

BS01cFg006

w/ new shutter block - shutter connectors by Sean, iris by Mark
 - new controller w/ boards connected
 via hand-soldered ribbon cable by Mark

MF HP laptop, USB to Lab Jack shtr ctrl
 LT Control Panel 2.33

Devices Found = U6, 360014265 @ USB-1

Firmware = 1.430

Bootloader ver = 6.150

Hardware ver = 2.000

→ Test

Andor Solis, com S/N 17878, temp set -60°C @ 00:05
 pwr to DC-DC sup wa MOBY truck battery

Shuttl Ctrl: open/close = 35 msec

Acquisition: Vert shift = 4.25 μ s, Horiz = 3 MHz @ 16 bit
 Pre Amp = 4x

shutters w/ iris, @ collimator

#1 → Es clockwise = open

9 L₁

11 L₂

13 L₃

Note ports w/ iris have lower throughput than other ports

lamp = Oriol 6000 wa 12" Spect sphere w/ open exit port opture
 @ ~10 Vdc, 80 W, 8 A dc

@ 1 sec exposure, save s, b 2017020701 @ 00:37

MAX ADU @ not-iris chon 14, 12, 10 ~ 35.9 k, 38.9, 38.9, 39.5

~X = 962 8...2 ~ 38.9, 38.2, 38.3, 37.7, 39.4, 37.9, 39.2

w/ iris #13 ~ 15.4, 11 ~ 16.4, 9 ~ 14.9, 1 ~ 14.8

@ ~ centre of saddle,

not-iris avg = 38.5 $\pm$ 1.0 N=11

w/ iris 15.4 0.7 N=4

A = 2.5 x

For Lu @ B502 want 15x, 22x, 15x less sensitive
 if $\Delta 10x$ = target and start @ $\Delta 2.5x$
 then need 4x more vis
 (i.e. $2.5 \times 4 = 10$)

for $\Delta 100x$, need additional 40x Δ

Q: what's max vis Δ ?

01:08

shut open = only 1, 9, 11, 13, exp = 4 sec $\rightarrow$ s,b 2017020702.fits

max ADU $\sim$ 1 = 47.0, 9 = 47.6, 11 = 53.8, 13 = 48.9

bac $\sim$ 3550 ADU

01:13 s,b 2017020703 = all vis closed

max ADU $\sim$ 1 = 3701, 9 = 3683, 11 = 3720, 13 = 3760

bac $\sim$ 3570

$\Delta 200$ ADU

#1	$(47.0k - 3550)$	$/$	$(3701 - 3570)$	$=$	332	$\times \Delta$
9	47.6		3683		390	
11	53.8		3720		335	
13	48.9		3760		239	

mean = 324 ± 62

#1 = Es, $\Delta 40x$ $\frac{47k}{40} \sim 1175$ ADU

check: $47 - 3550 / 1175 - 3550$

$\frac{43450}{40} = 1086 + 3550 = 4636$ lite ADU

01:33 only shut #1 open, s,b... 04.fits = max ADU $\sim$ 4774
 bac 3590

01:38 s,b... 05 only shut open = 9, 11, 13, vis = open

#13 $(49.4 - 3550) = 45850 / 4 = 11463 + 3550 = 15013 \rightarrow$ 06.fits @ 01:47

#11 $52.7 - 3550 = 49150 / 4 = 12288 + 3550 = 15838$ 07 01:51

#9 $48.0 - 3550 = 44450 / 4 = 11113 + 3550 = 14663$ 08 01:55

01:56 = shtr 1, 9, 11, 13 = open = ... 09.fits (4 sec)

st all shtr open, 1 sec = 10.fits

LAMP OFF

02:02 = 1 sec, s,b... 11.fits = ambient = room fluor light leak!

Adj responsivity down: Es by 100x, Lu by 10x ... via iris @ shutter block

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT	HI-2017-01		LOCATION	Pier 35, rm 124	
DATE	07 Feb 2017		OBSERVERS	MF	
INSTRUMENT	B501	S/N	CONFIG	006 →	
COLLECTOR	bare shutter block		DISTANCE	@ exit port	
SOURCE	Oriel 60000	S/N	CONFIG	12 in Spect, open exit port	
PWR SUPPLY		S/N	CONFIG		
MULTIMETER		S/N	SHUNT		
LAMP VOLTAGE	~ 10Vdc	CURRENT	~ 8 A dc, 80 W		
LAMP TIME	ON	WARMUP	OFF	TOTAL	
WHERE NODE :: DEV : [DIR]				PROCESSED DATE: _____ BY: _____ 1st test of new shutter block & shutter controller w/ Thorlabs iris @ collimator for port # 1, 9, 11, 13 Andor cam S/N 17878, -60°C CCD @ 00:05 power to DC/DC sup wa MOBY truck batt Andor shtr ctrl @ open/close = 35 msec Acquisition: Vert shift = 4.25 msec, Horiz = 3 MHz @ 16 bit Andor SOLIS data acq. NO Aux °C, %RH	

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
00:37	s_b2017020701	1 sec	all shtr = open				all iris = open
01:08	02	4 sec	only shtr open = 1, 9, 11, 13				all iris = open
1:13	03	4		open = 1, 9, 11, 13			iris = closed
1:33	04	4		open = 1			iris = open
	I forgot to save only take #1 w/ iris adjusted... see #09 below...						
1:38	05	4		open = 9, 11, 13			iris = open
47	6			"	"		iris #9 adjusted
51	7			"	"		#9, 11 = adj
55	8			"	"		#9, 11, 13 = adj
56	9			open = 1, 9, 11, 13			iris #1, 9, 11, 13 = adj
57	10	1 sec	all shtr open				

02:02 11 1 lamp off = ambient = room fluor lite leak!

(21-Feb-05 MF)

day 2 HI-2017-01, Pier 35 rm 124

Oriel lamp on v 01:02 @ 10Vdc
Andor cam -60 01:07

black cloth over
shtr block today...
to block room fluor lights

all shtr open, 1 sec exp

01:19 = s, b 20170209 01. fits

only shtr 1, 9, 11, 13, 1 sec

01:23 = * 02. fits

8 sec (!)

01:28 = 03. fits

all shtr closed, 8 sec $\approx$ dark

01:31 = 04. fits 3559 ADU / 3609

only shtr 1 open, 60 sec = full ADU saddle shape

01:34 = 05. fits

01:38 lamp off

all shtr open, 60 sec = ambient

01:40 = 06. fits max 5000 + ADU

01:43 = com TEC off

Day 02

check secured-iris re-assembly

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MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT HI-2017-01 LOCATION Pin 35, Rm 124
DATE 09 Feb 2017 OBSERVERS MF
INSTRUMENT BS S/N 01 CONFIG 007
COLLECTOR bare shtr block
mux position fiber @ sphere exit port
SOURCE Oriol 6000 S/N CONFIG
PWR SUPPLY S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE ~10 Vdc CURRENT
LAMP TIME ON 01:02 WARMUP OFF 01:38 TOTAL

SETUP SKETCH / REMARKS

BS dis-assembled in order to
secure positions of 4x IRIS, yesterday
then re-assembled today

WHERE NODE :: DEV : [DIR]

PROCESSED DATE:

BY:

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
01:07	-60°C TEC						
01:19	5, b 2017020901	1 sec	all shtr open				
23	02	1 sec	1, 9, 11, 13 shtr open				
28	03	8 sec	"	"	~full scale	light ADU	
31	04	8	all shtr closed ~dark				
34	05	60	only #1 shtr open = saddle shape @ full ADU				
01:38	Lamp off						
01:40	5, b 2017020906	60 sec	all shtr open = ambient				
01:43	com TEC = off						

Day 03 1st look @ 0L425 via Full optical path

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	Vert shift 4.25 msec
EXPERIMENT	Pre-L259/HI-17-01		LOCATION	Pier 3S, HI bag	Horiz 3 MHz
DATE	11 Feb 2017		OBSERVERS	MF	Gain 4x
INSTRUMENT	BS	S/N 01	CONFIG	007	Shtr 3S/35 msec
COLLECTOR	Lu		DISTANCE	black foam jig	
SOURCE	0L425	S/N	CONFIG	(L9) W6 D100	Lu windows quickly cleaned
PWR SUPPLY	0L450	S/N	CONFIG		black cloth around fiber bundle - to shtr - black
MULTIMETER	34970A	S/N	SHUNT	G\$125	No Aux board (no data)
LAMP VOLTAGE		CURRENT	6.6		
LAMP TIME	ON	WARMUP	20 min	OFF	TOTAL
WHERE NODE :: DEV : [DIR]				PROCESSED DATE:	BY:

	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage FL	Humidity % R.H.	Temp. °C	Remarks
Lu Top	05:25	sb20170211 01:05	20 sec	6.6001	26.44, 44, 44, 43, 44	78	24.7	only shtr #9 = open
	533	d 01:03	20 sec	6.6003	26.45			all shtr = closed
Mid	623	sb 06:10	15 sec	6.6010	26.39, 39, 38, 38, 39	78	24.8	only #11 = open
	629	d 04:06	15 sec	6.6006	26.39			all closed
Bot	713	sb 11:15	6 sec	6.6018	26.39, 39, 40, 39, 40	79	24.8	only #13 = open
	718	d 07:09	6 sec	6.6022	26.40			all closed
	721	camera TEC off						

Sat 11 Feb 2017 HST = Es col

Day 04 pg 1 of 2

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MLML RADIOMETRIC CALIBRATION LOG				
EXPERIMENT	pre L259		LOCATION	Pier 35 HI bay
DATE	12 Feb 2017		OBSERVERS	MF
INSTRUMENT	BS	S/N	01	CONFIG 007
COLLECTOR	Es			DISTANCE
SOURCE	G55000	S/N	ISET	CONFIG F600(C3)
PWR SUPPLY	6030A	S/N	8.183	CONFIG
MULTIMETER	34970A	S/N		SHUNT G5125
LAMP VOLTAGE		CURRENT	8.2	
LAMP TIME	ON	WARMUP	20	OFF TOTAL
WHERE NODE :: DEV : [DIR]				

SETUP SKETCH / REMARKS
lamp time Amin ON 04:41 OFF 5:27 46 Much rain today Mark & Art BS testing this morning/240 in the rain. Darryl & Sean tape/paint arms & cover fiber channel.
PROCESSED DATE: BY:

Es

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks	FEL °C
0429	-60°C TEC							
0502	sb20170212 01	10s 4x	8.1999	107.36	79	24.3	only shtr #1 = open	73
	... 05	"						
UNBOLT & SEPARATE FIBER END BLOCK & REPLACE > CHECK REPEATABILITY								
05:20	06	10s 4x	8.2004	107.37	79	24.2		74
525	... 10	"	"	"	"	"		"
536	com TEC = off	& pwr off com from batt...						
	... cont. Lu...							
	next ↓ page							

Lu cal + Exposure time cal

Day 04 / pg. 2 of 2

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MLML RADIOMETRIC CALIBRATION LOG				
EXPERIMENT	Pre-L259		LOCATION	Pie 35 HR bay
DATE	12 Feb 2017	OBSERVERS	MF	
INSTRUMENT	BS	S/N	01	CONFIG 007
COLLECTOR	Lu	mux	position	fiber
SOURCE	0L425	S/N		CONFIG (L9) W6D100
PWR SUPPLY	0L450	S/N		CONFIG
MULTIMETER	34970A	S/N		SHUNT GS125
LAMP VOLTAGE		CURRENT	6.6	
LAMP TIME	ON	WARMUP	20	OFF TOTAL
WHERE NODE :: DEV : [DIR]				

SETUP SKETCH / REMARKS	
Lamp time hours	Front door closed = stinky paint tonight
ON 07:11 406.2	NIST 0L455-18V
OFF 740 406.7	
ON 750	ON 09:29
OFF 827 407.2	OFF 10:37
ON 845	Δ 63 min
OFF 910 407.6	
Δ 1.4 hr	
PROCESSED DATE:	BY:

	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current	Lamp Voltage	Humidity	Temp.	Remarks
				mA	V FL	% R.H.	°C	
LuT	06:57	-60°C TEC						
	7:33	sb20170212	11:15	20 sec	6.6018	26.09, 10, 11, 12, 12	82	23.7 only shtr #9 = open
	8:21		16:20	15	6.6009	26.06, 05, 05, 06, 05	83	23.7 " #11 "
B	9:06		21:25	6	6.6006	26.09, 11, 11, 12, 12	83	23.5 " #13 "
LuB		NIST 0L455-18V	EXP TIME CAL		PD (Adc)			.0006e-10 Adc w/ Lamp off
	09:50	sb20170212	26:30	1, 05, 07, 1, 2	6.000/15.39	1.8521e-6, 24, 21, 22, 24	BRI TE	
	09:55		31:35	1, 3, 5, 7, 1	" "	1.8522e-6, 22, 23, 21, 22		
	10:04		36:39	1, 2, 3, 1	" 15.40	1.8862e-7, 57, 56, 56	MID	
	07		40:43	5, 7, 1, 10		1.8853e-7, 53, 51, 52		
	18		44:47	10, 20, 30, 10	6.000/15.40	1.8824e-8, 28, 28, 25	DIM	
	24		48:51	50, 10, 70, 10		1.8823e-8, 22, 23, 23		
	32		52	100	6.000/15.40	1.8823e-8		.0004e-10 Adc w/ Lamp off

37 CAM TEC OFF

(21-Feb-05 MF)