

MARS EXPRESS

PLANETARY FOURIER SPECTROMETER

FLIGHT USER MANUAL

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2.- Instrument hardware description

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2 // // off

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5 calibration procedure (test 4)

6 internal experiment test

7 test 1

8 test2

9 test3

10 test 5

11 test 6

12 rotate scanner

13 block-unblock pendulum

- 14 change default control table
 - Set Temperature Inside IB
 - Set Power Of Laser Diodes
 - Set Temperature Of Laser Diode/Detector
 - Set Trw Current Of Laser Diode
 - Set Gain Sensors
 - Set Adc Configuration
 - Select Motor Coil
 - Set Gain Zero Crossing
 - Set Period Of Filter
 - Select Zero Crossing Lw/Sw
 - Switch Laser Diode
 - Change Speed Controller Stop Command
 - Set SW Filter Shape
 - Set TRW Channel
 - Set Offset For Zopdsw And Zopdlw
- 15. Take direct N measurements
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4 - Telemetry

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4.4 - Structure of Mh1, Mh2 And Mh3 Fields

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6 - PFS Telecommands

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6.2 - Summary of PFS Telecommands And Their Parameters

6.3 - PFS Telecommands

Telecommand (216,5) Start/Terminate The Measurement Session

Telecommand (216,10) Change Clocksec

Telecommand (216,11) Set Period of Hk Report Packet Generation

Telecommand (216,12) Enable/Disable Subsystems

Telecommand (216,13) Set/Clear Obdm Test Mode

Telecommand (216,14) Set Temperature Inside Ib

Telecommand (216,15) Set Power of Laser Diode

Telecommand (216,16) Set Temperature of Laser Diode/Detector

Telecommand (216,17) Set Trw Current of Laser Diode

Telecommand (216,18) Set Gain Sensors

Telecommand (216,19) Set Adc Configuration

Telecommand (216,20) Select Motor Coil

Telecommand (216,21) Set Gain Zero Crossing
Telecommand (216,22) Set Period of Filter
Telecommand (216,23) Select Zero Crossing Lw/Sw
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Telecommand (216,25) Set Autotest Parameter
Telecommand (216,26) Change Speed Controller Stop Command
Telecommand (216,27) Work With Module O In Sleeping Mode
Telecommand (216,32) Set/Clear Simulation Mode
Telecommand (216,33) Set Icm Mode
Telecommand (216,34) Set Source Timer
Telecommand (216,36) Set Scanner Mode
Telecommand (216,37) Set Period Between Measurements
Telecommand (216,38) Set Number of Scan Retries
Telecommand (216,39) Set Number of Obdm Retries
Telecommand (216,40) Set Powr Event Ignore Mask
Telecommand (216,41) Set Scan Event Ignore Mask
Telecommand (216,42) Set Obdm Event Ignore Mask
Telecommand (216,43) Set Icm Event Ignore Mask
Telecommand (216,45) Select Sw Filter Shape
Telecommand (216,46) Select Trw Channel
Telecommand (216,47) Set Dtm For Measurements
Telecommand (216,48) Set Dtm For Calibrations
Telecommand (216,49) Set/Clear Reference Channel Mode For Module O
Telecommand (216,50) Set Offset For Zopdsw And Zopdlw Frwd And Reverse
Telecommand (216,100) Move the Scanner To The Specified Position
Telecommand (216,101) Set Number of Measurements
Telecommand (216,102) Set Number of Calibrations
Telecommand (216,200) Reconfigure The Mass Memory
Telecommand (216,205) Change Cpu Code Segment

7 – Events

7.1 - Summary of PFS Events

7.2 - List of PFS Events

Event Sstc – Session Started By A Telecommand

Event Ssur – Session Started By Undefined Reason

Event Wosm – Work With Module O in Sleeping Mode
Event Sttc – Session Terminated by A Telecommand
Event Stur – Session Terminated by Undefined Reason
Event Stab – Session Aborted
Event Sfmm – Session Suspended By Mm Full Signal
Event Omnb – No Obdm Message ‘Booted’ Within Predefined Time
Event Omcb – Communication with OBDM Is Bad
Event Odpb – Double Pendulum To Be Moved Is Blocked
Event Omok – Communication With OBDM Is Ok
Event Omnr – No Responce on The OBDM Command
Event Omer – Error In The OBDM Message
Event Dpub – Double Pendulum has been Unblocked
Event Dpbl – Double Pendulum has been Blocked
Event Swts – Sw Transfer Started
Event Swtc – Sw Transfer Completed
Event Lwts – Lw Transfer Started
Event Lwtc – Lw Transfer Completed
Event Fp5v – Failure of Power Supply For 5v Detected
Event F15v – Failure of Power Supply For 15v Detected
Event Fsam – Failure of Power Supply For Sam Detected
Event Fpun – Unexpected Power Supply Status
Event Smer – Wrong Scanner Position
Event Smnr – No Responce From Scanner Within Predefined Time
Event IsnM – Icm Send: No Message
Event Iswm – Icm Send: Wrong Message
Event Isc2 – Icm Send: No Tc In Dma Channel 2
Event Irnm – Icm Recv: No Message
Event Irwm – Icm Recv: Wrong Message
Event IRC2 – Icm Recv: No Tc In Dma Channel 2
Event Dnti – Dam: No Timer Interrupts
Event Dis4 – Dam: Irqs4 Was Masked
Event Mmse – Mmem: Single Error
Event Mmde – Mmem: Double Error
Event Init – PFS Initialization Completed

Event Time – Timestamp

7.3 - List of PFS Failure Codes

Failure Code Appl – Wrong Length Of Application Data Field In Telecommand

Failure Code Parn – Wrong Value Of Parameter N In Telecommand

8 – Other Services

8.1 – Support Of Standard Services

Service 1 – Tc Verification

Telemetry (1,1) Telecommand Acceptance Report - Success

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Service 3 – Hk Reporting

Telecommand (3,5) Enable Hk Report Packet Generation

Telecommand (3,6) Disable Hk Report Packet Generation

Telemetry (3,25) Hk Report Packet

Service 5 – Events Reporting

Service 6 – Memory Management

Telecommand (6,2) Load Memory Using Absolute Addresses

Telecommand (6,5) Dump Memory Using Absolute Addresses

Telemetry (6,6) Memory Dump Using Absolute Addresses Report

Service 9 – Time Synchronization

Telecommand (9,1) Accept Time Update

Service 17 – Connection Test

Telecommand (17,1) Request Connection Test Response

Telemetry (17,2) Connection Test Response Report

Service 20 – Science Data Transfer

Telecommand (20,1) Enable Science Report Packet Generation

Telecommand (20,2) Disable Science Report Packet Generation

Telemetry (20,3) Science Report

Service 216 – Pfs Private Telecommands

Service 255 – Coordinated Payload

Telecommand (255,1) Reset Telemetry Output Buffer

9 – Module O Information