

# MAIN CONTROLLER I/O

Automatic Planet Finder Spectrograph Onboard I/O						
BIT	I/O	LABEL	SIGNAL	FUNCTION	CONN	PIN
1	I	LATCH X/INPUT 1	ADC_SEC_LIM	ADC STAGE SECONDARY LIMIT	J14	1
2	I	LATCH Y/INPUT 2	CAM_SEC_LIM	GUIDE CAMERA FOCUS STAGE SECONDARY LIMIT	J14	6
3	I	LATCH Z/INPUT 3	CMR_SEC_LIM	CALIBRATION MIRROR STAGE SECONDARY LIMIT	J14	2
4	I	LATCH W/INPUT 4	CAL_SEC_LIM	CALIBRATION SOURCE STAGE SECONDARY LIMIT	J14	7
5	I	INPUT 5	IOD_SEC_LIM	IODINE CELL STAGE SECONDARY LIMIT	J14	3
6	I	INPUT 6	SLT_SEC_LIM	SLIT DECKER STAGE SECONDARY LIMIT	J14	8
7	I	INPUT 7	DEW_SEC_LIM	DEWAR FOCUS STAGE SECONDARY LIMIT	J14	4
8	I	INPUT 8	(RESERVED)	(UNASSIGNED STAGE SECONDARY LIMIT)	J14	9
9	I	INPUT 9	SHUTTER 1 IS OPEN	SCIENCE SHUTTER OPEN FEEDBACK SIGNAL	J12	9
10	I	INPUT 10	SHUTTER 2 IS OPEN	CUBE SHUTTER OPEN FEEDBACK SIGNAL	J12	10
11	I	INPUT 11	-	(UNASSIGNED)	J12	11
12	I	INPUT 12	LOCKOUT SW. ON	SAFETY LOCKOUT SWITCH SIGNAL	J12	12
13	I	INPUT 13	48V_AC_POWER1_OK	48V SUPPLY1 AC POWER STATUS	-	-
14	I	INPUT 14	48V_OUTPUT1_OK	48V SUPPLY1 OUTPUT STATUS	-	-
15	I	INPUT 15	48V_FANS1_OK	48V SUPPLY1 FAN STATUS	-	-
16	I	INPUT 16	48V_TEMPERATURE1_OK	48V SUPPLY1 OVER TEMP.	-	-

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BIT	I/O	LABEL	SIGNAL	FUNCTION	CONN	PIN
1	O	OUTPUT 1	AMUX0A	1st ANALOG MUX ADDR: 0	AMP_A J3	20
2	O	OUTPUT 2	AMUX1A	1st ANALOG MUX ADDR: 1	AMP_A J3	5
3	O	OUTPUT 3	AMUX2A	1st ANALOG MUX ADDR: 2	AMP_A J3	21
4	O	OUTPUT 4	AMUX0B	2st ANALOG MUX ADDR: 0	AMP_A J3	19
5	O	OUTPUT 5	AMUX1B	2st ANALOG MUX ADDR: 1	AMP_A J3	4
6	O	OUTPUT 6	AMUX2B	2st ANALOG MUX ADDR: 2	AMP_A J3	2
7	O	OUTPUT 7	-	(UNASSIGNED)	-	-
8	O	OUTPUT 8	-	(UNASSIGNED)	-	-
9	O	OUTPUT 9	-	-	J12	1
10	O	OUTPUT 10	CUBE_SHUTTER_OPEN	CORNER CUBE SHUTTER OPEN LEVEL	J12	2
11	O	OUTPUT 11	SCI_SHUT_SENSOR	SCIENCE SHUTTER IR SENSOR ENABLE	J12	3
12	O	OUTPUT 12	LOCKOUT_LED_ON	SAFETY LOCKOUT LED ENABLE	J12	4
13	O	OUTPUT 13	(UNASSIGNED)	-	-	-
14	O	OUTPUT 14	(UNASSIGNED)	-	-	-
15	O	OUTPUT 15	SET_48V_1_OFF	LOW INHIBITS 48V SUPPLY 1 OUTPUT	AMP_B J3	18
16	O	OUTPUT 16	SET_48V_2_OFF	LOW INHIBITS 48V SUPPLY 2 OUTPUT	AMP_B J3	3

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ININPUT	LABEL	SIGNAL	FUNCTION	CONN	PIN
1	ANALOG IN 1	ANALOG IN 1	ANALOG BD #1 CHANNALS 1-8	ANALOG MUX BRD #1, J1	9
2	ANALOG IN 2	ANALOG IN 2	ANALOG BD #1 CHANNALS 9-16	ANALOG MUX BRD #1, J1	13
3	ANALOG IN 3	ANALOG IN 3	ANALOG BD #1 CHANNALS 17-24	ANALOG MUX BRD #1, J1	11
4	ANALOG IN 4	ANALOG IN 4	ANALOG BD #2 CHANNALS 1-8	ANALOG MUX BRD #2, J1	9
5	ANALOG IN 5	ANALOG IN 5	ANALOG BD #2 CHANNALS 9-16	ANALOG MUX BRD #2, J1	13
6	ANALOG IN 6	ANALOG IN 6	ANALOG BD #2 CHANNALS 17-24	ANALOG MUX BRD #2, J1	11
7	ANALOG IN 7	ANALOG IN 7	(UNASSIGNED)	-	-
8	ANALOG IN 8	ANALOG IN 8	(UNASSIGNED)	-	-

**REVISIONS**

04-23-07 ADDED STATUS (INPUTS 13-16) AND INHIBIT SIGNALS (OUTPUT 13) FOR 48V SERVO SUPPLY 09-14-10 INPUT & OUTPUT 12 ASSIGNED TO SAFETY INTERLOCK.  
 05-01-07 ADDED SECOND SERVO SUPPLY DISABLE BIT 14  
 05-02-07 CORRECTED SHUTTER SIGNAL ASSIGNMENTS  
 04-23-08 RENAMED SHUTTER 1 SCIENCE, 2 CUBE & 3 SCIENCE SENSOR.  
 12-11-09 REMOVED SECOND 48V INHIBIT SIGNAL FROM BIT16  
 12-18-09 ADDED ION PUMP CURRENT AND VOLTAGE ANALOG INPUTS TO SHEET 4. CORRECTED ANALOG INS AND OUTS ON SHEET 6  
 04-07-10 ADDED SHEET 7 FOR EXTERNAL RIO I/O  
 04-22-10 UNASSIGNED INPUTS 11 AND 12 - COOLANT FLOW I/O MOVED TO EXTERNAL RIO

[http://loel.ucoick.org/manual/Apf/schematics/APF\\_in\\_out\\_sh\\_1.pdf](http://loel.ucoick.org/manual/Apf/schematics/APF_in_out_sh_1.pdf)

<b>UNIVERSITY OF CALIFORNIA LICK OBSERVATORY</b>		<b>MAIN I/O SIGNAL ASSIGNMENTS APF SPECTROMETER</b>	
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