



Procedure for connecting CQM FPU to Warm Electronics in Cryolab

Prepared by:

D.L. Smith (RAL)

Date

Checked:

D. Griffin (RAL)

Date

Approval:

E. Sawyer (RAL)

Date

Host system	Windows 2000 SP2
Word Processor	Microsoft Word 2000 SR1
File	Cryoharness Integration Procedure Draft 0.4.Doc



Document Change Record

Date	Index	Affected Pages	Changes
	0.1	All	First Draft
Jan 2004	0.2	All	Revised for CQM 1 Tests
August 2004	0.3	All	Updated following review of CQM 1 Cold Testing
December 2004	0.4	All	Updated for PFM1 Tests



1 Scope of Document

This document describes the correct sequence to connect and disconnect the SPIRE FPU to the warm electronics.

NOTE: This version of the procedure applies only to the **PFM1** build which only has spectrometer detectors mounted.

2 Applicable Document

	Title	Author	Reference	Date
AD 1	Making SPIRE ESD Safe	Doug Griffin	SPIRE-RAL-NOT-002028 Issue 2	28-Oct-2004

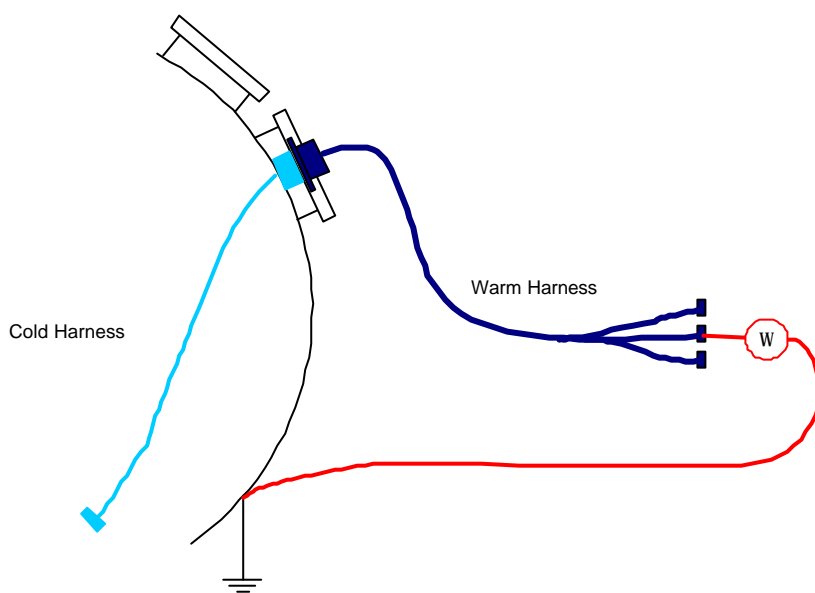


3 Constraints

ESD Protective straps must be worn at all times while working on the SPIRE FPU. Failure to do this could result in damage to the detectors and JFETS.

4 Measure shorts to ground of installed harness.

The harness will be pre-installed in the cryostat with the external shields isolated from the tank. Disconnect the grounding plugs from the air side harness and connect a DVM between the tank wall and the inner flying lead. Set the DVM to read resistance and set the alarm. If a reading of $< 10M\Omega$ is detected then there is a short to tank wall.





5 Connect FPU and Electronics to Harness

5.1 Connect Cold Harness to FPU and JFETS.

Once the instrument has been moved into the chamber and locked into position, the cold harness will be connected to the JFETS first with the bias connector blanked off. Make sure that shorting plugs are fitted to the warm tails of before connecting the live JFETS. After all JFETS have been connected at the cold end, the bias harness will be connected to the bias connectors before connecting the JFET tails to the DCU.

Connect the harness in this sequence and record the connection in the mate/de-mate log.

Harness	Cryoharness Connector	FPU/JFET Connector	Comments	Done
FPU				
C10	P19	HSFPU - J19		
	P21	HSFPU - J21		
	P23	HSFPU - J23		
C12	P20	HSFPU - J28		
	P22	HSFPU - J22		
	P24	HSFPU - J24		
C11	P25	HSFPU - J25		
	P29	HSFPU - J29		
	P27	HSFPU - J27		
C13	P26	HSFPU - J26		
	P30	HSFPU - J30		
	P28	HSFPU - J20		
JFS				
C2	P1	HSJFS-J1		
	P2	HSJFS-J2		
	P3	HSJFS-J3		
	P4	HSJFS-J4		
	P7	HSJFS-J7		
C1	P5	HSJFS-J5		
	P6	HSJFS-J6		
	P8	HSJFS-J8		
	P9	HSJFS-J9		
	P10	HSJFS-J10		
JFP				
C4	P24	HSJFPJ24		
	P23	HSJFPJ23		
	P22	HSJFPJ22		
	P21	HSJFPJ21		
C5	P20	HSJFPJ20		
	P19	HSJFPJ19		
	P18	HSJFPJ18		
	P17	HSJFPJ17		



Fit Shorting plugs to Warm Electronics end of S6 J14, J15 & J16			
C6	P16	HSJFPJ16	
	P15	HSJFPJ15	
	P14	HSJFPJ14	
	P13	HSJFPJ13	
C7	P12	HSJFPJ12	
	P11	HSJFPJ11	
	P10	HSJFPJ10	
	P09	HSJFPJ09	
C8	P08	HSJFPJ08	
	P07	HSJFPJ07	
	P06	HSJFPJ06	
	P05	HSJFPJ05	
C9	P04	HSJFPJ04	
	P03	HSJFPJ03	
	P02	HSJFPJ02	
	P01	HSJFPJ01	
C3	P25	HSJFPJ25	
	P26	HSJFPJ26	
	P27	HSJFPJ27	
	P28	HSJFPJ28	

5.2 Connect Warm harness to DRCU and DPU

Connect the harness in this sequence and record in the mate/de-mate log

Harness	Warm harness Connector	DRCU Connector	Comments	Done
FCU				
S10	P11	HSFCU-J11		
	P23	HSFCU-J23		
	P25	HSFCU-J25		
S11	P13	HSFCU-J13		
	P17	HSFCU-J17		
	P19	HSFCU-J19		
	P21	HSFCU-J21		
	P29	HSFCU-J29		
S12	P12	Lakeshore Harness		
	P24	Lakeshore Harness		
	P26	N/C?		
DCU				
Connect JFET Bias First				
S1	P31	HSDCU-J31		



S3	P29	HSDCU-J29		
Spectrometer Detectors				
S1	P27	HSDCU-J33		
S1	P28	HSDCU-J34		
S2	P25	HSDCU-J25		
S2	P26	HSDCU-J26		
S2	P23	HSDCU-J23		
S2	P24	HSDCU-J24		
S6	P15	HSDCU-J15		
S6	P16	HSDCU-J16		
S6	P14	HSDCU-J14		



6 Disconnect FPU from Harnesses

6.1 Disconnect Warm harness from DRCU and DPU

Disconnect the harness in this sequence and record in the mate/de-mate log

Harness	Warm harness Connector	DRCU Connector	Comments	Done
DCU				
Spectrometer Detectors				
S1	P27	HSDCU-J33		
S1	P28	HSDCU-J34		
S2	P25	HSDCU-J25		
S2	P26	HSDCU-J26		
S2	P23	HSDCU-J23		
S2	P24	HSDCU-J24		
PLW				
S6	P15	HSDCU-J15		
S6	P16	HSDCU-J16		
S6	P14	HSDCU-J14		
Connect shorting plugs to P14, P15 and P16 before disconnecting bias				
Disconnect Bias				
S3	P29	HSDCU-J29		
S1	P31	HSDCU-J31		
FCU				
S10	P11	HSFCU-J11		
	P23	HSFCU-J23		
	P25	HSFCU-J25		
S11	P13	HSFCU-J13		
	P17	HSFCU-J17		
	P19	HSFCU-J19		
	P21	HSFCU-J21		
	P29	HSFCU-J29		
S12	P12	Lakeshore Harness		
	P24	Lakeshore Harness		
	P26	N/C?		



6.2 Disconnect Cold Harness from FPU and JFETS.

Disconnect the harness in this sequence and record the connection in the mate/de-mate log.

Harness	Cryoharness Connector	FPU/JFET Connector	Comments	Done
JFP				
C4	P24	HSJFPJ24		
	P23	HSJFPJ23		
	P22	HSJFPJ22		
	P21	HSJFPJ21		
C5	P20	HSJFPJ20		
	P19	HSJFPJ19		
	P18	HSJFPJ18		
	P17	HSJFPJ17		
C6	P16	HSJFPJ16		
	P15	HSJFPJ15		
	P14	HSJFPJ14		
	P13	HSJFPJ13		
Shorting plugs at Warm Electronics end of S6 J14, J15 & J16 can now be removed.				
C7	P12	HSJFPJ12		
	P11	HSJFPJ11		
	P10	HSJFPJ10		
	P09	HSJFPJ09		
C8	P08	HSJFPJ08		
	P07	HSJFPJ07		
	P06	HSJFPJ06		
	P05	HSJFPJ05		
C9	P04	HSJFPJ04		
	P03	HSJFPJ03		
	P02	HSJFPJ02		
	P01	HSJFPJ01		
C3	P25	HSJFPJ25		
	P26	HSJFPJ26		
	P27	HSJFPJ27		
	P28	HSJFPJ28		
JFS				
C2	P1	HSJFS-J1		
	P2	HSJFS-J2		
	P3	HSJFS-J3		
	P4	HSJFS-J4		
	P7	HSJFS-J7		
C1	P5	HSJFS-J5		
	P6	HSJFS-J6		
	P8	HSJFS-J8		



	P9	HSJFS-J9		
	P10	HSJFS-J10		
FPU				
C10	P19	HSFPU - J19		
	P21	HSFPU - J21		
	P23	HSFPU - J23		
C12	P20	HSFPU - J28		
	P22	HSFPU - J22		
	P24	HSFPU - J24		
C11	P25	HSFPU - J25		
	P29	HSFPU - J29		
	P27	HSFPU - J27		
C13	P26	HSFPU - J26		
	P30	HSFPU - J30		
	P28	HSFPU - J20		