamilton\\_II/schematics/HAM\\_II\\_box\\_2\\_wiring\\_sh\\_5.pdf](http://loel.ucolick.org/manual/Hamilton_II/schematics/HAM_II_box_2_wiring_sh_5.pdf)

02-05-10 ADDED 24DISABLE SIGNALS  
07-12-10 ADDED TV CAMERA INTERFACE BOARD SIGNALS  
11-01-10 SWAPPED GRATING TILT & DEWAR FOCUS WITH GUIDE CAMERA FOCUS AND FILTER STAGES TO ALLOW USE OF CN1,-1 ON HARDY AND CN1,1 ON LAUREL.

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