Harness 1 - MPI 12V Power

OBC - J4 (MPI Power)		Harness 1 - MPI 12V Power			EPS - J10 VD3_OBC[0]	
Picoblade	4-pin	4x		200.0 mm	Microlock	4-pin
12V_MPI	1	OBC - J4 (MPI Power):1:12V_MPI	1:VT	EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)	4	VD3_OBC(0)
12V_MPI	2	OBC - J4 (MPI Power):2:12V_MPI	2:BK	EPS - J10 VD3_OBC[0]:3:VD3_OBC(0)	3	VD3_OBC(0)
GND	3	OBC - J4 (MPI Power):3:GND	3:OG	EPS - J10 VD3_OBC[0]:2:GND	2	GND
GND	4	OBC - J4 (MPI Power):4:GND	4:YE	EPS - J10 VD3_OBC[0]:1:GND	1	GND

Harness 2 - Boom Burnwire Power

Burnwire PCB - J2		Harness 2 - Boom Burnwire Power			EPS - VD3_OBC[1]	
Picoblade	6-pin	5x		300.0 mm	Picolock	8-pin
VDC	1	Burnwire PCB - J2:1:VDC	1	EPS - VD3_OBC[1]:1:VD3_OBC(1)	1	VD3_OBC(1)
VDC	2	Burnwire PCB - J2:2:VDC	2	EPS - VD3_OBC[1]:2:VD3_OBC(1)	2	VD3_OBC(1)
VDC	3	Burnwire PCB - J2:4:GND	3	EPS - VD3_OBC[1]:3:GND	3	GND
GND	4	Burnwire PCB - J2:5:GND	4	EPS - VD3_OBC[1]:5:GND	4	GND
GND	5	Burnwire PCB - J2:6:GND	5	EPS - VD3_OBC[1]:7:GND	5	GND
GND	6				6	I2C_SCL
					7	GND
					8	I2C_SDA

Harness 3 - Boom Burn Wire to OBC

OBC - J8 (BW)		Harness 3 - Boom Burn Wire to OBC			Burnwire PCB - J1	
Picoblade	4-pin	4x		300.0 mm	Picoblade	4-pin
BOOM_CTRL_1	1	OBC - J8 (BW):1:BOOM_CTRL_1	1	Burnwire PCB - J1:3:BOOM_CTRL_1	1	GND
GND	2	OBC - J8 (BW):2:GND	2	Burnwire PCB - J1:1:GND	2	GND
BOOM_CTRL_2	3	OBC - J8 (BW):3:BOOM_CTRL_2	3	Burnwire PCB - J1:4:BOOM_CTRL_2	3	BOOM_CTRL_1
GND	4	OBC - J8 (BW):4:GND	4	Burnwire PCB - J1:2:GND	4	BOOM_CTRL_2
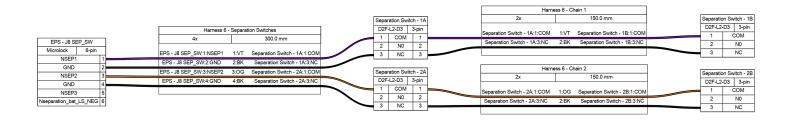
Harness 4A

COTS Solar Panel PWR-1	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

COTS Solar Panel PWR-2	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

Harness 4A - COTS Solar Panel Power		
4x		
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J11_CH1:2:SP+
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J11_CH1:3:GND
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J11_CH1:6:SP+
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J11_CH1:7:GND

EPS - J11_CH1	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 4B

COTS Solar Panel PWR-1	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

COTS Solar Panel PWR-2	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

Harness 4B - COTS Solar Panel Power		
4x		
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J11_CH2:2:SP+
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J11_CH2:3:GND
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J11_CH2:6:SP+
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J11_CH2:7:GND

EPS - J11_CH2	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 4C

COTS Solar Panel PWR-1	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

COTS Solar Panel PWR-2	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

Harness 4C - COTS Solar Panel Power		
4x		
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J303:2:SP+
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J303:3:GND
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J303:6:SP+
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J303:7:GND

EPS - J303	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 4D - COTS Solar Panel Power

COTS Solar Panel PWR-1	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

COTS Solar Panel PWR-2	
Picoblade	2-pin
V+ (Solar Cell P junction)	1
V- (GND)	2

Harness 4D - COTS Solar Panel Power		
4x		
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J403:2:SP+
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J403:3:GND
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J403:6:SP+
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J403:7:GND

EPS - J403	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 5 - EPS to PBP

EPS - J2 (Battery)	
Microlock	15-pin
HEATERS_ON	1
VBAT_NEG	2
TH_R_BATT(1)	3
TH_R_BATT(0)	4
VBAT_NEG	5
VBAT_NEG	6
VBAT_POS	7
VBAT_POS	8
VBAT_POS	9
VBAT_POS	10
VBAT_NEG	11
VBAT_NEG	12
VBAT_NEG	13
VBAT_NEG	14
NC	15

Harness 5 - EPS to PBP		
15x		
EPS - J2 (Battery):1:HEATERS_ON	1:VT	EPS - PBP - Connector 1:1
EPS - J2 (Battery):2:VBAT_NEG	2:BK	EPS - PBP - Connector 1:2
EPS - J2 (Battery):3:TH_R_BATT(1)	3:OG	EPS - PBP - Connector 1:3
EPS - J2 (Battery):4:TH_R_BATT(0)	4:YE	EPS - PBP - Connector 1:4
EPS - J2 (Battery):5:VBAT_NEG	5:GN	EPS - PBP - Connector 1:5
EPS - J2 (Battery):6:VBAT_NEG	6:BU	EPS - PBP - Connector 1:6
EPS - J2 (Battery):7:VBAT_POS	7:RD	EPS - PBP - Connector 1:7
EPS - J2 (Battery):8:VBAT_POS	8:PK	EPS - PBP - Connector 1:8
EPS - J2 (Battery):9:VBAT_POS	9:TQ	EPS - PBP - Connector 2:1
EPS - J2 (Battery):10:VBAT_POS	10:RD	EPS - PBP - Connector 2:2
EPS - J2 (Battery):11:VBAT_NEG	11:BU	EPS - PBP - Connector 2:3
EPS - J2 (Battery):12:VBAT_NEG	12:BG	EPS - PBP - Connector 2:4
EPS - J2 (Battery):13:VBAT_NEG	13:SR	EPS - PBP - Connector 2:5
EPS - J2 (Battery):14:VBAT_NEG	14:IV	EPS - PBP - Connector 2:6
EPS - J2 (Battery):15:NC	15:OL	EPS - PBP - Connector 2:7

EPS - PBP - Connector 1	
Picolock	8-pin
1	
2	
3	
4	
5	
6	
7	
8	

EPS - PBP - Connector 2	
Picolock	7-pin
1	
2	
3	
4	
5	
6	
7	

Harness 6 - Separation Switches

EPS - J8 SEP_SW	
Microlock	6-pin
NSEP1	1
GND	2
NSEP2	3
GND	4
NSEP3	5
Nseparation_bat_LS_NEG	6

Harness 6 - Separation Switches		
4x		300.0 mm
EPS - J8 SEP_SW:1:NSEP1	1:VT	Separation Switch - 1A:1:COM
EPS - J8 SEP_SW:2:GND	2:BK	Separation Switch - 1A:3:NC
EPS - J8 SEP_SW:3:NSEP2	3:OG	Separation Switch - 2A:1:COM
EPS - J8 SEP_SW:4:GND	4:BK	Separation Switch - 2A:3:NC

Separation Switch - 1A		
D2F-L2-D3	3-pin	
1	COM	1
2	N0	2
3	NC	3

Separation Switch - 2A		
D2F-L2-D3	3-pin	
1	COM	1
2	N0	2
3	NC	3

Harness 6 - Chain 1		
2x		150.0 mm
Separation Switch - 1A:1:COM	1:VT	Separation Switch - 1B:1:COM
Separation Switch - 1A:3:NC	2:BK	Separation Switch - 1B:3:NC

Harness 6 - Chain 2		
2x		150.0 mm
Separation Switch - 2A:1:COM	1:OG	Separation Switch - 2B:1:COM
Separation Switch - 2A:3:NC	2:BK	Separation Switch - 2B:3:NC

Separation Switch - 1B		
D2F-L2-D3	3-pin	
1	COM	
2	N0	
3	NC	

Separation Switch - 2B		
D2F-L2-D3	3-pin	
1	COM	
2	N0	
3	NC	

Harness 7 - GNSS Connector

OBC - J3 (GPS)			Harness 7 - GNSS Connector			GNSS via DMC3 P1	
Picoblade	8-pin		8x			Picoblade	8-pin
NC	1	OBC - J3 (GPS):1:NC	1	GNSS via DMC3 P1:1:NC		1	NC
NC	2	OBC - J3 (GPS):2:NC	2	GNSS via DMC3 P1:2:NC		2	NC
MOSI_USART3_TX	3	OBC - J3 (GPS):3:MOSI_USART3_TX	3	GNSS via DMC3 P1:4:UART1 TX (MOSI)		3	UART1 RX (MISO)
MISO_USART3_RX	4	OBC - J3 (GPS):4:MISO_USART3_RX	4	GNSS via DMC3 P1:3:UART1 RX (MISO)		4	UART1 TX (MOSI)
NC	5	OBC - J3 (GPS):5:NC	5	GNSS via DMC3 P1:5:AUX 1		5	AUX 1
NC	6	OBC - J3 (GPS):6:NC	6	GNSS via DMC3 P1:6:AUX 2		6	AUX 2
GPS_PPS	7	OBC - J3 (GPS):7:GPS_PPS	7	GNSS via DMC3 P1:7:AUX 3 (PPS)		7	AUX 3 (PPS)
NC	8	OBC - J3 (GPS):8:NC	8	GNSS via DMC3 P1:8:AUX 4		8	AUX 4

Harness 8 - MPI Connector
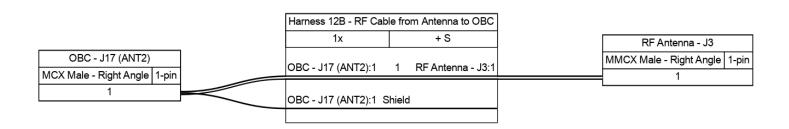
OBC - J10 (MPI)			Harness 8 - MPI Connector			MPI Connector	
Picoblade	10-pin		9x			Picoblade	10-pin
12V_MPI	1	OBC - J10 (MPI):1:12V_MPI	1:VT	MPI Connector:10:12V_MPI		10	12V_MPI
12V_MPI	2	OBC - J10 (MPI):2:12V_MPI	2:BK	MPI Connector:9:12V_MPI		9	12V_MPI
GND	3	OBC - J10 (MPI):3:GND	3:OG	MPI Connector:8:GND		8	GND
5V	4	OBC - J10 (MPI):4:5V	4:YE	MPI Connector:7:5V		7	5V
GND	5	OBC - J10 (MPI):5:GND	5:GN	MPI Connector:6:GND		6	GND
MOSI_TX_P	6	OBC - J10 (MPI):6:MOSI_TX_P	6:BU	MPI Connector:3:RI		5	DO
MOSI_TX_N	7	OBC - J10 (MPI):7:MOSI_TX_N	7:RD	MPI Connector:2:RI*		4	DO*
MISO_RX_P	8	OBC - J10 (MPI):8:MISO_RX_P	8:PK	MPI Connector:5:DO		3	RI
MISO_RX_N	9	OBC - J10 (MPI):9:MISO_RX_N	9:TQ	MPI Connector:4:DO*		2	RI*
NC	10					1	NC
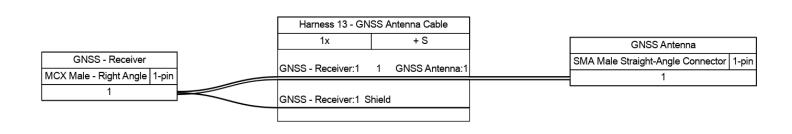
Harness 9 - Camera Connector

OBC - J7 (Camera)			Harness 9 - Camera Connector			Camera	
Picoblade	6-pin		6x	250.0 mm		Picoblade	6-pin
3V3_CAM	1	OBC - J7 (Camera):1:3V3_CAM	1:VT	Camera:1:VDD		1	VDD
CAM_EN	2	OBC - J7 (Camera):2:CAM_EN	2:BK	Camera:2:ON		2	ON
MOSI_UART4_TX	3	OBC - J7 (Camera):3:MOSI_UART4_TX	3:OG	Camera:3:RXD		3	RXD
MISO_UART4_RX	4	OBC - J7 (Camera):4:MISO_UART4_RX	4:YE	Camera:4:TXD		4	TXD
NC	5	OBC - J7 (Camera):5:NC	5:GN	Camera:5:FLASH		5	FLASH
GND	6	OBC - J7 (Camera):6:GND	6:BU	Camera:6:GND		6	GND

Harness 10 - Antenna Deployment Connector

OBC - J13 (Antenna)			9x	250.0 mm	UHF Antenna	
Picoblade	10-pin				Omnetics A28000-009	9-pin
3V3_ANT_DEPLOY	1	OBC - J13 (Antenna):1:3V3_ANT_DEPLOY	1:BK	UHF Antenna:1:VCC	1	VCC
12C2_SDA	2	OBC - J13 (Antenna):2:12C2_SDA	2:BN	UHF Antenna:2:SDA_A	2	SDA_A
GND	3	OBC - J13 (Antenna):3:GND	3:RD	UHF Antenna:3:GND	3	GND
12C3_SDA	4	OBC - J13 (Antenna):4:12C3_SDA	4:OG	UHF Antenna:4:SDA_B	4	SDA_B
GND	5	OBC - J13 (Antenna):5:GND	5:YE	UHF Antenna:5:GND	5	GND
3V3_ANT_DEPLOY	6	OBC - J13 (Antenna):6:3V3_ANT_DEPLOY	6:GN	UHF Antenna:6:VCC	6	VCC
12C2_SCL	7	OBC - J13 (Antenna):7:12C2_SCL	7:BU	UHF Antenna:7:SCL_A	7	SCL_A
12C3_SCL	8	OBC - J13 (Antenna):8:12C3_SCL	8:VT	UHF Antenna:8:SCL_B	8	SCL_B
GND	9	OBC - J13 (Antenna):9:GND	9:GY	UHF Antenna:9:GND	9	GND
NC	10					

Harness 11 - RF Cable from AX100 to OBC

OBC - J18 (COMS)		RG-316	1x	+ S	150.0 mm	AX100 - J4	
MCX Male - Right Angle	1-pin					MCX Male - Right Angle	1-pin
1		OBC - J18 (COMS):1	1	AX100 - J4:1		1	
		OBC - J18 (COMS):1	Shield				

Harness 12A - RF Cable from Antenna to OBC

OBC - J20 (ANT1)		1x	+ S	RF Antenna - J2	
MCX Male - Right Angle	1-pin			MMCX Male - Right Angle	1-pin
1		OBC - J20 (ANT1):1	1 RF Antenna - J2:1	1	
		OBC - J20 (ANT1):1	Shield		

Harness 12B - RF Cable from Antenna to OBC

OBC - J17 (ANT2)		
MCX Male - Right Angle	1-pin
1		

Harness 12B - RF Cable from Antenna to OBC	
1x	+ S
OBC - J17 (ANT2):1 1 RF Antenna - J3:1	
OBC - J17 (ANT2):1 Shield	

RF Antenna - J3	
MMCX Male - Right Angle	1-pin
1	

Harness 13 - GNSS Antenna Cable

GNSS - Receiver		
MCX Male - Right Angle	1-pin
1		

Harness 13 - GNSS Antenna Cable	
1x	+ S
GNSS - Receiver:1 1 GNSS Antenna:1	
GNSS - Receiver:1 Shield	

GNSS Antenna	
SMA Male Straight-Angle Connector	1-pin
1	

Harness 14 - Solar Panel RBF

OBC - J15 (RBF)	
4-pin	
RBF_1	1
DEBUG_LED	2
GND	3
GND	4

Harness 14 - Solar Panel RBF		
4x		
OBC - J15 (RBF):1:RBF_1	1:VT	1U In-House Solar Panel - LED/RBF Connector:1:COM_RBF_1
OBC - J15 (RBF):2:DEBUG_LED	2:OG	1U In-House Solar Panel - LED/RBF Connector:3:LED_1_POSITIVE
OBC - J15 (RBF):3:GND	3:BK	1U In-House Solar Panel - LED/RBF Connector:2:NO_RBF_1
OBC - J15 (RBF):4:GND	4:BK	1U In-House Solar Panel - LED/RBF Connector:4:LED_1_NEGATIVE

1U In-House Solar Panel - LED/RBF Connector	
4-pin	
1	COM_RBF_1
2	NO_RBF_1
3	LED_1_POSITIVE
4	LED_1_NEGATIVE

EPS - J9 (Umbilical 2)

Microlock	15-pin
RAIL_PWR	1
RAIL_PWR	2
RAIL_PWR	3
RAIL_PWR	4
GND	5
GND	6
GND	7
GND	8
UART_RX_H2_21	9
UART_TX_H2_22	10
I2C_EXT_SCL	11
I2C_EXT_SDA	12
GND	13
UART_TX_3V3_OUT1	14
UART_RX_3V3_IN1	15

Harness 15 - EPS UART to OBC

4x		
EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	1:VT	OBC - J14:1:MISO_UART5_RX
EPS - J9 (Umbilical 2):15:UART_RX_3V3_IN1	2:OG	OBC - J14:2:MOSI_UART5_TX
EPS - J9 (Umbilical 2):7:GND	3:BK	OBC - J14:3:GND
EPS - J9 (Umbilical 2):8:GND	4:BK	OBC - J14:4:GND

OBC - J14

Picoblade	4-pin
1	MISO_UART5_RX
2	MOSI_UART5_TX
3	GND
4	GND

EPS - J10 (Umbilical 1)

Microlock	14-pin
GND	1
N_ABF_PLACED_0	2
N_SEPARATION_1	3
N_BAT_ENA_HS	4
N_SEPARATION_2	5
N_SAT_ENA_HS	6
N_SEPARATION_3	7
BAT_ENA_LS_POS	8
BAT_ENA_LS_RBF	9
BAT_ENA_LS_NEG	10
GND	11
GND	12
N_ABF_PLACED_1	13
GND	14

Harness 16 - ABF Connector (Loopback/Pigtail)

5x	
EPS - J10 (Umbilical 1):1:GND	1:RD
EPS - J10 (Umbilical 1):3:N_SEPARATION_1	2:BK
EPS - J10 (Umbilical 1):5:N_SEPARATION_2	3:VT
EPS - J10 (Umbilical 1):7:N_SEPARATION_3	4:OG
EPS - J10 (Umbilical 1):13:N_ABF_PLACED_1	5:BK

Harness 17 - OBC to AX100/DMC3

2x		
OBC - J9 ("UART"):1:MOSI_TX	1	AX100 via DMC3 P2:1:MOSI_RX
OBC - J9 ("UART"):2:MISO_RX	2	AX100 via DMC3 P2:2:MISO_TX

OBC - J9 ("UART")

Picoblade	4-pin
MOSI_TX	1
MISO_RX	2
GND	3
GND	4

AX100 via DMC3 P2

Picoblade	8-pin
1	MOSI_RX
2	MISO_TX
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

EPS - J11_CH0

Picolock	8-pin
SP+	1
SP+	2
GND	3
GND	4
SP+	5
SP+	6
GND	7
GND	8

Harness 18 - In-House Solar Panel Power (Group 1, Spliced) — 4x

EPS - J11_CH0:1:SP+	1:RD	1p25U In-House Solar Panel 1 - Power:1:V+
EPS - J11_CH0:2:SP+	2:RD	1p25U In-House Solar Panel 1 - Power:2:V+
EPS - J11_CH0:3:GND	3:BK	1p25U In-House Solar Panel 1 - Power:7:V-
EPS - J11_CH0:4:GND	4:BK	1p25U In-House Solar Panel 1 - Power:8:V-

1p25U In-House Solar Panel 1 - Power

Picoblade	8-pin
1	V+
2	V+
3	V-
4	V-
5	V+
6	V+
7	V-
8	V-

Harness 18 - In-House Solar Panel Power (Group 2, Spliced) — 4x

EPS - J11_CH0:5:SP+	1:RD	1p25U In-House Solar Panel 2 - Power:5:V+
EPS - J11_CH0:6:SP+	2:RD	1p25U In-House Solar Panel 2 - Power:6:V+
EPS - J11_CH0:7:GND	3:BK	1p25U In-House Solar Panel 2 - Power:7:V-
EPS - J11_CH0:8:GND	4:BK	1p25U In-House Solar Panel 2 - Power:8:V-

1p25U In-House Solar Panel 2 - Power

Picoblade	8-pin
1	V+	1
2	V+	2
3	V-	3
4	V-	4
5	V+	5
6	V+	6
7	V-	7
8	V-	8

Harness 18 - In-House Solar Panel Power (Group 3, Precrimped) — 4x

1p25U In-House Solar Panel 2 - Power:1:V+	1:RD	1p0U In-House Solar Panel - Power:1:V+
1p25U In-House Solar Panel 2 - Power:2:V+	2:RD	1p0U In-House Solar Panel - Power:2:V+
1p25U In-House Solar Panel 2 - Power:3:V-	3:BK	1p0U In-House Solar Panel - Power:7:V-
1p25U In-House Solar Panel 2 - Power:4:V-	4:BK	1p0U In-House Solar Panel - Power:8:V-

1p0U In-House Solar Panel - Power

Picoblade	8-pin
1	V+
2	V+
3	V-
4	V-
5	V+
6	V+
7	V-
8	V-

EPS - J9 (Umbilical 2)

Microlock	15-pin
1	RAIL_PWR
2	RAIL_PWR
3	RAIL_PWR
4	RAIL_PWR
5	GND
6	GND
7	GND (See Harness 15)
8	GND (See Harness 15)
9	UART_RX_H2_21
10	UART_TX_H2_22
11	I2C_EXT_SCL
12	I2C_EXT_SDA
13	GND
14	UART_TX_3V3_OUT1 (See Harness 15)
15	UART_RX_3V3_IN1 (See Harness 15)

Outside Umbilical Port (8-Pin)

Picoblade (Male - mates with "normal" harness)	8-pin
RAIL_PWR	1
GND	2
OBC_DEBUG_UART (To OBC)	3
OBC_DEBUG_UART (From OBC)	4
GND	5
3V3	6
AX100_DEBUG_UART (To AX100)	7
AX100_DEBUG_UART (From AX100)	8

Harness 19 - Umbilical Extension to Outside — 8x — 300.0 mm

Outside Umbilical Port (8-Pin):1:RAIL_PWR	1:RD	EPS - J9 (Umbilical 2):1:RAIL_PWR
Outside Umbilical Port (8-Pin):2:GND	2:BK	OBC - J12 (Umbilical):2:GND
Outside Umbilical Port (8-Pin):3:OBC_DEBUG_UART (To OBC)	3:OG	OBC - J12 (Umbilical):3:OBC_DEBUG_UART (To OBC)
Outside Umbilical Port (8-Pin):4:OBC_DEBUG_UART (From OBC)	4:YE	OBC - J12 (Umbilical):4:OBC_DEBUG_UART (From OBC)
Outside Umbilical Port (8-Pin):5:GND	5:GN	OBC - J12 (Umbilical):5:GND
Outside Umbilical Port (8-Pin):6:3V3	6:BU	OBC - J12 (Umbilical):6:3V3
Outside Umbilical Port (8-Pin):7:AX100_DEBUG_UART (To AX100)	7:VT	AX100 Debug UART Connector:3:AX100_DEBUG_UART (To AX100)
Outside Umbilical Port (8-Pin):8:AX100_DEBUG_UART (From AX100)	8:PK	AX100 Debug UART Connector:4:AX100_DEBUG_UART (From AX100)

OBC - J12 (Umbilical)

Picoblade	8-pin
1	V_BAT
2	GND
3	OBC_DEBUG_UART (To OBC)
4	OBC_DEBUG_UART (From OBC)
5	GND
6	3V3
7	5V
8	GND

AX100 Debug UART Connector

Picoblade	4-pin
1	GND
2	3V3
3	AX100_DEBUG_UART (To AX100)
4	AX100_DEBUG_UART (From AX100)

Outside OBC Programming Port (6-Pin)

Picoblade (Male - mates with "normal" harness)	6-pin
3V3	1
SWCLK	2
GND	3
SWDIO	4
NRST	5
SWO	6

Harness 20 - OBC Programming Extension to Outside — 6x — 150.0 mm

Outside OBC Programming Port (6-Pin):1:3V3	1:RD	OBC - J11 (SWD):1:3V3
Outside OBC Programming Port (6-Pin):2:SWCLK	2:TQ	OBC - J11 (SWD):2:SWCLK
Outside OBC Programming Port (6-Pin):3:GND	3:BK	OBC - J11 (SWD):3:GND
Outside OBC Programming Port (6-Pin):4:SWDIO	4:OG	OBC - J11 (SWD):4:SWDIO
Outside OBC Programming Port (6-Pin):5:NRST	5:YE	OBC - J11 (SWD):5:NRST
Outside OBC Programming Port (6-Pin):6:SWO	6:GN	OBC - J11 (SWD):6:SWO

OBC - J11 (SWD)

Picoblade	6-pin
1	3V3
2	SWCLK
3	GND
4	SWDIO
5	NRST
6	SWO

OBC - J12

Picoblade	10-pin
V_BAT	1
GND	2
MISO_LPUART1_RX	3
MOSI_LPUART_TX	4
GND	5
3V3	6
5V	7
GND	8
GND	9
GND	10

Harness 51 - Umbilical

5x		
OBC - J12:3:MISO_LPUART1_RX	1	USB-to-UART:1:MOSI_TX
OBC - J12:4:MOSI_LPUART_TX	2	USB-to-UART:2:MISO_RX
OBC - J12:5:GND	3	USB-to-UART:3:GND
OBC - J12:6:3V3	4	USB-to-UART:4:5V
OBC - J12:7:5V	5	USB-to-UART:5:3V3

USB-to-UART

5-pin	
1	MOSI_TX
2	MISO_RX
3	GND
4	5V
5	3V3

Harness 52 - Programmer Connector

6x		
OBC - J11:1:3V	1	ST-LINK:7:3V3
OBC - J11:2:SWCLK	2	ST-LINK:2:SWCLK
OBC - J11:3:GND	3	ST-LINK:5:GND
OBC - J11:4:SWDIO	4	ST-LINK:4:SWDIO
OBC - J11:5:NRST	5	ST-LINK:1:RST
	6	

OBC - J11

Picoblade	6-pin
3V	1
SWCLK	2
GND	3
SWDIO	4
NRST	5
SWO	6

ST-LINK

2.54mm Header	10-pin
1	RST
2	SWCLK
3	SWIM
4	SWDIO
5	GND
6	GND
7	3V3
8	5V
9	5V
10	

EPS - J9 (Umbilical 2)

16-pin	
RAIL_PWR	1
RAIL_PWR	2
RAIL_PWR	3
RAIL_PWR	4
GND	5
GND	6
GND	7
GND	8
UART_RX_H2_21	9
UART_TX_H2_22	10
I2C_EXT_SCL	11
I2C_EXT_SDA	12
GND	13
UART_TX_3V3_OUT1	14
UART_TX_3V3_OUT1	15
UART_RX_3V3_IN1	16

Harness 53 - Umbilical Power Injection to EPS

6x		
EPS - J9 (Umbilical 2):1:RAIL_PWR	1:RD	Bench Power Supply:1:POSTIVE (+)
EPS - J9 (Umbilical 2):5:GND	2:BK	Bench Power Supply:2:GND (-)
EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	3:VT	OBC - J14:1:MISO_UART5_RX
EPS - J9 (Umbilical 2):15:UART_TX_3V3_OUT1	4:OG	OBC - J14:2:MOSI_UART5_TX
EPS - J9 (Umbilical 2):7:GND	5:BK	OBC - J14:3:GND
EPS - J9 (Umbilical 2):8:GND	6:BK	OBC - J14:4:GND

Bench Power Supply

3-pin	
1	POSTIVE (+)
2	GND (-)
3	COM

OBC - J14

Picoblade	4-pin
1	MISO_UART5_RX
2	MOSI_UART5_TX
3	GND
4	GND

Harness 54 - EPS Separation Switch Cable

Separation Switches			Harness 54 - EPS Separation Switch Cable			EPS - J8	
3-pin			4x			Microlock	6-pin
COM	1		Separation Switches:3:NC	1	EPS - J8:1:NSEP1	1	NSEP1
2			Separation Switches:1:COM	2	EPS - J8:2:GND	2	GND
NC	3			3		3	NSEP2
				4		4	GND
						5	NSEP3
						6	Nseparation_bat_LS_NEG

Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor

EPS - J11_CH0, J11_CH1, J11_CH2, J303			Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor			Bench Power Supply	
Picolock	8-pin		2x			3-pin	
SP+	1		EPS - J11_CH0, J11_CH1, J11_CH2, J303:1:SP+	1	Bench Power Supply:1:POSTIVE (+)	1	POSTIVE (+)
SP+	2		EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND	2	Bench Power Supply:2:GND (-)	2	GND (-)
GND	3					3	COM
GND	4						
SP+	5						
SP+	6						
GND	7						
GND	8						

Harness 56 - New Programmer Connector

OBC - J11			Harness 56 - New Programmer Connector			ST-LINK	
Picoblade	6-pin		6x			2.54mm Header	10-pin
3V	1		OBC - J11:1:3V	1	ST-LINK:7:3V3	1	RST
SWCLK	2		OBC - J11:2:SWCLK	2	ST-LINK:2:SWCLK	2	SWCLK
GND	3		OBC - J11:3:GND	3	ST-LINK:5:GND	3	SWIM
SWDIO	4		OBC - J11:4:SWDIO	4	ST-LINK:4:SWDIO	4	SWDIO
NRST	5		OBC - J11:5:NRST	5	ST-LINK:1:RST	5	GND
SWO	6			6		6	GND
						7	3V3
						8	5V
						9	5V
						10	