

## External

<b>#1</b>	<b>Cable_SPN</b>									
	<b>Cable_SPN_Analog</b>	<b>24.2.6</b>								
<b>PATHWAY</b>			<b>SPN to Bulgin (DAQ Exterior)</b>				<b>Bulgin bulkhead to datalogger</b>			
<b>CONNECTORS</b>			8-pole M12 waterproof connector using cable type SPN1/w-05			Bulgin PX0410/12P/6065	PX0412/12S			
			1	Total	Total output, 1mV = 1 W. m-2	White	1	1	White	1
			2	Diffuse	Diffuse output, 1mV = 1 W. m-2	Brown	2	2	Brown	2
			3	SigGND	Signal ground (connected to DL-Gnd internally)	Green	3	3	Green	gnd
			4	Sun	Contact closure on sunshine	Yellow	4	4	Yellow	n.c.
			5	DL-Gnd	Datalogger power ground	Grey	5	5	Grey	Power Out Gnd
			6	DL-Power	Datalogger power supply 4 - 15V 2mA	Pink	6	6	Orange	Power Out 12V
			7	Htr-	Heater ground	Blue	7	7	Blue	External -V
			8	Htr+	Heater power supply, 12V 1.5A max	Red	8	8	Red	External +V
				Shield	Cable screen and SPN1 body	Purple	9	9	Purple	Case gnd
							10	10		
							11	11		
							12	12		
<b>#2</b>	<b>Cable_SPN_Serial</b>	<b>24.2.8</b>								
<b>PATHWAY</b>			<b>SPN to Bulgin (DAQ Exterior)</b>				<b>Bulgin bulkhead to datalogger</b>			
<b>CONNECTORS</b>			<b>SPN1-RS-10 (use w/ PC or Serial Device)</b>			<b>Bulgin PX0410/06P/60</b>	<b>PX0412/06S</b>			
			1	Gnd	Ground	Brown	1	1	Brown	Power Out Gnd
			2	Power in	Power from PC DTR line	White	2	2	White	Power Out 12V
			3	RX in	RS232 RX in to SPN1	Blue	3	3	Blue	C5
			4	SDI-12	Not used	Black	4	4	Black	nc
			5	TX out	RS232 TX out of SPN1	Grey	5	5	Grey	C6
			6				6	6		
<b>#3</b>	<b>Cable_PIR</b>	<b>24.2.4</b>								
<b>PATHWAY</b>			<b>PIR to Bulgin Plug (DAQ Exterior)</b>				<b>Bulgin bulkhead to datalogger</b>			
<b>CONNECTORS</b>			PIR PLUG			DAQ PLUG	DAQ RECEP			
			PT06W-12-10S			PX0410/08P/6065	PX0410/08S		CR1000	

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			H	Case	Shield (note: H to 1)	Black	1	1	Black	Case gnd
			A	PIR-	PIR-	White	2	2	White	3/L
			C	PIR+	PIR+	Red	3	3	Red	3/H
			D	TCase+	TCase+	Green	4	4	Green	7
			E	TCase-	TCase-	Blue	5	5	Blue	gnd
			F	TDome+	TDome+	Brown	6	6	Brown	8
			G	TDome-	TDome-	Yellow	7	7	Yellow	gnd
							8	8	-	
										10K 0.01% VX1 to 7
										10K 0.01% VX1 to 8
<b>#4</b>	Cable_Nav	24.20.?								
PATHWAY			Internal VN300 to Bulgin Plug (DAQ Exterior)				External VN to DAQ		Bulgin bulkhead to datalogger	
CONNECTORS		24.02.01	Harwin M80-5001042			HARWIN M80-4861005	Bulgin PX0410/10P/6065 Plug	PX0412/10S Receptacle		CN1000
			1	VCC	3.3V to +17V	red	1	1	red	12V
			2	TX1	RS-232 voltage levels data output from the sensor. (Serial UART #1).	wht	2	2	wht	com1/rx
			3	RX1	RS-232 voltage levels data input from the sensor. (Serial UART #1).	orn	3	3	ylw	com1/tx
			4	SYNC_OUT	Output signal used for synchronization purposes. Software configurable to pulse when ADC, IMU, or attitude measurements available.	tbd	4	n.c	n.c	
			5	GND	Ground	blk	5	5	blk	com1/gnd
			6	RESTORE	If high at reset, the device will restore to factory default state. Internally held low with 10k resistor.	tbd	6	n.c	n.c	n.c
			7	SYNC_IN	Input signal for synchronization purposes. Software configurable to either synchronize the measurements or the output with an external device.	TBD	7	n.c	n.c	n.c
			8	TX2_TTL	Serial UART #2 data output from the device at TTL voltage level (3V).	TBD	8	n.c	n.c	n.c

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			9	RX2_TTL	Serial UART #2 data into the device at TTL voltage level (3V).	TBD	9	n.c	n.c	n.c
			10	GPS_PPS	GPS pulse per second output. This pin is a TTL voltage level (3V) output directly connected to the PPS (pulse per second) pin on GPS receiver A.	TBD	10	n.c	n.c	n.c
<b>#5</b>	<b>Cable_T/RH</b>	<b>24.2.14</b>								
PATHWAY			<b>T/RH to DAQ (external)</b>				<b>Bulgin bulkhead to datalogger</b>			
CONNECTORS						Bulgin PX0410/10P/6065	PX0412/10S			
			1	V out 1	Temp, 0-1V, -40 to 60, T = v*100 - 40	White	1	1	White	10
			2	RS485-B		Brown	2	2	Brown	
			3	A Ground		Green	3	3	Green	Agnd
			4	V out 2	Humidity, 0-1 v RH = v * 100	Yellow	4	4	Yellow	9
			5	-	-	Grey	5	5		
			6	RS485-A		Pink	6	6	Pink	
			7	V cc		Blue	7	7	Blue	Pwr 12V continuous
			8	GND		Red	8	8	Red	Pwr GND !! Note red is ground
				SHIELD		Black	9	9	Black	
<b>#6</b>	<b>Cable_ASP</b>	<b>24.2.16</b>								
PATHWAY			<b>Aspirator to DAQ (external)</b>				<b>Bulgin bulkhead to datalogger</b>			
CONNECTORS						Bulgin PX0410/04P/6065	PX0412/04S			
			1	Tach		Green	1	1	Green	11
			2	Pos	14-27 VDC	Red	2	2	red	External -V
			3	Neg		Black	3	3	blk	External +V
<b>#7</b>	<b>Cable_SPNU_analog</b>	<b>24.2.10</b>								
			<b>SPN to Bulgin (DAQ Exterior)</b>				<b>Bulgin bulkhead to datalogger</b>			
CONNECTORS			SPN1/w-05 (use w/ Datalogger)				Bulgin PX0410/12P/6065	PX0412/12S		
			1	Total	Total output, 1mV = 1 W. m-2	White	1	1	White	3
			2	Diffuse	Diffuse output, 1mV = 1 W. m-2	Brown	2	2	Brown	4
			3	SigGND	Signal ground (connected to DL-Gnd internally)	Green	3	3	Green	gnd

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			4	Sun	Contact closure on sunshine	Yellow	4	4	Yellow	n.c.
			5	DL-Gnd	Datalogger power ground	Grey	5	5	Grey	Power Out Gnd
			6	DL-Power	Datalogger power supply 4 - 15V 2mA	Pink	6	6	Orange	Power Out 12V
			7	Htr-	Heater ground	Blue	7	7	Blue	External -V
			8	Htr+	Heater power supply, 12V 1.5A max	Red	8	8	Red	External +V
				Shield	Cable screen and SPN1 body	Screen	9	9	Screen	Case gnd
							10	10		
							11	11		
							12	12		
<b>#8</b>	<b>Cable_SPNU_serial</b>	<b>24.2.12</b>								
<b>PATHWAY</b>			<b>SPN to Bulgin (DAQ Exterior)</b>				<b>Bulgin bulkhead to datalogger</b>			
<b>CONNECTORS</b>			SPN1-RS-10 (use w/ PC or Serial Device)				Bulgin PX0410/06P/6065		PX0412/06S	
			1	Gnd	Ground	Brown	1	1	Brown	Power Out Gnd
			2	Power in	Power from PC DTR line	White	2	2	White	Power Out 12V
			3	RX in	RS232 RX in to SPN1	Blue	3	3	Blue	C7
			4	SDI-12	Not used	Black	4	4	Black	nc
			5	TX out	RS232 TX out of SPN1	Grey	5	5	Grey	C8
			6				6	6		