

Recommendations for FOT limit checking

MIT Dwg 36-02215

Negotiations with thermal complete
Revisions based on a year of flight experience

Rev. 01	RFG	5/03/99
Rev. 02	RFG	6/24/99
Rev. 03	RFG	9/12/00

Paul's current proposal is for limit exceptions on current or voltage to only result in SOT notification --> yellow limits; there will be no limits which trigger immediate FOT action --> red limits. NB that specifying a red limit for anything implies that we will also have to specify what it is we want the FOT to (autonomously) do when the limit is tripped. If that action isn't clear, we should leave the limits yellow.

In the table below, the red thermal limits should trigger SCS 40: all power off. The red limits for the valve and door actuators need to trigger the valve/mechanism disables.

Use 1DEMBVOC (has the advantage that it already exists) or one of bits {8 13 14 25} in the PSMC Serial Digital Stream as a mode switch. In either case the value will be "1" if and only if both DPAs are off, which says that a "1" implies power-off/survival-thermal conditions and a "0" implies normal operation.

It isn't obvious what will happen to 1PIN1AT, 1SSMYT, 1SSPYT, 1VAH[CO][AB]T, and 1WR[AB]T since they occur once /before/ 1DEMBVOC and once after. Two solutions are offered here:

- Invent new mnemonics for the first occurrence and then ignore them
- Treat these as "unswitched" with essentially survival limits since their functions are covered by other mnemonics.

Limits and Stuff

Mnemonic	Description	LSB	Units	Normal					Survival			
				Nominal	RedLo	YelLo	YelHi	RedHi	RedLo	YelLo	YelHi	RedHi
1DACTAT	Door Angle					(none)				(none)		
1DAHACU	Housing Heater Current	0.0200	Amps	off			0.16					0.16
1DAHBCU*	Housing Heater Current	0.0200	Amps	0.6		0.3	0.8					0.16
1DAHAT	Housing Temp. Offset			off		(none)				(none)		
1DAHBT	Housing Temp. Offset			0x50		0x20	0x80			(none)		
1DAHAVO	Housing Htr Input Bus	0.1198	Volts	off			1					1
1DAHBCU*	Housing Heater Voltage	0.1198	Volts	8		4	12					1
1DAHBBVO*	Housing Htr Input Bus	0.138	Volts	0			0.6			24		35
1DAHBBVO*	Housing Htr Input Bus	0.138	Volts	29		26	33			24		35
1DE28[AB]VO*	DEA Input Voltage	0.138	Volts	29		26	34			24		35
1DEIC[AB]CU	DEA Input Current	0.0704		noise		(none)				(none)		
1DEN0AVO*	DEA -6VDC	0.0301	Volts	-6.44		-6.60	-6.00			-1		
1DEN0BVO*	DEA -6VDC	0.0301	Volts	0		-0.3				-1		
1DEN1AVO*	DEA -15VDC	0.0769	Volts	-16.3		-16.6	-14.8			-1		
1DEN1BVO*	DEA -15VDC	0.0769	Volts	0		-0.8				-1		
1DEP0AVO*	DEA +6VDC	0.0300	Volts	6.21		5.90	6.30					1
1DEP0BVO*	DEA +6VDC	0.0300	Volts	0			0.3					1
1DEP1AVO*	DEA +15VDC	0.0781	Volts	16.0		15.0	16.4					1
1DEP1BVO*	DEA +15VDC	0.0781	Volts	0			0.4					1
1DEP2AVO*	DEA +24VDC	0.120	Volts	25.1		24.1	25.6					1
1DEP2BVO*	DEA +24VDC	0.120	Volts	0			0.8					1
1DEP3AVO*	DEA +28VDC	0.150	Volts	30.3		29.5	31.3					1
1DEP3BVO*	DEA +28VDC	0.150	Volts	0			0.8					1
1DP28[AB]VO*	DPA Input Voltage	0.138	Volts	29		26	34			24		35
1DPIC[AB]CU*	DPA Input Current	0.0101	Amps	1.4		0.2	1.6					0.1
1DPP0[AB]VO	DPA +5VDC	0.022	Volts	5.28		5.02	5.54					1
1HOPR[AB]PR	Housing Pressure					(none)				(none)		
1CB[AB]T	Detector Housing	2.5	C	-60	-76	-63	-57	-52	-76	-71	-69	-52
1CR[AB]T*	Cold Radiator	2.5	C	-128	-142	-132	-105	-90	-142	-137	-105	-90
1DACTBT	Housing Collimator	2.5	C	-18		-21	-5			-48	-32	
1DEAMZT*	DEA SS -Z	0.4	C	8	-37.5	2	13	40.5	-37.5	-32.5	35.5	40.5
1DPAMYT*	DPA SS -Y	0.4	C	10	-37.5	-1	15	40.5	-37.5	-32.5	35.5	40.5
1DPAMZT*	DPA SS -Z	0.4	C	12	-37.5	4	17	40.5	-37.5	-32.5	35.5	40.5
1[MV]AH[OC][AB]T	Actuator Temperatures	0.8	C		200					200		
1OAHAT	Door Open Actuator	2.5	C			(none)				(none)		
1OAHBT	Door Actuator Housing	2.5	C			(none)				(none)		
1PDEAAT*	PSMC DEA Board	2.5	C	25	-37	8	43	59	-37	-32	54	59
1PDEABT*	PSMC DEA Board	2.5	C	16	-37	-3	37	59	-37	-32	54	59
1PIN1AT*	PSMC Lid	1.3	C	14	-37	-5	27	37	-37	-32	32	37
1SSMYT*	Support Structure -Y	0.4	C	12	-37.5	9	17	40.5	-37.5	-32.5	35.5	40.5
1SSPYT*	Support Structure +Y	0.4	C	12	-37.5	9	15	40.5	-37.5	-32.5	35.5	40.5
1WR[AB]T*	Warm Radiator	2.5	C	-82	-104	-86	-75	-70	-104	-99	-75	-70