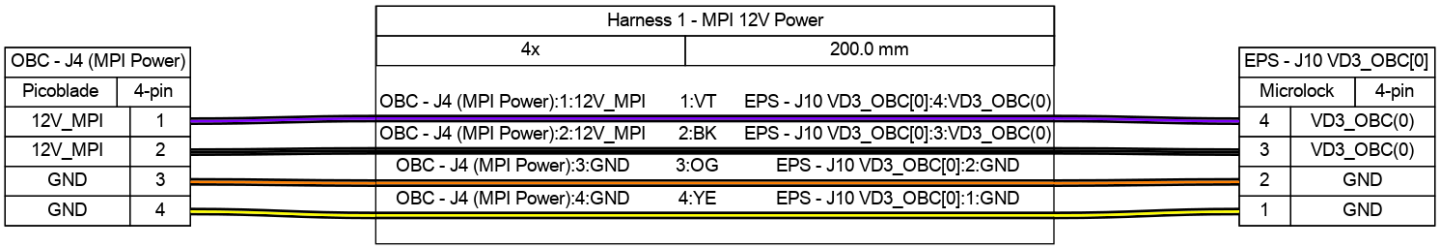
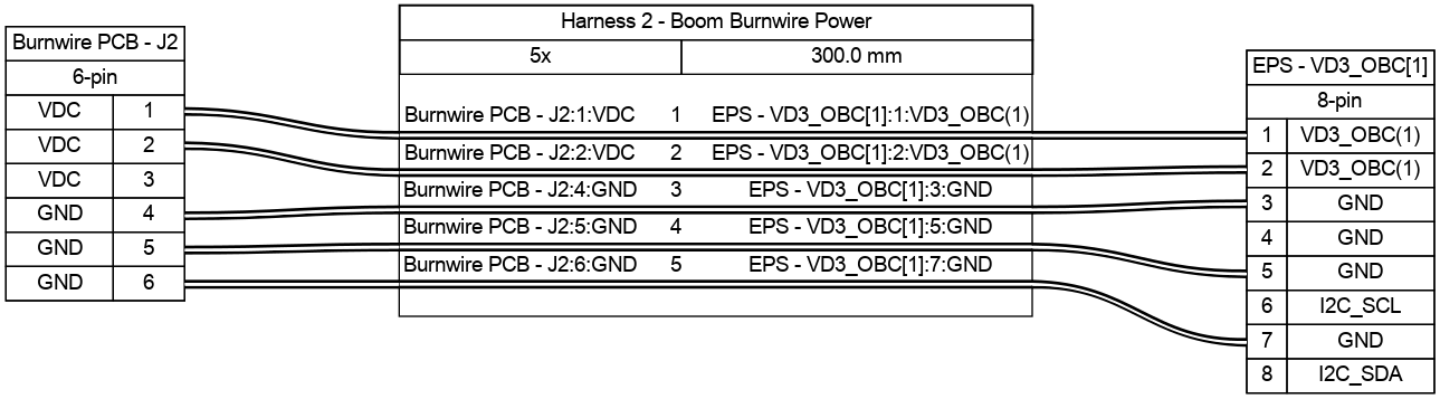
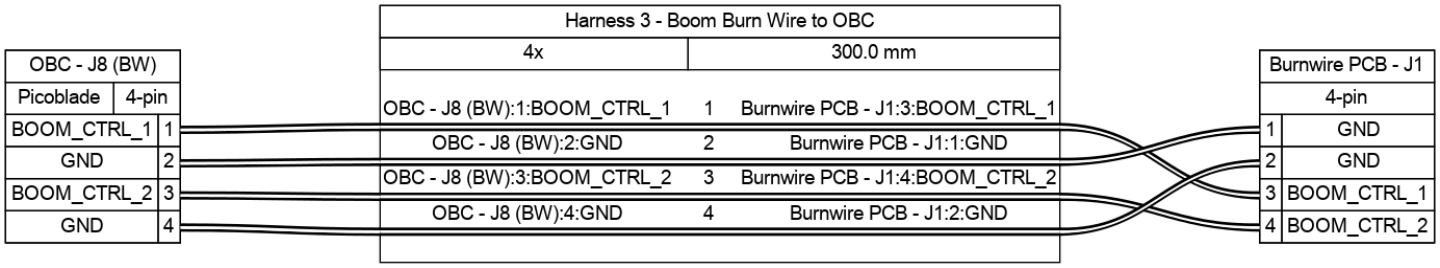
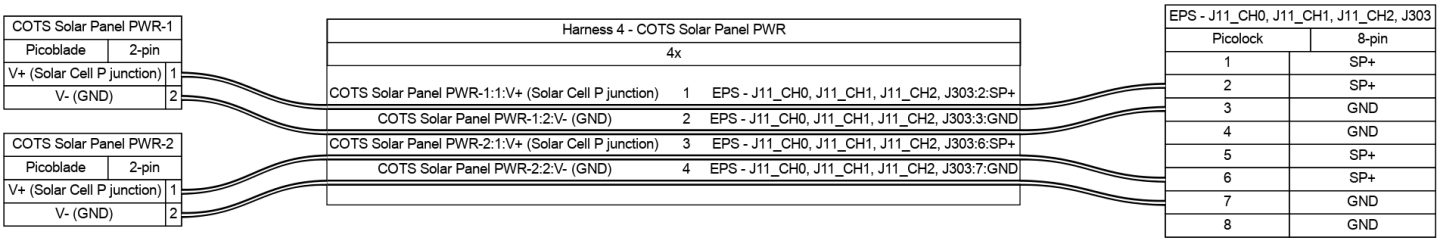
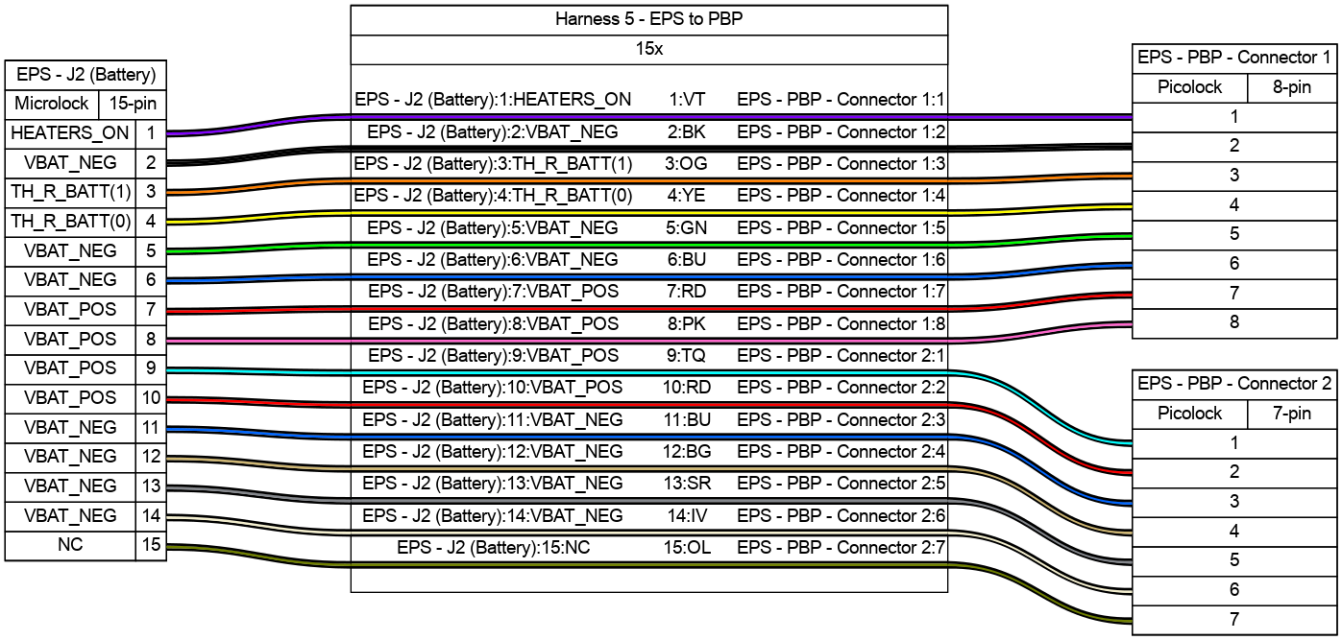
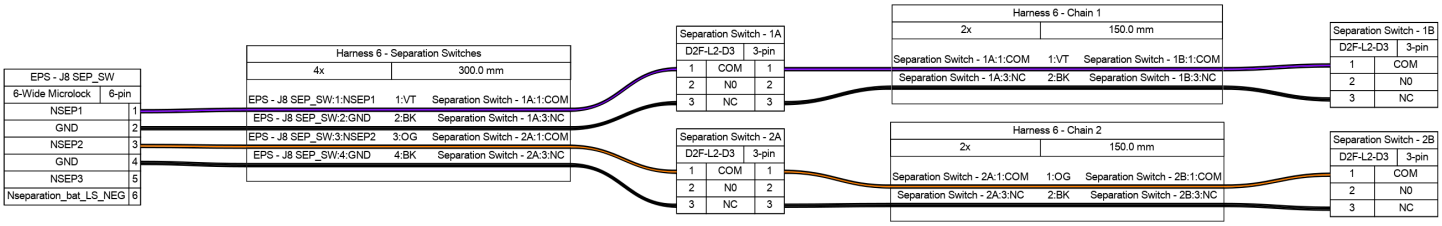

Harness 1 - MPI 12V Power
4x
200.0 mm
OBC - J4 (MPI Power)
Picoblade
4-pin
12V_MPI 1
12V_MPI 2
GND 3
GND 4
OBC - J4 (MPI Power):1:12V_MPI 1:VT EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)
OBC - J4 (MPI Power):2:12V_MPI 2:BK EPS - J10 VD3_OBC[0]:3:VD3_OBC(0)
OBC - J4 (MPI Power):3:GND 3:OG EPS - J10 VD3_OBC[0]:2:GND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

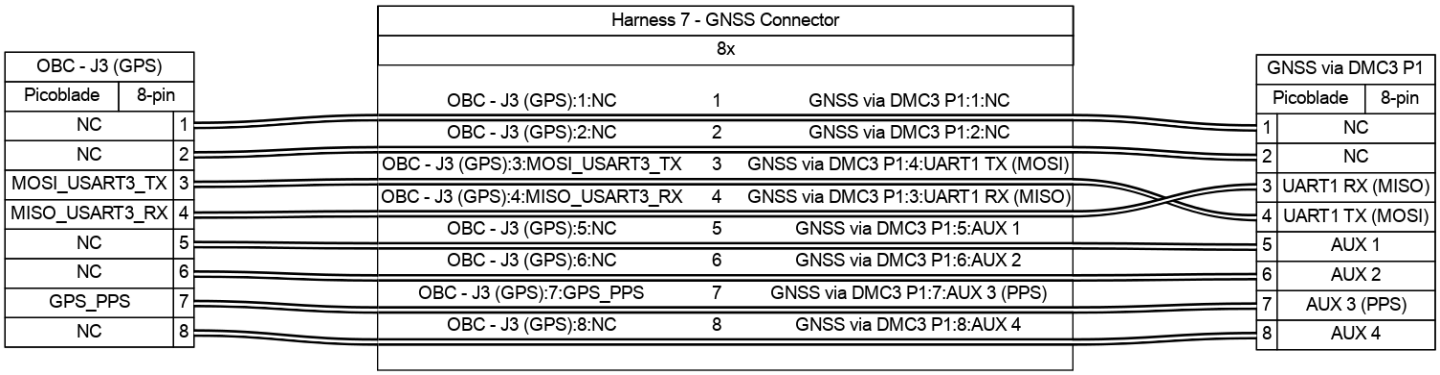

Harness 2 - Boom Burnwire Power
5x
300.0 mm
Burnwire PCB - J2
6-pin
VDC 1
VDC 2
VDC 3
GND 4
GND 5
GND 6
Burnwire PCB - J2:1:VDC 1 EPS - VD3_OBC[1]:1:VD3_OBC(1)
Burnwire PCB - J2:2:VDC 2 EPS - VD3_OBC[1]:2:VD3_OBC(1)
Burnwire PCB - J2:4:GND 3 EPS - VD3_OBC[1]:3:GND
Burnwire PCB - J2:5:GND 4 EPS - VD3_OBC[1]:5:GND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

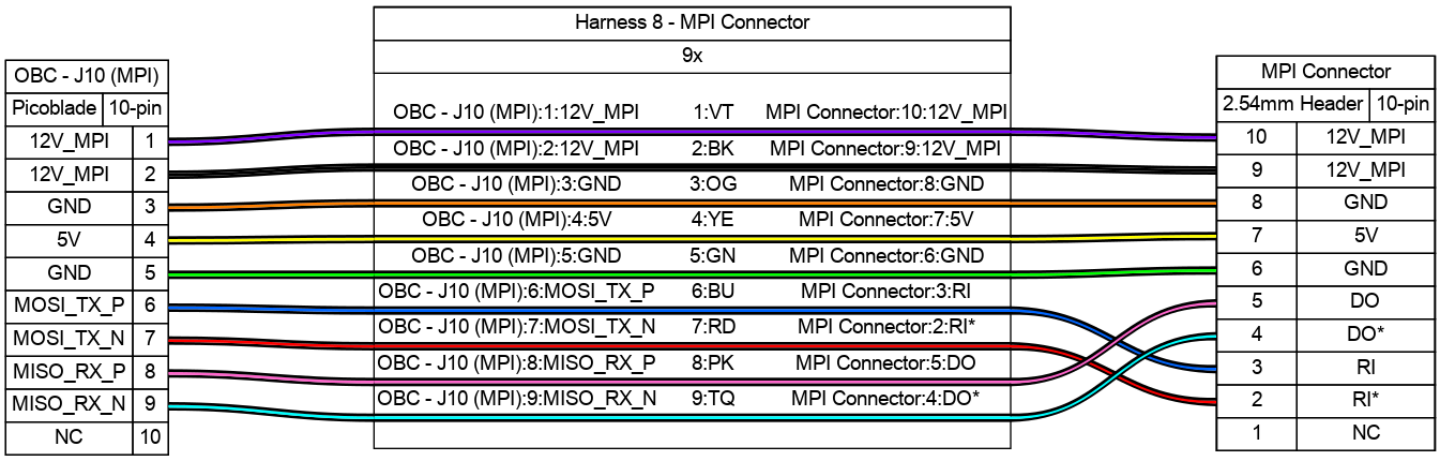

Harness 3 - Boom Burn Wire to OBC
4x
300.0 mm
OBC - J8 (BW)
Picoblade
4-pin
BOOM_CTRL_1 1
GND 2
BOOM_CTRL_2 3
GND 4
OBC - J8 (BW):1:BOOM_CTRL_1 1 Burnwire PCB - J1:3:BOOM_CTRL_1
OBC - J8 (BW):2:GND 2 Burnwire PCB - J1:1:GND
OBC - J8 (BW):3:BOOM_CTRL_2 3 Burnwire PCB - J1:4:BOOM_CTRL_2
OBC - J8 (BW):4:GND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

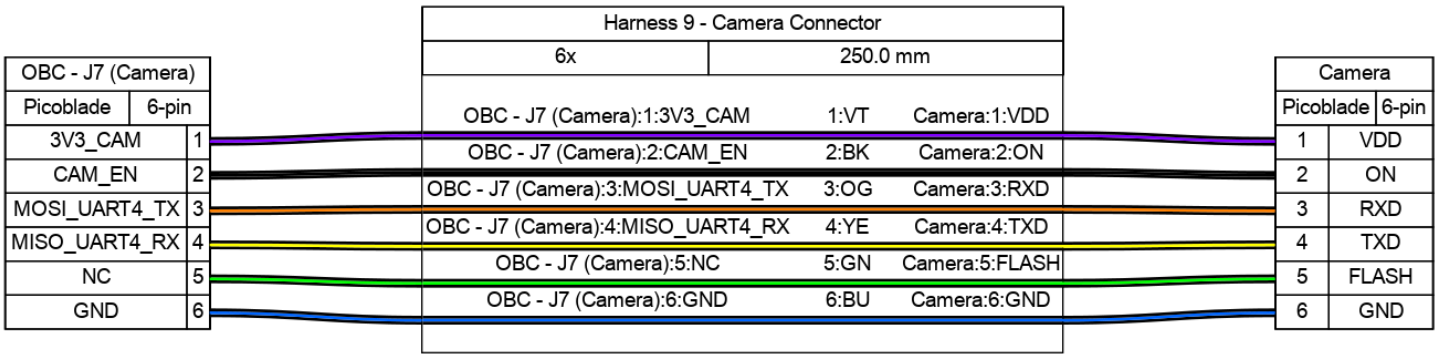

COTS Solar Panel PWR-1
Picoblade 2-pin
V+ (Solar Cell P junction) 1
V- (GND) 2
COTS Solar Panel PWR-2
Picoblade 2-pin
V+ (Solar Cell P junction) 1
V- (GND) 2
Harness 4 - COTS Solar Panel PWR
4x
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction) 1 EPS - J11_CH0, J11_CH1, J11_CH2, J303:2:SP+
COTS Solar Panel PWR-1:2:V- (GND) 2 EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction) 3 EPS - J11_CH0, J11_CH1, J11_CH2, J303:6:SP+
COTS Solar Panel PWR-2:2:V- (GND) 4 EPS - J11_CH0, J11_CH1, J11_CH2, J303:7:GND
EPS - J11_CH0, J11_CH1, J11_CH2, J303
Picolock 8-pin
1 SP+
2 SP+
3 GND
4 GND
5 SP+
6 SP+
7 GND
8 GND

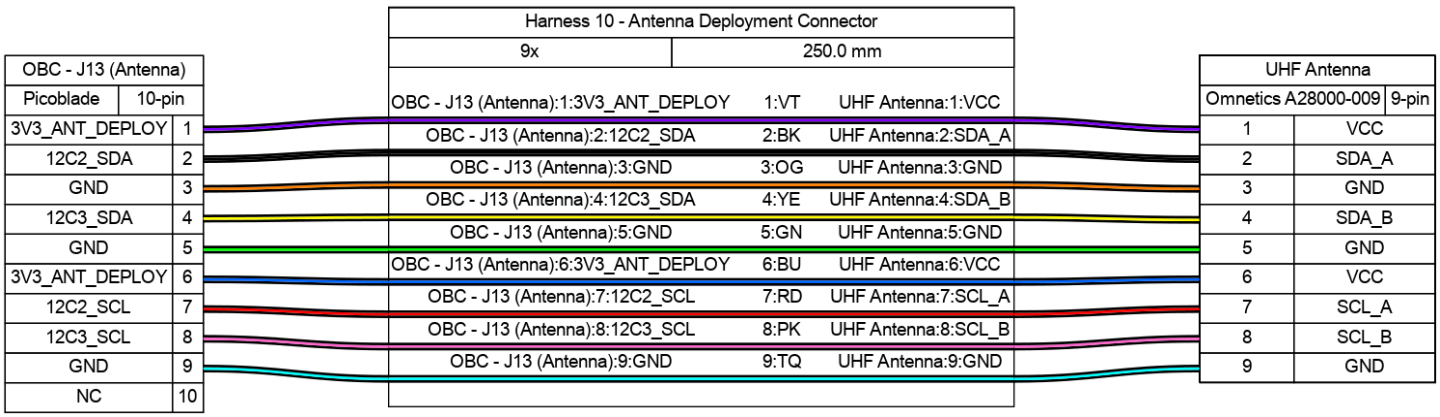

Harness 5 - EPS to PBP
15x
EPS - J2 (Battery)
Microlock 15-pin
HEATERS_ON 1
VBAT_NEG 2
TH_R_BATT(1) 3
TH_R_BATT(0) 4
VBAT_NEG 5
VBAT_NEG 6
VBAT_POS 7
VBAT_POS 8
VBAT_POS 9
VBAT_POS 10
VBAT_NEG 11
VBAT_NEG 12
VBAT_NEG 13
VBAT_NEG 14
NC 15
EPS - J2 (Battery):1:HEATERS_ON 1:VT EPS - PBP - Connector 1:1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

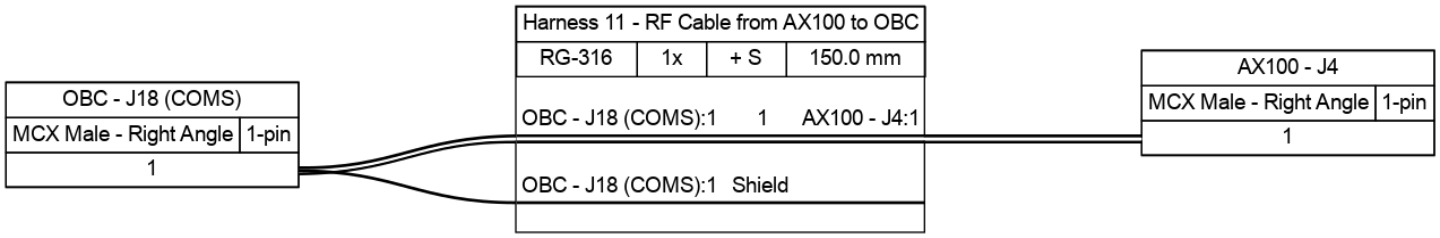

EPS - J8 SEP_SW
6-Wide Microlock 6-pin
NSEP1 1
GND 2
NSEP2 3
GND 4
NSEP3 5
Nseparation_bat_LS_NEG 6
Harness 6 - Separation Switches
4x 300.0 mm
EPS - J8 SEP_SW:1:NSEP1 1:VT Separation Switch - 1A:1:COM
EPS - J8 SEP_SW:2:GND 2:BK Separation Switch - 1A:3:NC
EPS - J8 SEP_SW:3:NSEP2 3:OG Separation Switch - 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 NO 2
3 NC 3
Separation Switch - 2A
D2F-L2-D3 3-pin
1 COM 1
2 NO 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 NO
3 NC
Separation Switch - 2B
D2F-L2-D3 3-pin
1 COM
2 NO
3 NC

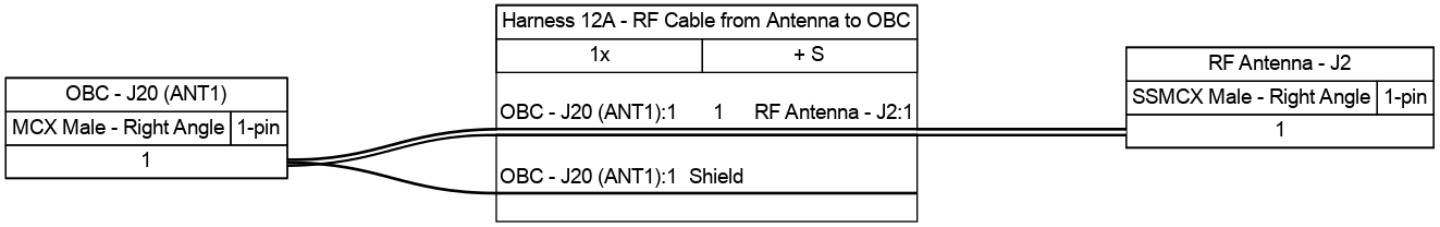

Harness 7 - GNSS Connector
8x
OBC - J3 (GPS)
Picoblade 8-pin
NC 1
NC 2
MOSI_USART3_TX 3
MISO_USART3_RX 4
NC 5
NC 6
GPS_PPS 7
NC 8
OBC - J3 (GPS):1:NC 1 GNSS via DMC3 P1:1:NC
OBC - J3 (GPS):2:NC 2 GNSS via DMC3 P1:2:NC
OBC - J3 (GPS):3:MOSI_USART3_TX 3 GNSS via DMC3 P1:4:UART1 TX (MOSI)
OBC - J3 (GPS):4:MISO_USART3_RX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

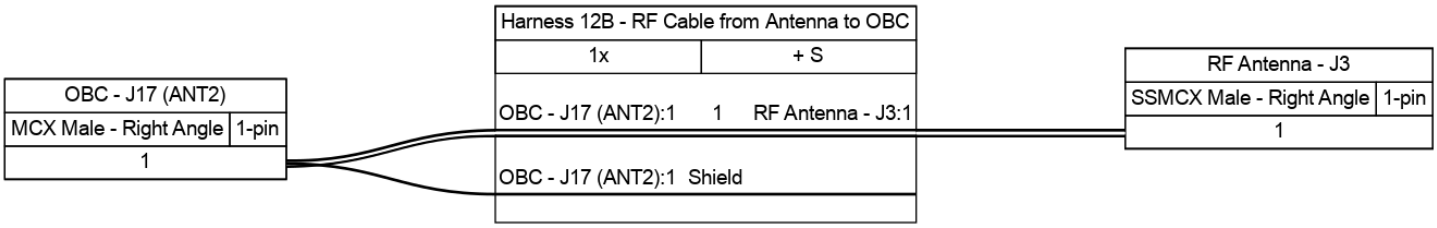

Harness 8 - MPI Connector
9x
OBC - J10 (MPI)
Picoblade 10-pin
12V_MPI 1
12V_MPI 2
GND 3
5V 4
GND 5
MOSI_TX_P 6
MOSI_TX_N 7
MISO_RX_P 8
MISO_RX_N 9
NC 10
OBC - J10 (MPI):1:12V_MPI 1:VT MPI Connector:10:12V_MPI
OBC - J10 (MPI):2:12V_MPI 2:BK MPI Connector:9:12V_MPI
OBC - J10 (MPI):3:GND 3:OG MPI Connector:8:GND
OBC - J10 (MPI):4:5V 4:YE MPI Connector:7:5V
OBC - J10 (MPI):5:GND 5:GN MPI Connector:6:GND
OBC - J10 (MPI):6:MOSI_TX_P 6:BU MPI Connector:3:RI
OBC - J10 (MPI):7:MOSI_TX_N 7:RD MPI Connector:2:RI*
OBC - J10 (MPI):8:MISO_RX_P 8:PK MPI Connector:5:DO
OBC - J10 (MPI):9:MISO_RX_N 9:TQ MPI Connector:4:DO*
MPI Connector
2.54mm Header 10-pin
10 12V_MPI
9 12V_MPI
8 GND
7 5V
6 GND
5 DO
4 DO*
3 RI
2 RI*
1 NC

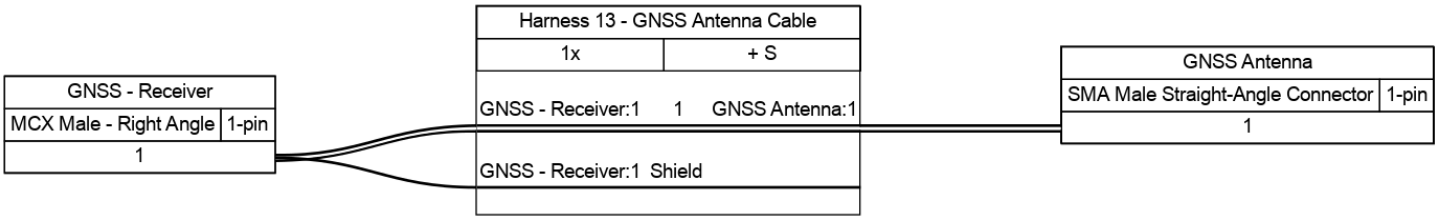

Harness 9 - Camera Connector
6x 250.0 mm
OBC - J7 (Camera)
Picoblade 6-pin
3V3_CAM 1
CAM_EN 2
MOSI_UART4_TX 3
MISO_UART4_RX 4
NC 5
GND 6
OBC - J7 (Camera):1:3V3_CAM 1:VT Camera:1:VDD
OBC - J7 (Camera):2:CAM_EN 2:BK Camera:2:ON
OBC - J7 (Camera):3:MOSI_UART4_TX 3:OG Camera:3:RXD
OBC - J7 (Camera):4:MISO_UART4_RX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

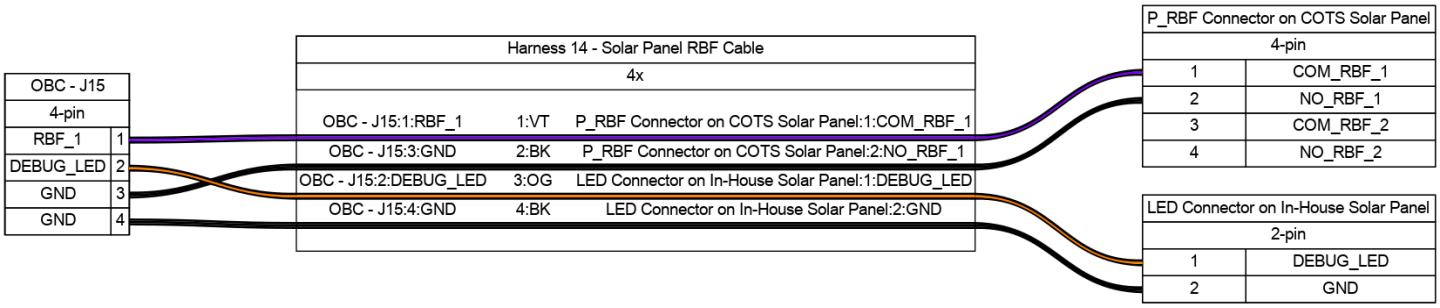

OBC - J13 (Antenna)
Picoblade 10-pin
3V3_ANT_DEPLOY 1
12C2_SDA 2
GND 3
12C3_SDA 4
GND 5
3V3_ANT_DEPLOY 6
12C2_SCL 7
12C3_SCL 8
GND 9
NC 10
Harness 10 - Antenna Deployment Connector
9x 250.0 mm
OBC - J13 (Antenna):1:3V3_ANT_DEPLOY 1:VT UHF Antenna:1:VCC
OBC - J13 (Antenna):2:12C2_SDA 2:BK UHF Antenna:2:SDA_A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


OBC - J18 (COMS)
MCX Male - Right Angle 1-pin
1
Harness 11 - RF Cable from AX100 to OBC
RG-316 1x + S 150.0 mm
OBC - J18 (COMS):1 1 AX100 - J4:1
OBC - J18 (COMS):1 Shield
AX100 - J4
MCX Male - Right Angle 1-pin
1


OBC - J20 (ANT1)
MCX Male - Right Angle 1-pin
1
Harness 12A - RF Cable from Antenna to OBC
1x + S
OBC - J20 (ANT1):1 1 RF Antenna - J2:1
OBC - J20 (ANT1):1 Shield
RF Antenna - J2
SSMCX Male - Right Angle 1-pin
1


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
SSMCX Male - Right Angle
1-pin
1


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


OBC - J15
4-pin
RBF_1 1
DEBUG_LED 2
GND 3
GND 4
Harness 14 - Solar Panel RBF Cable
4x
OBC - J15:1:RBF_1
1:VT
P_RBF Connector on COTS Solar Panel:1:COM_RBF_1
OBC - J15:3:GND
2:BK
P_RBF Connector on COTS Solar Panel:2:NO_RBF_1
OBC - J15:2:DEBUG_LED
3:OG
LED Connector on In-House Solar Panel:1:DEBUG_LED
OBC - J15:4:GND
4:BK
LED Connector on In-House Solar Panel:2:GND
P_RBF Connector on COTS Solar Panel
4-pin
1 COM_RBF_1
2 NO_RBF_1
3 COM_RBF_2
4 NO_RBF_2
LED Connector on In-House Solar Panel
2-pin
1 DEBUG_LED
2 GND

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

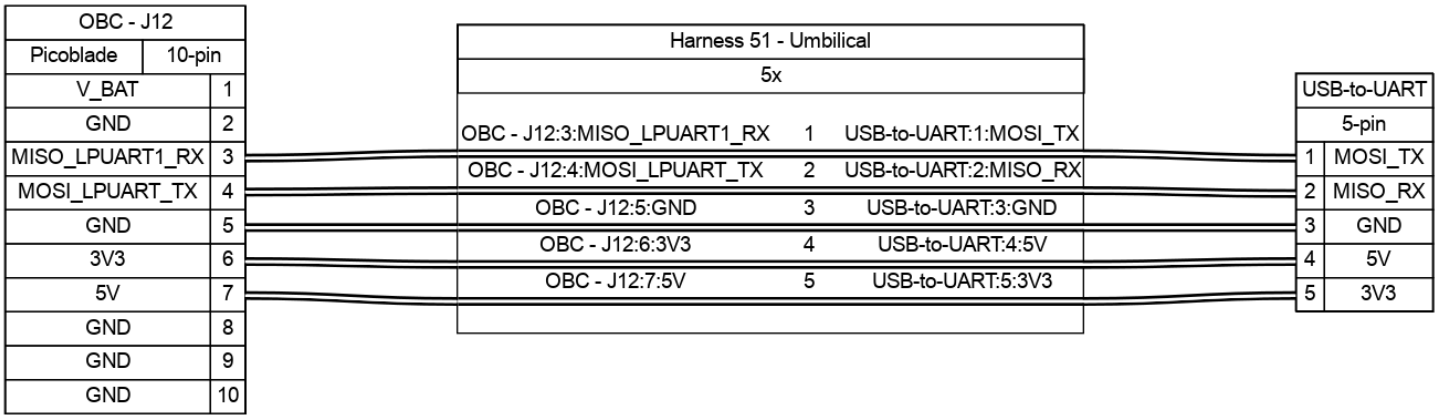
EPS - J10 (Umbilical 1)	
Microlock	14-pin
GND	1
N_ABF_PLACED_0	2
N_SEPARATION_1	3
N_BAT_ENA_HS	4
N_SEPARATION_2	5
N_SAT_ENA_HS	6
N_SEPARATION_3	7
BAT_ENA_LS_POS	8
BAT_ENA_LS_RBF	9
BAT_ENA_LS_NEG	10
GND	11
GND	12
N_ABF_PLACED_1	13
GND	14

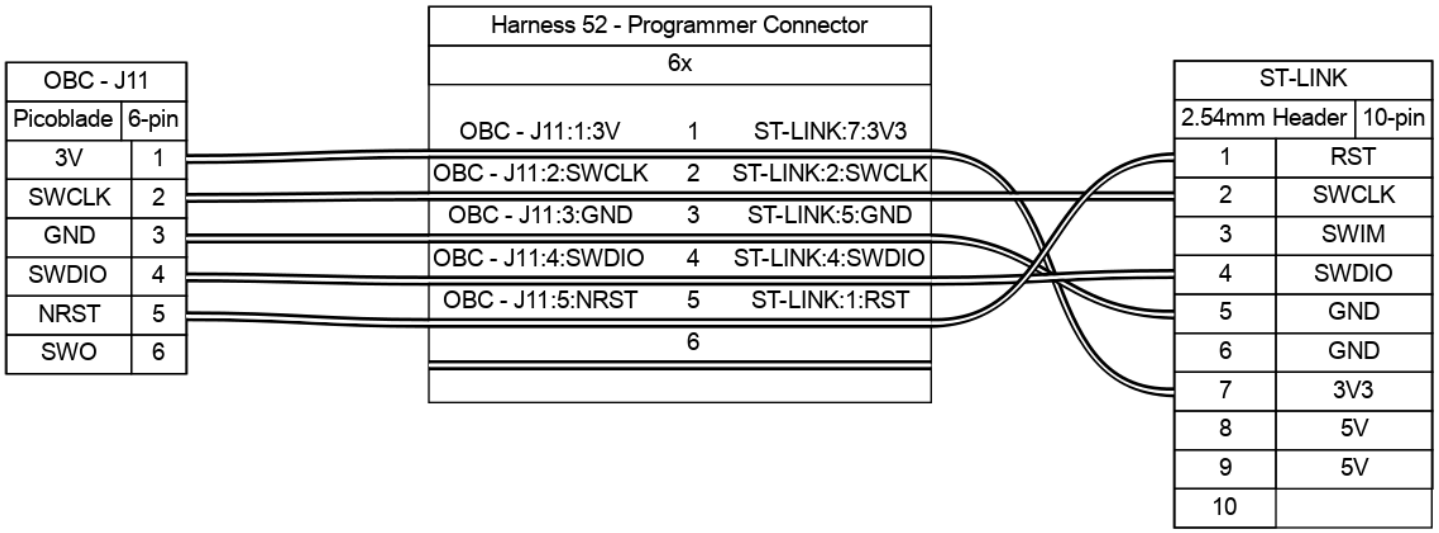
Harness 16 - ABF Connector (Loopback/Pigtail)	
5x	
EPS - J10 (Umbilical 1):1:GND	1:RD
EPS - J10 (Umbilical 1):3:N_SEPARATION_1	2:BK
EPS - J10 (Umbilical 1):5:N_SEPARATION_2	3:VT
EPS - J10 (Umbilical 1):7:N_SEPARATION_3	4:OG
EPS - J10 (Umbilical 1):13:N_ABF_PLACED_1	5:BK

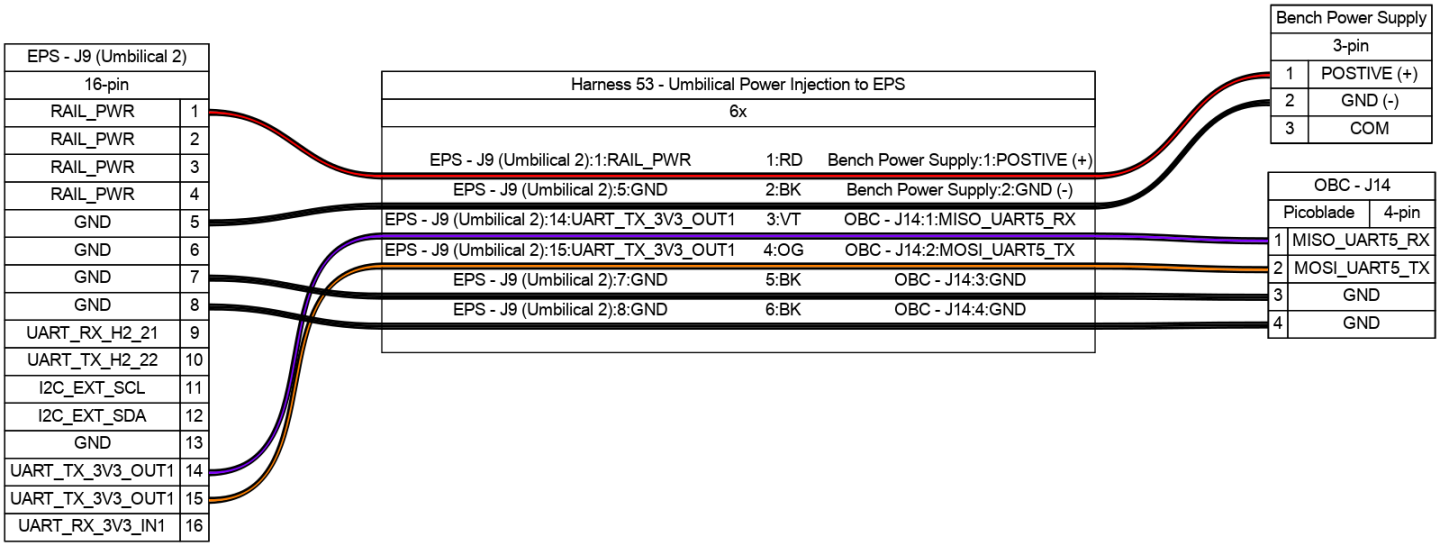
OBC - J9 ("UART")	
4-pin	
MOSI_TX	1
MISO_RX	2
GND	3
GND	4

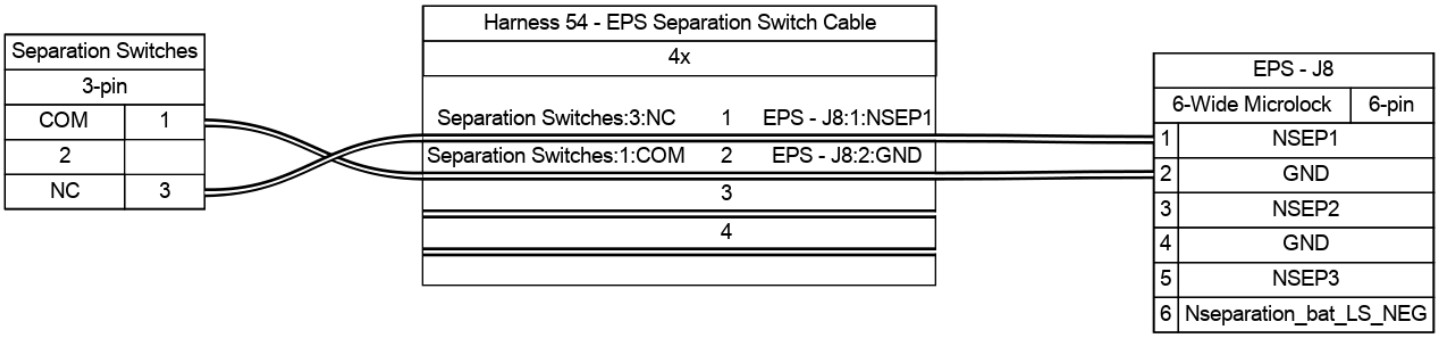
Harness 17 - OBC to AX100/DMC3		
2x		
OBC - J9 ("UART"):1:MOSI_TX	1	AX100 via DMC3 P2:1:MOSI_RX
OBC - J9 ("UART"):2:MISO_RX	2	AX100 via DMC3 P2:2:MISO_TX

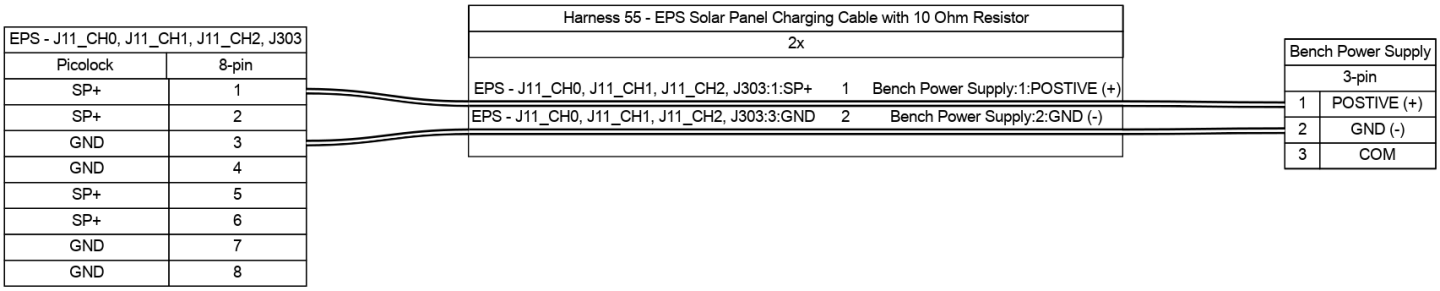
AX100 via DMC3 P2	
8-pin	
1	MOSI_RX
2	MISO_TX
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

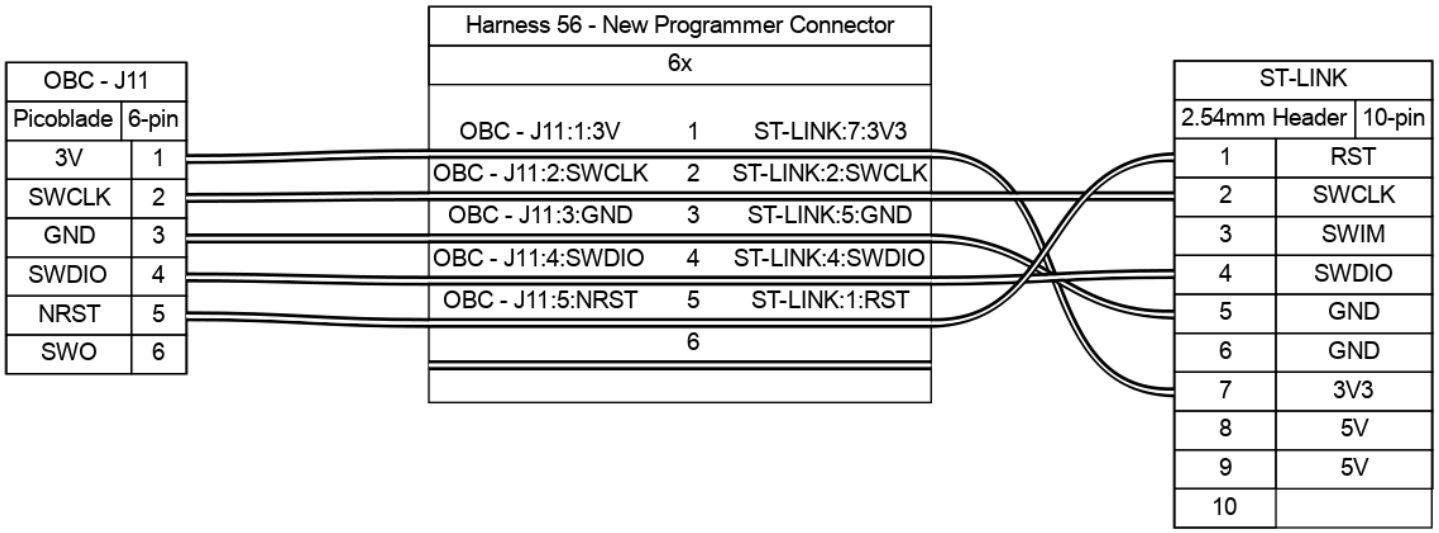

OBC - J12
Picoblade
10-pin
V_BAT 1
GND 2
MISO_LPUART1_RX 3
MOSI_LPUART_TX 4
GND 5
3V3 6
5V 7
GND 8
GND 9
GND 10
Harness 51 - Umbilical
5x
OBC - J12:3:MISO_LPUART1_RX 1 USB-to-UART:1:MOSI_TX
OBC - J12:4:MOSI_LPUART_TX 2 USB-to-UART:2:MISO_RX
OBC - J12:5:GND 3 USB-to-UART:3:GND
OBC - J12:6:3V3 4 USB-to-UART:4:5V
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


OBC - J11
Picoblade
6-pin
3V 1
SWCLK 2
GND 3
SWDIO 4
NRST 5
SWO 6
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
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


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


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


OBC - J11
Picoblade 6-pin
3V 1
SWCLK 2
GND 3
SWDIO 4
NRST 5
SWO 6
Harness 56 - New 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
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