XMM Optical Monitor

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MSSL XMMOM External Harness Design Document

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CHANGE RECORD

Issue	Date	Changes
6	1 October, 1996	Change in DBU conncetor defintion
5	7 August, 1996	Addtion of Thermistor/Heater definitions

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1. Connector Pinout Details

1.1. Telescope Module (TM) Main Power Connectors

Connector IdentificationChassis: Harness:		OM1-J01,J04 (Male) MSPHa_P01, MSPHb_P04 (Female)	
Connector Type:		25 Way Sub-miniature D	
Manufacturer		FCI	
Part Number /Spec			
	J01, P01	J04, P04	
Pin Number	Line Name	Line Name	Wire type
1			
2	MNPWR_PriPWR_goA	MNPWR_RdtPWR_goA	SPL21-20 twist with 14
3	MNPWR_PriPWR_goB	MNPWR_RdtPWR_goB	SPL21-20 twist with 15
4	MNPWR_KAL1_go	MNPWR_KAL2_go	SPL21-28 twist with 16
5	MNPWR_SYNC1_pos	MNPWR_SYNC2_pos	SPL21-28 twist with 17
6	SCN_PWR_A	SCN_PWR_A	around 2,14
7	Subst_PriHTR_go	Subst_RedHTR_go	SPL21-22 twist with 20
8	Subst_PriTHRM_go	Subst_RedTHRM_go	SPL21-28 twist with 21
9	SCN_PWR_B	SCN_PWR_B	around 3,15
10			
11			
12			
13			
14	MNPWR_PriPWR_retA	MNPWR_RdtPWR_retA	SPL21-20 twist with 2
15	MNPWR_PriPWR_retB	MNPWR_RdtPWR_retB	SPL21-20 twist with 3
16	MNPWR_KAL1_ret	MNPWR_KAL2_ret	SPL21-20 twist with 4
17	MNPWR_SYNC1_neg	MNPWR_SYNC2_neg	SPL21-28 twist with 5
18	SCN_KAL	SCN_KAL	around 4,16
19	SCN_SYNC	SCN_SYNC	around 5,17
20	Subst_PriHTR_ret	Subst_RedHTR_ret	SPL21-22 twist with 7
21	Subst_THRM_ret	Subst_THRM_RET	
22	SCN_THRM	SCN_THRM	around 8,21
23	SCN_Subst_PriHTR	SCN_Subst_RdtHTR	around 7,20
24			
25	SCN_Overall	SCN_Overall	Foil around all

1.2. Data Capture/Instrument Control Bus (DCICB) Connectors on TM

Connector IdentificationChassis: Harness:	OM1-J03,J06 (Female) MSPHa_P03, MSPHb_P06 (Male)
Connector Type:	25 Way Sub-miniature D
Manufacturer	Positronic
Part Number /Spec	

	J03, P03	J04, P06	
Pin Number	Line Name	Line Name	Wire Type
1	ICB1_Clock_true	ICB2_Clock_true	SPL21-28 twist with 14
2	SCN_ICB_Clock	SCN_ICB_Clock	around 1,14
3	ICB1_Data_true	ICB2_Data_true	SPL21-28 twist with 15
4			
5			
6			
7			
8			
9	SCN_DC_Data	SCN_DC_Data	around 10,22
10	DC1-Blue1_Data_true	DC2-Blue2_Data_true	SPL21-28 twist with 22
11	DC1-Blue1_Frame_true	DC2-Blue2_Frame_true	SPL21-28 twist with 24
12	SCN_DC_Clock	SCN_DC_Clock	around 13,25
13	DC1-Blue1_Clock_true	DC2-Blue2_Clock_true	SPL21-28 twist with 25
14	ICB1_Clock_inv	ICB2_Clock_inv	SPL21-28 twist with 1
15	ICB1_Data_inv	ICB2_Data_inv	SPL21-28 twist with 3
16	SCN_ICB_Data	SCN_ICB_Data	around 3,15
17			
18			
19	SCN_Overall	SCN_Overall	Foil around all
20			
21			
22	DC1-Blue1_Data_inv	DC2-Blue2_Data_inv	SPL21-28 twist with 10
23	SCN_DC_Frame	SCN_DC_Frame	around 11,24
24	DC1-Blue1_Frame_inv	DC2-Blue2_Frame_inv	SPL21-28 twist with 11
25	DC1-Blue1_Clock_inv	DC2-Blue2_Clock_inv	SPL21-28 twist with 13

1.3. Digital Electronics Module (DEM)/Telescope Module (TM) Power Connectors

Connector IdentificationChassis: Harness:		OM1-J02, J05 (Female) & OM2-J01 (Male) MSPHa_P02, MSPHb_P05 (Male) & OM3_P01 (Female)	
Connector Type:		15 Way Sub-miniature D	
Manufacturer		Positronic (OM1), FCI (OM2)	
Part Number /Spec			
	OM1-J02, MSPHa_P02, OM2a-J01, OM3a_P01	OM1-J05, MSPHb_P05, OM2b-J01, OM3b_P01	
Pin Number	Line Name	Line Name	Wire Type
1	DEMPWR-PriPWR_goA	DEMPWR-RdtPWR_goA	SPL20-22 twist with 3
2	DEMPWR-PriPWR_goB	DEMPWR-RdtPWR_goB	SPL20-22 twist with 4
3	DEMPWR-PriPWR_retA	DEMPWR-RdtPWR_retA	SPL20-22 twist with 1
4	DEMPWR-PriPWR_retB	DEMPWR-RdtPWR_retB	SPL20-22 twist with 2
5	DEMPWR-KAL1_go	DEMPWR-KAL2_go	SPL21-28 twist with 6
6	DEMPWR-KAL1_ret	DEMPWR-KAL2_ret	SPL21-28 twist with 5
7	DEMPWR-SYNC1_pos	DEMPWR-SYNC2_pos	SPL21-28 twist with 8
8	DEMPWR-SYNC1_neg	DEMPWR-SYNC2_neg	SPL21-28 twist with 7
9	Foil_DEMPWR_A	Foil_DEMPWR_A	around 1,3
10	Foil_DEMPWR_B	Foil_DEMPWR_B	around 2,4
11	0V-A	0V-A	SPL21-28 twist with 12
12	0V-B	0V-B	SPL21-28 twist with 11
13	SCN_0V	SCN 0V	around 11,12
14	SCN_KAL	SCN_KAL	around 5,6
15	SCN_SYNC	SCN_SYNC	around 7,8

1.4. Data Capture (DC) Connectors on DEM

Connector IdentificationChassis:		OM2-J02 (Male)	
Harness:		OM3_P02 (Female)	
Connector Type:		25 Way Sub-miniature D	
Manufacturer		Positronic	
Part Number /Spec			
	OM2a-J02, OM3a_P01	OM2b-J02, OM3b_P02	
Pin Number	Line Name	Line Name	Wire Type
1	DC1-Blue1_Clock_true	DC2-Blue2_Clock_true	SPL21-28 twist with 2
2	DC1-Blue1_Clock_inv	DC2-Blue2_Clock_inv	SPL21-28 twist with 1
3	DC1-Blue1_Frame_true	DC2-Blue2_Frame_true	SPL21-28 twist with 4
4	DC1-Blue1_Frame_inv	DC2-Blue2_Frame_inv	SPL21-28 twist with 3
5	DC1-Blue1_Data_true	DC2-Blue2_Data_true	SPL21-28 twist with 6
6	DC1-Blue1_Data_inv	DC2-Blue2_Data_inv	SPL21-28 twist with 5
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19	SCN_Overall	SCN_Overall	Foil around all
20			
21			
22	SCN_Clock	SCN_Clock	around 1,2
23	SCN_Frame	SCN_Frame	around 3,4
24	SCN_Data	SCN_Data	around 5,6
25	Reserved	Reserved	Do Not Connect

1.5. Instrument Control Bus (ICB) Connectors on DEM

Connector IdentificationChassis: Harness:		OM2-J04 (Female) OM3_P04 (Male)	
Connector Type:		15 Way Sub-miniature D	
Manufacturer		Positronic	
Part Number /Spec			
	OM2a-J04, OM3a_P04	OM2b-J04, OM3b_P04	
Pin Number	Line Name	Line Name	Wire Type
1	ICB1_Clock_true	ICB2_Clock_true	SPL21-28 twist with 9
2	ICB1_Data_true	ICB2_Data_true	SPL21-28 twist with 10
3			
4	SCN_Data	SCN_Data	around 2,10
5			
6			
7			
8			
9	ICB1_Clock_inv	ICB2_Clock_inv	SPL21-28 twist with 1
10	ICB1_Data_inv	ICB2_Data_inv	SPL21-28 twist with 2
11	SCN_Clock	SCN_Clock	around 1,9
12			
13			
14			
15	SCN_Overall	SCN_Overall	Foil around all

1.6. Data Bus Unit (DBU)/ Digital Electronics Module (DEM) Connectors

	Connector Identification Chassis: Harness:	OM2-J03 (Female)	
	Connector Type:	37 Way Sub-miniature D	
	Manufacturer	FCI	
	Part Number /Spec		
	OM2a-J03, OM3a_P03	OM2b-J03, OM3b_P03	
Pin Number	Line Name	Line Name	Wire Type
1	DBI_VDBU	DBI_VDBU	SPL11-28 outer pin 2
2 *	DBI_VDBU_GND	DBI_VDBU_GND	around 1
3			
4	DBI_RIR-DATA	DBI_RIR-DATA	SPL11-28 outer pin 5
5 *	RIR_DATA_GND	RIR_DATA_GND	around 4
6 *	RIR_CLK_GND	RIR_CLK_GND	around 23
7	DBI_RIR-SYNC	DBI_RIR-SYNC	SPL11-28 outer pin 26
8	DBI_RIR-VAL	DBI_RIR-VAL	SPL11-28 outer pin 9
9 *	RIR_VAL_GND	RIR_VAL_GND	around 8
10 *	DIGREF1	DIGREF1	link from 27
11 *	DIGREF1	DIGREF1	
12 *	RRT_EN_GND	RRT_EN_GND	around 13
13	DBI_RRT-EN	DBI_RRT-EN	SPL11-28 outer pin 12
14 *	DIGREF1	DIGREF1	
15	DBI_RRT-DATA	DBI_RRT-DATA	SPL11-28 outer pin 16
16 *	RRT_DATA_GND	RRT_DATA_GND	around 15
17 *	DIGREF0	DIGREF0	link from 28
18 *	DIGREF0	DIGREF0	link from 29
19	SCN_Overall	SCN_Overall	Foil around all
20 *	DBI_DBU0V_GND	DBI_DBU0V_GND	
21	DBU0V_GND	DBU0V_GND	
22			
23	DBI_RIR_CLK	DBI_RIR_CLK	SPL11-28 outer pin 6
24			
25	DIGREF0	DIGREF0	link from 30
26	RIR_SYNC_GND	RIR_SYNC_GND	around 7
27	RBIAD0	RBIAD0	link from 10
28	RBIAD1	RBIAD1	link to 17
29	RBIAD2	RBIAD2	link to 18
30 *	RBIAD3	RBIAD3	link to 25
31	RBIAD4	RBIAD4	link to 36
32			
33 *	DIGREF1	DIGREF1	
34 *	APID0	APID0	
35 *	APID1	APID1	
36 *	DIGREF0	DIGREF0	link from 31
37	SCN_Overall	SCN_Overall	Foil around all

Note: DBI_VDBU signal on pin 1 is +6V power for DBU. ALL signals suffix _GND are connected to secondary power 0V inside OM2

1.7. Telescope Module Heater/Thermistor Connectors 1/2

Connector Identification Chassis: Harness:		HT1a-J07, HT1b-J08 (Female) HT1a_P07, HT1b_P08 (Male)	
Connector Type:		37 Way Sub-miniature D	
Manufacturer		Positronic	
Part Number /Spec			
	HT1a-J07, HT1a_P07	HT1b-J08, HT1b_P08	
Pin Number	Line Name	Line Name	Wire Type
1	Subst_PriHTR_go	Subst_RdtHTR_go	SPL21-22 twisted with 2
2	Subst_PriHTR_ret	Subst_RdtHTR_ret	SPL21-22 twisted with 1
3	SCN_PriHTR	SCN_PriHTR	around 1,2
4	Subst_PriTHM_go	Subst_RdtTHM_go	SPL21-28 twisted with 5
5	Subst_PriTHM_ret	Subst_RdtTHM_ret	SPL21-28 twisted with 4
6	Subst_PriTHM_SCN	Subst_RdtTHM_SCN	around 4,5
7	TMPSU1_HTR1_go_main	TMPSU2_HTR1_go_main	SPL21-24 twisted with 8
8	TMPSU1_HTR1_ret_main	TMPSU2_HTR1_ret_main	SPL21-24 twisted with 7
9	TMPSU1_HTR1_SCN_main	TMPSU2_HTR1_SCN_main	around 7,8
10	TMPSU1_HTR2_go_fwd	TMPSU2_HTR2_go_fwd	SPL21-24 twisted with 11
11	TMPSU1_HTR2_ret_fwd	TMPSU2_HTR2_ret_fwd	SPL21-24 twisted with 10
12	TMPSU1_HTR2_SCN_fwd	TMPSU2_HTR2_SCN_fwd	around 10,11
13	TMPSU1_HTR3_go_focus+	TMPSU2_HTR3_go_focus+	SPL21-24 twisted with 14
14	TMPSU1_HTR3_ret_focus+	TMPSU2_HTR3_ret_focus+	SPL21-24 twisted with 13
15	TMPSU1_HTR3_SCN_focus+	TMPSU2_HTR3_SCN_focus+	around 13,14
16	TMPSU1_HTR4_go_focus-	TMPSU2_HTR4_go_focus-	SPL21-24 twisted with 17
17	TMPSU1_HTR4_ret_focus-	TMPSU2_HTR4_ret_focus-	SPL21-24 twisted with 16
18	TMPSU1_HTR4_SCN_focus-	TMPSU2_HTR4_SCN_focus-	around 16,17
19			
20	Blue1_THM1_refA_go	Blue2_THM1_refA_go	SPL21-28 twisted with 21
21	Blue1_THM1_refA_ret	Blue2_THM1_refA_ret	SPL21-28 twisted with 20
22	Blue1_THM1_refA_SCN	Blue2_THM1_refA_SCN	around 20,21
23	Blue1_THM2_refB_go	Blue2_THM2_refB_go	SPL21-28 twisted with 24
24	Blue1_THM2_refB_ret	Blue2_THM2_refB_ret	SPL21-28 twisted with 23
25	Blue1_THM2_refB_SCN	Blue2_THM2_refB_SCN	around 23,24
26	Blue1_THM3_refC_go	Blue2_THM3_refC_go	SPL21-28 twisted with 27
27	Blue1_THM3_refC_ret	Blue2_THM3_refC_ret	SPL21-28 twisted with 26
28	Blue1_THM3_refC_SCN	Blue2_THM3_refC_SCN	around 26,27
29	Blue1_THM4_go_main	Blue2_THM4_go_main	SPL21-28 twisted with 30
30	Blue1_THM4_ret_main	Blue2_THM4_ret_main	SPL21-28 twisted with 29
31	Blue1_THM4_SCN_main	Blue2_THM4_SCN_main	around 29,30
32	Blue1_THM5_go_fwdA	Blue2_THM5_go_fwdA	SPL21-28 twisted with 33
33	Blue1_THM5_ret_fwdA	Blue2_THM5_ret_fwdA	SPL21-28 twisted with 32
34	Blue1_THM5_SCN_fwdA	Blue2_THM5_SCN_fwdA	around 32,33
35	Blue1_THM6_go_fwdB	Blue2_THM6_go_fwdB	SPL21-28 twisted with 36
36	Blue1_THM6_ret_fwdB	Blue2_THM6_ret_fwdB	SPL21-28 twisted with 35
37	Blue1_THM6_SCN_fwdB	Blue2_THM6_SCN_fwdB	around 35,36

1.8. Telescope Module Heater/Thermistor Connectors 2/2

Connector Identification Chassis: Harness:		HT1a-P09, HT1b-P10 (Female) & HT2a-J09, HT2b-J10 (Male)	
Connector Type:		25 Way Sub-miniature D	
Manufacturer		Positronic	
Part Number /Spec			
	HT1a-P09, HT2a-J09	HT1b-P10, HT2b-J10	
Pin Number	Line Name	Line Name	Wire Type
1	TMPSU1_HTR1_go_main	TMPSU2_HTR1_go_main	SP21-24 twisted with 2
2	TMPSU1_HTR1_ret_main	TMPSU2_HTR1_ret_main	SP21-24 twisted with 1
3	TMPSU1_HTR1_SCN_main	TMPSU2_HTR1_SCN_main	around 1,2
4	TMPSU1_HTR2_go_fwd	TMPSU2_HTR2_go_fwd	SP21-24 twisted with 5
5	TMPSU1_HTR2_ret_fwd	TMPSU2_HTR2_ret_fwd	SP21-24 twisted with 4
6	TMPSU1_HTR2_SCN_fwd	TMPSU2_HTR2_SCN_fwd	around 4,5
7	TMPSU1_HTR3_go_focus+	TMPSU2_HTR3_go_focus+	SP21-24 twisted with 8
8	TMPSU1_HTR3_ret_focus+	TMPSU2_HTR3_ret_focus+	SP21-24 twisted with 7
9	TMPSU1_HTR3_SCN_focus+	TMPSU2_HTR3_SCN_focus+	around 7,8
10	TMPSU1_HTR4_go_focus-	TMPSU2_HTR4_go_focus-	SP21-24 twisted with 11
11	TMPSU1_HTR4_ret_focus-	TMPSU2_HTR4_ret_focus-	SP21-24 twisted with 10
12	TMPSU1_HTR4_SCN_focus-	TMPSU2_HTR4_SCN_focus-	around 10,11
13			
14	Blue1_THM4_go_main	Blue2_THM4_go_main	SPL21-28 twisted with 15
15	Blue1_THM4_ret_main	Blue2_THM4_ret_main	SPL21-28 twisted with 14
16	Blue1_THM4_SCN_main	Blue2_THM4_SCN_main	around 14,15
17	Blue1_THM5_go_fwdA	Blue2_THM5_go_fwdA	SPL21-28 twisted with 18
18	Blue1_THM5_ret_fwdA	Blue2_THM5_ret_fwdA	SPL21-28 twisted with 17
19	Blue1_THM5_SCN_fwdA	Blue2_THM5_SCN_fwdA	around 17,18
20	Blue1_THM6_go_fwdB	Blue2_THM6_go_fwdB	SPL21-28 twisted with 21
21	Blue1_THM6_ret_fwdB	Blue2_THM6_ret_fwdB	SPL21-28 twisted with 20
22	Blue1_THM6_SCN_fwdB	Blue2_THM6_SCN_fwdB	around 20,21
23			
24			
25	SCN_Overall	SCN_Overall	Foil

1.9. Focus (+) Connector

Connector Identification Chassis: Harness:	P11 HT2a/HT2b		
Connector Type:	9 Way Sub-miniature D		
Manufacturer	Positronic		
Part Number /Spec			
	HT2a/HT2b-J11		
Pin Number	Line Name		Wire Type
1	TMPSU1_HTR3_go_focus+		SPL21-24 twisted with 2
2	TMPSU1_HTR3_ret_focus+		SPL21-24 twisted with 1
3	TMPSU1_HTR3_SCN_focus-+		around 1,2
4			
5	TMPSU2_HTR3_go_focus+		SPL21-24 twisted with 6
6	TMPSU2_HTR3_ret_focus+		SPL21-24 twisted with 5
7	TMPSU2_HTR3_SCN_focus+		around 5,6
8			
9			

1.10. Focus (-) Connector

Connector Identification Chassis: Harness:		P12 HT2a/HT2b	
Connector Type:		9 Way Sub-miniature D	
Manufacturer		Positronic	
Part Number /Spec			
	HT2a/HT2b-J12		
Pin Number	Line Name		Wire Type
1	TMPSU1_HTR4_go_focus-		SPL21-24 twisted with 2
2	TMPSU1_HTR4_ret_focus-		SPL21-24 twisted with 1
3	TMPSU1_HTR4_SCN_focus-		around 1,2
4			
5	TMPSU2_HTR4_go_focus-		SPL21-28 twisted with 6
6	TMPSU2_HTR4_ret_focus-		SPL21-28 twisted with 5
7	TMPSU1_HTR4_SCN_focus-		around 5,6
8			
9			