Avionics Reference Document

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2.1 Pressure

Measurement	HE Tank Pressure
Extension board #	2
Model #	MLH05KPSB01G
Link	Mouser Page
Range	0 psig to 5000 psig
Accuracy	±0.25%
Temperature range	-40°C to +125°C
Input Voltage	8VDC to 30VDC
Output	1VDC to 5VDC
Data Rate	50Hz

2.2 Temperature

2.3 Electrical

2.4 Mechanical

3 EEPROM

3.1 Layout Version IDs

VersionID	Version Name
1	Sensor Board Layout Rev 1
2	Power Distro Board Layout Rev 1

3.2 Layout Sensor Board Layout Rev 1

Layout Sensor Board Layout Rev 1 Page #0					
Byte #	Usage	Byte #	Usage	Byte #	Usage
0	Layout Version ID (0x1)	48	Hall Effect 1 Data CanID	96	Reserved
1		49		97	Reserved
2		50		98	Reserved
3		51		99	Reserved
4	Board Status	52	Hall Effect 1 Current CanID	100	Reserved
5		53		101	Reserved
6		54		102	Reserved
7		55		103	Reserved
8	Board VIN Voltage CanID	56	Hall Effect 2 Data CanID	104	Reserved
9		57		105	Reserved
10		58		106	Reserved
11		59		107	Reserved
12	Board current CanID	60	Hall Effect 2 Current CanID	108	Reserved
13		61		109	Reserved
14		62		110	Reserved
15		63		111	Reserved
16	PT0 Data CanID	64	TC0 Data CanID	112	Reserved
17		65		113	Reserved
18		66		114	Reserved
19		67		115	Reserved
20	PT0 Current CanID	68	TC0 Current CanID	116	Reserved
21		69		117	Reserved
22		70		118	Reserved
23		71		119	Reserved
24	PT1 Data CanID	72	TC1 Data CanID	120	Reserved
25		73		121	Reserved
26		74		122	Reserved
27		75		123	Reserved
28	PT1 Current CanID	76	TC1 Current CanID	124	Reserved
29		77		125	Reserved
30		78		126	Reserved
31		79		127	Reserved
32	PT2 Data CanID	80	RTD0 Data CanID		
33		81			
34		82			
35		83			
36	PT2 Current CanID	84	RTD1 Data CanID		
37		85			
38		86			
39		87			
40	Hall Effect 0 Data CanID	88	Reserved		
41		89	Reserved		
42		90	Reserved		
43		91	Reserved		
44	Hall Effect 0 Current CanID	92	Reserved		
45		93	Reserved		
46		94	Reserved		
47		95	Reserved		

3.3 Layout Power Distro Board Layout Rev 1

Layout Power Distro Board Layout Rev 1 Page #0					
Byte #	Usage	Byte #	Usage	Byte #	Usage
0	Layout Version ID (0x2)	48	Reserved	96	Reserved
1		49	Reserved	97	Reserved
2		50	Reserved	98	Reserved
3		51	Reserved	99	Reserved
4	Board Status	52	Reserved	100	Reserved
5		53	Reserved	101	Reserved
6		54	Reserved	102	Reserved
7		55	Reserved	103	Reserved
8	Offboard Battery Voltage CANID	56	Reserved	104	Reserved
9		57	Reserved	105	Reserved
10		58	Reserved	106	Reserved
11		59	Reserved	107	Reserved
12	Offboard Battery Current CANID	60	Reserved	108	Reserved
13		61	Reserved	109	Reserved
14		62	Reserved	110	Reserved
15		63	Reserved	111	Reserved
16	Onboard Battery Voltage CANID	64	Reserved	112	Reserved
17		65	Reserved	113	Reserved
18		66	Reserved	114	Reserved
19		67	Reserved	115	Reserved
20	Onboard Battery Current CANID	68	Reserved	116	Reserved
21		69	Reserved	117	Reserved
22		70	Reserved	118	Reserved
23		71	Reserved	119	Reserved
24	Helix Loop Voltage CANID	72	Reserved	120	Reserved
25		73	Reserved	121	Reserved
26		74	Reserved	122	Reserved
27		75	Reserved	123	Reserved
28	Helix Loop Current CANID	76	Reserved	124	Reserved
29		77	Reserved	125	Reserved
30		78	Reserved	126	Reserved
31		79	Reserved	127	Reserved
32	Reserved	80	Reserved		
33	Reserved	81	Reserved		
34	Reserved	82	Reserved		
35	Reserved	83	Reserved		
36	Reserved	84	Reserved		
37	Reserved	85	Reserved		
38	Reserved	86	Reserved		
39	Reserved	87	Reserved		
40	Reserved	88	Reserved		
41	Reserved	89	Reserved		
42	Reserved	90	Reserved		
43	Reserved	91	Reserved		
44	Reserved	92	Reserved		
45	Reserved	93	Reserved		
46	Reserved	94	Reserved		
47	Reserved	95	Reserved		

4 CAN IDs

4.1 ID 0 - Clock Sync

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False	0 to 4294967295	Milliseconds	UTC time

4.2 ID 1 - Emergency Signal

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0		False			Status
	0-1				System Status

4.3 ID 100 - Helium Pressure

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		False		PSIG	Helium Pressure

4.4 ID 101 - Lox Pressure

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		False		PSIG	LOX Pressure

4.5 ID 102 - Methane Pressure

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		False		PSIG	Methane Pressure

4.6 ID 103 - Chamber Pressure

Frequency: 50Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		False		PSIG	Chamber Pressure

4.7 ID 200 - Helium Fill Valve

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4		False		Open/Closed	Helium Fill Valve State

4.8 ID 201 - LOX Fill Valve

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4		False		Open/Closed	LOX Fill Valve State

4.9 ID 202 - Methane Fill Valve

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4		False		Open/Closed	Methane Fill Valve State

4.10 ID 300 - Helium Tank Temperature

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		Celcius	Helium Tank Temperature

4.11 ID 301 - LOX Tank Temperature

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		Celcius	LOX Tank Temperature

4.12 ID 302 - Methane Tank Temperature

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		Celcius	Methane Tank Temperature

4.13 ID 303 - Nozzle Temperature

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		Celcius	Nozzle Temperature

4.14 ID 304 - Upper Air Frame Temperature

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		Celcius	Upper Air Frame Temperature

4.15 ID 400 - Helium PT Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	Helium PT Current

4.16 ID 401 - LOX PT Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	LOX PT Current

4.17 ID 402 - Methane PT Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	Methane PT Current

4.18 ID 403 - Chamber PT Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	Chamber PT Current

4.19 ID 404 - Helium Fill Hall Effect Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	Helium Fill Hall Effect Current

4.20 ID 405 - LOX Fill Hall Effect Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	LOX Fill Hall Effect Current

4.21 ID 406 - Methane Fill Hall Effect Current

Frequency: 10Hz

Byte	Bit	Signed	Range	Units	Description
0-3		False		Milliseconds	UTC time
4-5		True		milliamps	Methane Fill Hall Effect Current