Get Rev G

8957-CML
Rev F

ROPE COMMAND AND MEASUREMENT LIST

Approved by:

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REVISION RECORD

Revision	Pages Affected	Para. Affected	Description	Date	Approval
A	1	ROPE command structure	"ENGINEERING ROUTINES" changed to "MACRO COMMANDS". "END OF COMMAND STRING" added. "TELEMETRY TEST" added.	8/10/88	POf
	4		DIFP commands updated.		
	5		"TELEMETRY TEST" and "END OF COMMAND STRING" added.		
	7 - 10		Monitor names updated.		
	11 - 24		Monitor limits changed.		
	25		"BIAS CMD" and "HVU-STATUS" corrected.		
B	6	ROPE-TM	SPES TM-word allocation changed	8/15/88	PPf
C	2 - 3 11 - 24	Command House-Keeping	PPS Skip Step Defined Monitor Limits changed	9/2/88	POf
D			Revised to add BMSP current monitor, potential seeking/ tracking, macro commands, TM format 2.	3/13/89	MAB
E	12-25		Revised PPS monitor locations. Flyback is now step 127.	3/24/89	MAB
F	7		Revised TM Format 2 as agreed upon with Aeritalia	3/31/89	POf

ROPE COMMAND STRUCTURE

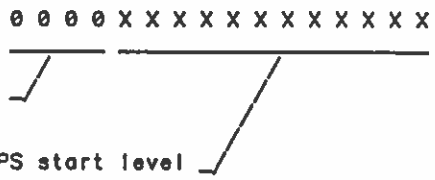
16 BIT COMMAND WORD	CONTENTS
0000XXXXXXXXXXXX	FLOATING POWER SUPPLY START LEVEL, 12 BIT
0001XXXXXXXXXXXX	FLOATING POWER SUPPLY SKIP K TIMES .125 V, 12 BIT
0010XXXXXXXXXXXX	FLOATING POWER SUPPLY STOP LEVEL, 12 BIT
0011000000XXXXXX	PPS1 START LEVEL, 7 BIT
0100000000XXXXXX	PPS1 SKIP STEP, 7 BIT
0101000000XXXXXX	PPS1 STOP LEVEL, 7 BIT
0110000000XXXXXX	PPS2 START LEVEL, 7 BIT
0111000000XXXXXX	PPS2 SKIP STEP, 7 BIT
1000000000XXXXXX	PPS2 STOP LEVEL, 7 BIT
1001000000XXXXXX	PPS1,PPS2,HVPS1,HVPS2 ON/OFF-HI/LO, 6 BIT
1010000000XXXXX	GRID BIAS COMMAND, 5 BIT
1011XXXXXXXXXXX	MACRO COMMANDS
1100000XXXXXXXX	DIFP COMMANDS
110100XXXXXXXXX	FLOATING POWER SUPPLY CONTROL
1110000010111100	TELEMETRY TEST
1111XXXXXXXXXXX	END OF COMMAND STRING

All commands are passed to ROPE using MLDT Line 1.

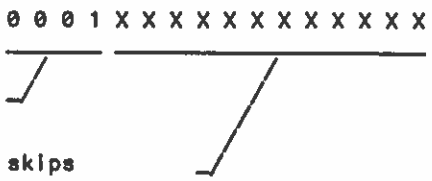
MLDT Line 2 will not be used.

ROPE COMMAND DESCRIPTION

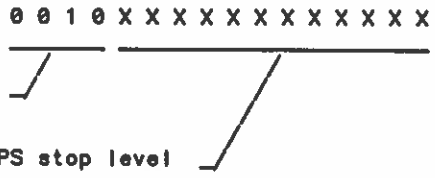
Floating Power Supply start level:



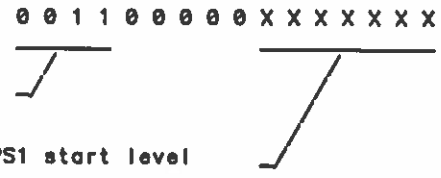
Floating Power Supply Skip:



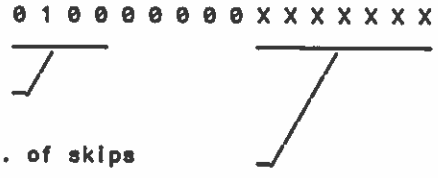
Floating Power Supply Stop:



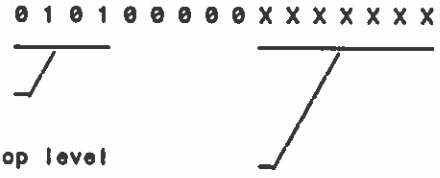
PPS1 Start level:



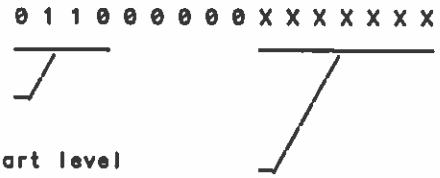
PPS1 skip step:



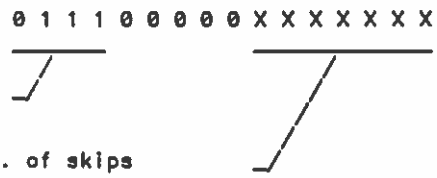
PPS1 Stop level:



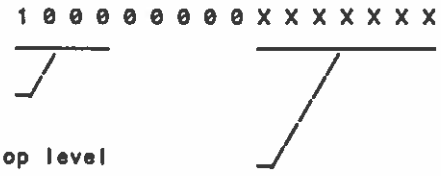
PPS2 Start level:



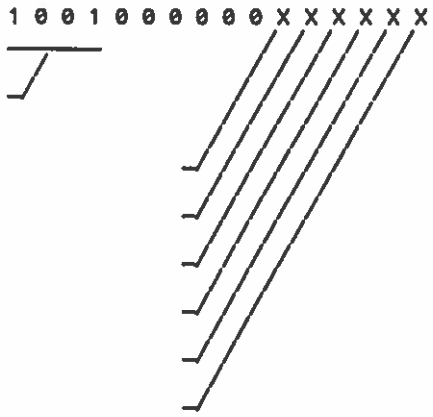
PPS2 skip step:



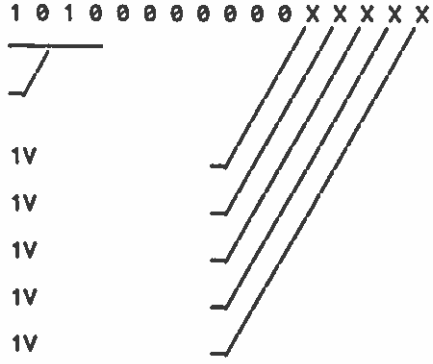
PPS2 Stop level:



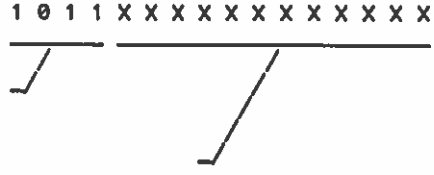
PPS1, PPS2, HVPS1,HVPS2 ON/OFF_HI/LO:



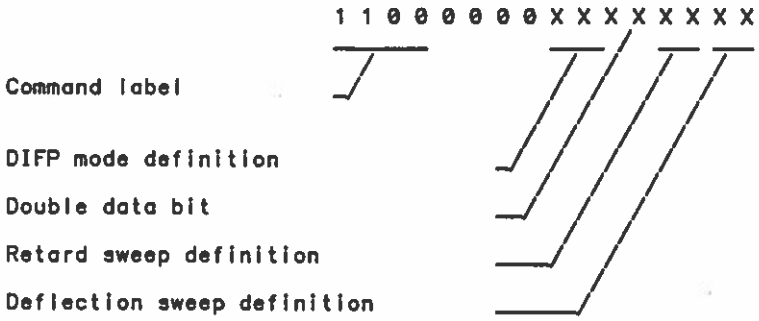
Grid Bias command:



Macro command:



DIFP command:



DIFP mode definition:

0 0 0: Standard analysis mode. Deflection sweep with a maximun of three retard sweeps with analog peak detection.

0 0 1: Deflection only mode. 1 deflection sweep with no retard sweep.

0 1 0: RPA mode. Deflection plates set to defined value, 4 retard sweeps run at defined intervals.

0 1 1: Electrometer mode. Deflection plates set to defined value. No retard sweeps. Data is taken for 800 ms.

1 0 0: Test mode 0 for 'standard analysis' mode of operation. 1 deflection sweep with a maximum of 8 retard sweeps. 2048 bytes of data.

1 0 1: Test mode 1 for 'deflection only' mode of operation. 1 deflection sweep with no retard sweeps. 2048 bytes of data.

1 1 0: Test mode 2 for 'RPA' mode. Deflection plates set to defined value. 4 retard sweeps run at defined intervals. 2048 bytes of data.

1 1 1: Test mode 3 for 'electrometer' mode. Deflection plates set to defined value. No retard sweeps. Data taken for 800 ms. 2048 bytes of data.

Double data bit:

0: Single data mode gives 256 bytes of data for each cycle of run mode operation. Requires 16 minor frames to transmit data.

1: Double data mode gives 512 bytes of data for each cycle of run mode operation. Requires 32 minor frames to transmit data.

Retard sweep definition:

0 0: 100 Volt retard sweep mode.

0 1: 50 Volt retard sweep mode.

1 0: 25 Volt retard sweep mode.

1 1: 12.5 Volt retard sweep mode.

Deflection sweep definition:

0 0: Deflection sweep −100 to +100 V.

0 1: Deflection sweep −50 to +50 V.

1 0: Deflection sweep −25 to +25 V.

1 1: Deflection sweep −12.5 to +12.5 V.

Telemetry test:

1 1 1 0 0 0 0 0 1 0 1 1 1 1 0 0

Command label

Transmit a predefined test pattern.

End of command string:

1 1 1 1 X X X X X X X X X X X X

Terminates a command or a block of commands.
Not required for macro commands.

Floating Power Supply control:

1 1 0 1 0 0 X X X X X X X X X X

Command label

Mode bit

Power limit bit

FPS voltage level

Mode bit definition:

0: Manual mode. FPS is commanded to voltage specified by the FPS voltage level bits.

1: Potential tracking mode.

Power limit bit definition:

0: Power limit off.

1: Power limit on.

FPS voltage level definition:

Commands FPS to fixed voltage level between 0 and −498 volts in steps of 1.95 volts, where FF (hex) indicates 0 volts and 00 (hex) indicates −498 volts.

ROPE TELEMETRY FORMAT 0

FORMAT: 4 MAJOR FRAMES

MAJOR FRAME: 256 FRAMES BY 128 8-BIT WORDS

MAJOR FRAME TIME: 16.384 sec.

FRAME TIME: 64 mSec.

WORD TIME: 0.5 mSec. 2 kWord/Sec

CLOCK FREQ. 16 kBit/sec.

Word allocation:

TM-Channel # 1:

WD 41	Monitors
WD 65	SPES 1 E Ch. # 0
WD 73	SPES 1 I Ch. # 1
WD 81	SPES 2 E Ch. # 2
WD 84	SPES 2 I Ch. # 3
WD 85	SPES 3 I Ch. # 4
WD 86	SPES 3 E Ch. # 5
WD 87	SPES 4 I Ch. # 6
WD 89	SPES 4 E Ch. # 7
WD 90	SPES 5 I Ch. # 8
WD 91	SPES 5 E Ch. # 9
WD 92	PPS 2 STEP
WD 93	PPS 1 STEP

TM-Channel # 2:

WD 94	DIFP 1
WD 95	DIFP 2
WD 97	DIFP 3
WD 98	DIFP 4
WD 99	DIFP 5
WD 100	DIFP 6
WD 101	DIFP 7
WD 102	DIFP 8
WD 103	DIFP 9
WD 105	DIFP 10
WD 106	DIFP 11
WD 107	DIFP 12
WD 108	DIFP 13
WD 109	DIFP 14
WD 110	DIFP 15
WD 111	DIFP 16

ROPE TELEMETRY FORMAT 2, option B

FORMAT: 4 MAJOR FRAMES

MAJOR FRAME: 256 FRAMES BY 128 8-BIT WORDS

MAJOR FRAME TIME:16.384 sec.

FRAME TIME:64 mSec.

WORD TIME:0.5 mSec.2 kWord/Sec

CLOCK FREQ. 16 kBit/sec.

Word allocation:

TM-Channel # 1:

WD	64	Monitors		Format 0	WD	41

TM-Channel # 2:

WD	70	DIFP	1	Format 0	WD	94
WD	71	DIFP	2	Format 0	WD	95
WD	72	DIFP	3	Format 0	WD	97
WD	73	DIFP	4	Format 0	WD	98
WD	74	DIFP	5	Format 0	WD	99
WD	75	DIFP	6	Format 0	WD	100
WD	78	DIFP	7	Format 0	WD	101
WD	79	DIFP	8	Format 0	WD	102

ROPE HOUSEKEEPING DATA

One 8-bit word, WD 41, in each minor frame is allocated for housekeeping data.

Format no.'s 0 + 4n.

Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:
0	MAF ID LSB	64	FSCONTR LSB	128	MAF ID MSB	192	FSCONTR 4 MSB
1	PPS1+STEP 0	65	PPS1+STEP 32	129	PPS1+STEP 64	193	PPS1+STEP 96
2	FSV	66	FSV	130	FSV	194	FSV
3	PPS1+STEP 1	67	PPS1+STEP 33	131	PPS1+STEP 65	195	PPS1+STEP 97
4	BMSPI	68	BMSPI	132	BMSPI	196	BMSPI
5	PPS1+STEP 2	69	PPS1+STEP 34	133	PPS1+STEP 66	197	PPS1+STEP 98
6	CMDSTAT 00 MSB	70	CMDSTAT 01 MSB	134	CMDSTAT 02 MSB	198	CMDSTAT03 MSB
7	PPS1+STEP 3	71	PPS1+STEP 35	135	PPS1+STEP 67	199	PPS1+STEP 99
8	CMDSTAT 00 LSB	72	CMDSTAT 01 LSB	136	CMDSTAT 02 LSB	200	CMDSTAT 03 LSB
9	PPS1+STEP 4	73	PPS1+STEP 36	137	PPS1+STEP 68	201	PPS1+STEP 100
10	HVPS1+	74	HVPS1+	138	HVPS1+	202	HVPS1+
11	PPS1+STEP 5	75	PPS1+STEP 37	139	PPS1+STEP 69	203	PPS1+STEP 101
12	HVPS1-	76	HVPS1-	140	HVPS1-	204	HVPS1-
13	PPS1+STEP 6	77	PPS1+STEP 38	141	PPS1+STEP 70	205	PPS1+STEP 102
14	HVPS1 I	78	HVPS1 I	142	HVPS1 I	206	HVPS1 I
15	PPS1+STEP 7	79	PPS1+STEP 39	143	PPS1+STEP 71	207	PPS1+STEP 103
16	HVU1 30V	80	HVU1 30V	144	HVU1 30V	208	HVU1 30V
17	PPS1+STEP 8	81	PPS1+STEP 40	145	PPS1+STEP 72	209	PPS1+STEP 104
18	FSV	82	FSV	146	FSV	210	FSV
19	PPS1+STEP 9	83	PPS1+STEP 41	147	PPS1+STEP 73	211	PPS1+STEP 105
20	BMSPI	84	BMSPI	148	BMSPI	212	BMSPI
21	PPS1+STEP 10	85	PPS1+STEP 42	149	PPS1+STEP 74	213	PPS1+STEP 106
22	HVU1 30I	86	HVU1 30I	150	HVU1 30I	214	HVU1 30I
23	PPS1+STEP 11	87	PPS1+STEP 43	151	PPS1+STEP 75	215	PPS1+STEP 107
24	PPS1 I	88	PPS1 I	152	PPS1 I	216	PPS1 I
25	PPS1+STEP 12	89	PPS1+STEP 44	153	PPS1+STEP 76	217	PPS1+STEP 108
26	HVPS2+	90	HVPS2+	154	HVPS2+	218	HVPS2+
27	PPS1+STEP 13	91	PPS1+STEP 45	155	PPS1+STEP 77	219	PPS1+STEP 109
28	HVPS2-	92	HVPS2-	156	HVPS2	220	HVPS2-
29	PPS1+STEP 14	93	PPS1+STEP 46	157	PPS1+STEP 78	221	PPS1+STEP 110
30	HVPS2 I	94	HVPS2 I	158	HVPS2 I	222	HVPS2 I
31	PPS1+STEP 15	95	PPS1+STEP 47	159	PPS1+STEP 79	223	PPS1+STEP 111
32	PPS2 I	96	PPS2 I	160	PPS2 I	224	PPS2 I
33	PPS1+STEP 16	97	PPS1+STEP 48	161	PPS1+STEP 80	225	PPS1+STEP 112
34	FSV	98	FSV	162	FSV	226	FSV
35	PPS1+STEP 17	99	PPS1+STEP 49	163	PPS1+STEP 81	227	PPS1+STEP 113
36	BMSPI	100	BMSPI	164	BMSPI	228	BMSPI
37	PPS1+STEP 18	101	PPS1+STEP 50	165	PPS1+STEP 82	229	PPS1+STEP 114
38	FPSSTAT	102	BIAS CMD STAT	166	Spare	230	BIAS CMD STAT
39	PPS1+STEP 19	103	PPS1+STEP 51	167	PPS1+STEP 83	231	PPS1+STEP 115
40	HVPS1-2 STAT	104	BIAS MON 0	168	HVPS1-2 STAT	232	BIAS MON 0
41	PPS1+STEP 20	105	PPS1+STEP 52	169	PPS1+STEP 84	233	PPS1+STEP 116
42	BIAS MON 1	106	BIAS MON 2	170	BIAS MON 1	234	BIAS MON 2
43	PPS1+STEP 21	107	PPS1+STEP 53	171	PPS1+STEP 85	235	PPS1+STEP 117
44	BIAS MON 3	108	BIAS MON 4	172	BIAS MON 3	236	BIAS MON 4
45	PPS1+STEP 22	109	PPS1+STEP 54	173	PPS1+STEP 86	237	PPS1+STEP 118
46	BIAS MON 5	110	BIAS MON 6	174	BIAS MON 5	238	BIAS MON 6
47	PPS1+STEP 23	111	PPS1+STEP 55	175	PPS1+STEP 87	239	PPS1+STEP 119
48	BIAS MON 7	112	BIAS MON 8	176	BIAS MON 7	240	BIAS MON 8
49	PPS1+STEP 24	113	PPS1+STEP 56	177	PPS1+STEP 88	241	PPS1+STEP 120
50	FSV	114	FSV	178	FSV	242	FSV
51	PPS1+STEP 25	115	PPS1+STEP 57	179	PPS1+STEP 89	243	PPS1+STEP 121
52	BMSPI	116	BMSPI	180	BMSPI	244	BMSPI
53	PPS1+STEP 26	117	PPS1+STEP 58	181	PPS1+STEP 90	245	PPS1+STEP 122
54	BIAS MON 9	118	Spare	182	BIAS MON 9	246	Spare
55	PPS1+STEP 27	119	PPS1+STEP 59	183	PPS1+STEP 91	247	PPS1+STEP 123
56	+5V CEP	120	+15V CEP	184	-15V CEP	248	+5V REF CEP
57	PPS1+STEP 28	121	PPS1+STEP 60	185	PPS1+STEP 92	249	PPS1+STEP 124
58	0V CEP	122	HVPS1 TEMP	186	CEP TEMP	250	CEP P/S TEMP
59	PPS1+STEP 29	123	PPS1+STEP 61	187	PPS1+STEP 93	251	PPS1+STEP 125
60	FPS TEMP	124	+5V FSE	188	+15V FSE	252	-15V FSE
61	PPS1+STEP 30	125	PPS1+STEP 62	189	PPS1+STEP 94	253	PPS1+STEP 126
62	+28V FSE	126	+5V REF FSE	190	HVPS2 TEMP	254	Spare
63	PPS1+STEP 31	127	PPS1+STEP 63	191	PPS1+STEP 95	255	PPS1+STEP 127

ROPE HOUSEKEEPING DATA

One 8-bit word, WD 41, in each minor frame is allocated for housekeeping data.

Format no.'s 1 + 4n.

Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:
0	MAF ID LSB	64	FSCONTR LSB	128	MAF ID MSB	192	FSCONTR 4 MSB
1	PPS1-STEP 0	65	PPS1-STEP 32	129	PPS1-STEP 64	193	PPS1-STEP 96
2	FSV	66	FSV	130	FSV	194	FSV
3	PPS1-STEP 1	67	PPS1-STEP 33	131	PPS1-STEP 65	195	PPS1-STEP 97
4	BMSPI	68	BMSPI	132	BMSPI	196	DMSPI
5	PPS1-STEP 2	69	PPS1-STEP 34	133	PPS1-STEP 66	197	PPS1-STEP 98
6	CMDSTAT 04 MSB	70	CMDSTAT 05 MSB	134	CMDSTAT 06 MSB	198	CMDSTAT 07 MSB
7	PPS1-STEP 3	71	PPS1-STEP 35	135	PPS1-STEP 67	199	PPS1-STEP 99
8	CMDSTAT 04 LSB	72	CMDSTAT 05 LSB	136	CMDSTAT 06 LSB	200	CMDSTAT 07 LSB
9	PPS1-STEP 4	73	PPS1-STEP 36	137	PPS1-STEP 68	201	PPS1-STEP 100
10	HVPS1+	74	HVPS1+	138	HVPS1+	202	HVPS1+
11	PPS1-STEP 5	75	PPS1-STEP 37	139	PPS1-STEP 69	203	PPS1-STEP 101
12	HVPS1-	76	HVPS1-	140	HVPS1-	204	HVPS1-
13	PPS1-STEP 6	77	PPS1-STEP 38	141	PPS1-STEP 70	205	PPS1-STEP 102
14	HVPS1 I	78	HVPS1 I	142	HVPS1 I	206	HVPS1 I
15	PPS1-STEP 7	79	PPS1-STEP 39	143	PPS1-STEP 71	207	PPS1-STEP 103
16	HVU1 30V	80	HVU1 30V	144	HVU1 30V	208	HVU1 30V
17	PPS1-STEP 8	81	PPS1-STEP 40	145	PPS1-STEP 72	209	PPS1-STEP 104
18	FSV	82	FSV	146	FSV	210	FSV
19	PPS1-STEP 9	83	PPS1-STEP 41	147	PPS1-STEP 73	211	PPS1-STEP 105
20	BMSPI	84	BMSPI	148	BMSPI	212	BMSPI
21	PPS1-STEP 10	85	PPS1-STEP 42	149	PPS1-STEP 74	213	PPS1-STEP 106
22	HVU1 30I	86	HVU1 30I	150	HVU1 30I	214	HVU1 30I
23	PPS1-STEP 11	87	PPS1-STEP 43	151	PPS1-STEP 75	215	PPS1-STEP 107
24	PPS1 I	88	PPS1 I	152	PPS1 I	216	PPS1 I
25	PPS1-STEP 12	89	PPS1-STEP 44	153	PPS1-STEP 76	217	PPS1-STEP 108
26	HVPS2+	90	HVPS2+	154	HVPS2+	218	HVPS2+
27	PPS1-STEP 13	91	PPS1-STEP 45	155	PPS1-STEP 77	219	PPS1-STEP 109
28	HVPS2-	92	HVPS2-	156	HVPS2-	220	HVPS2-
29	PPS1-STEP 14	93	PPS1-STEP 46	157	PPS1-STEP 78	221	PPS1-STEP 110
30	HVPS2 I	94	HVPS2 I	158	HVPS2 I	222	HVPS2 I
31	PPS1-STEP 15	95	PPS1-STEP 47	159	PPS1-STEP 79	223	PPS1-STEP 111
32	PPS2 I	96	PPS2 I	160	PPS2 I	224	PPS2 I
33	PPS1-STEP 16	97	PPS1-STEP 48	161	PPS1-STEP 80	225	PPS1-STEP 112
34	FSV	98	FSV	162	FSV	226	FSV
35	PPS1-STEP 17	99	PPS1-STEP 49	163	PPS1-STEP 81	227	PPS1-STEP 113
36	BMSPI	100	BMSPI	164	BMSPI	228	BMSPI
37	PPS1-STEP 18	101	PPS1-STEP 50	165	PPS1-STEP 82	229	PPS1-STEP 114
38	FPSSTAT	102	BIAS CMD STAT	166	Spare	230	BIAS CMD STAT
39	PPS1-STEP 19	103	PPS1-STEP 51	167	PPS1-STEP 83	231	PPS1-STEP 115
40	HVPS1-2 STAT	104	BIAS MON 0	168	HVPS1-2 STAT	232	BIAS MON 0
41	PPS1-STEP 20	105	PPS1-STEP 52	169	PPS1-STEP 84	233	PPS1-STEP 116
42	BIAS MON 1	106	BIAS MON 2	170	BIAS MON 1	234	BIASMON 2
43	PPS1-STEP 21	107	PPS1-STEP 53	171	PPS1-STEP 85	235	PPS1-STEP 117
44	BIAS MON 3	108	BIAS MON 4	172	BIAS MON 3	236	BIAS MON 4
45	PPS1-STEP 22	109	PPS1-STEP 54	173	PPS1-STEP 86	237	PPS1-STEP 118
46	BIAS MON 5	110	BIAS MON 6	174	BIAS MON 5	238	BIAS MON 6
47	PPS1-STEP 23	111	PPS1-STEP 55	175	PPS1-STEP 87	239	PPS1-STEP 119
48	BIAS MON 7	112	BIAS MON 8	176	BIAS MON 7	240	BIAS MON 8
49	PPS1-STEP 24	113	PPS1-STEP 56	177	PPS1-STEP 88	241	PPS1-STEP 120
50	FSV	114	FSV	178	FSV	242	FSV
51	PPS1-STEP 25	115	PPS1-STEP 57	179	PPS1-STEP 89	243	PPS1-STEP 121
52	BMSPI	116	BMSPI	180	BMSPI	244	BMSPI
53	PPS1-STEP 26	117	PPS1-STEP 58	181	PPS1-STEP 90	245	PPS1-STEP 122
54	BIAS MON 9	118	Spare	182	BIAS MON 9	246	Spare
55	PPS1-STEP 27	119	PPS1-STEP 59	183	PPS1-STEP 91	247	PPS1-STEP 123
56	+5V CEP	120	+15V CEP	184	-15V CEP	248	+5V REF CEP
57	PPS1-STEP 28	121	PPS1-STEP 60	185	PPS1-STEP 92	249	PPS1-STEP 124
58	0V CEP	122	HVPS1 TEMP	186	CEP TEMP	250	CEP P/S TEMP
59	PPS1-STEP 29	123	PPS1-STEP 61	187	PPS1-STEP 93	251	PPS1-STEP 125
60	IPS TEMP	124	+5V FSE	188	+15V FSE	252	-15V FSE
61	PPS1-STEP 30	125	PPS1-STEP 62	189	PPS1-STEP 94	253	PPS1-STEP 126
62	+28V FSE	126	+5V REF FSE	190	HVPS2 TEMP	254	Spare
63	PPS1-STEP 31	127	PPS1-STEP 63	191	PPS1-STEP 95	255	PPS1-STEP 127

ROPE HOUSEKEEPING DATA

One 8-bit word, WD 41, in each minor frame is allocated for housekeeping data.

Format no.'s 2 + 4n.

Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:
0	MAF ID LSB	64	FSCONTR LSB	128	MAF ID MSB	192	FSCONTR 4 MSB
1	PPS2+STEP 0	65	PPS2+STEP 32	129	PPS2+STEP 64	193	PPS2+STEP 96
2	FSV	66	FSV	130	FSV	194	FSV
3	PPS2+STEP 1	67	PPS2+STEP 33	131	PPS2+STEP 65	195	PPS2+STEP 97
4	BMSPI	68	BMSPI	132	BMSPI	196	BMSPI
5	PPS2+STEP 2	69	PPS2+STEP 34	133	PPS2+STEP 66	197	PPS2+STEP 98
6	CMDSTAT 08 MSB	70	CMDSTAT 09 MSB	134	CMDSTAT 10 MSB	198	CMDSTAT 11 MSB
7	PPS2+STEP 3	71	PPS2+STEP 35	135	PPS2+STEP 67	199	PPS2+STEP 99
8	CMDSTAT 08 LSB	72	CMDSTAT 09 LSB	136	CMDSTAT 10 LSB	200	CMDSTAT 11 LSB
9	PPS2+STEP 4	73	PPS2+STEP 36	137	PPS2+STEP 68	201	PPS2+STEP 100
10	HVPS1+	74	HVPS1+	138	HVPS1+	202	HVPS1+
11	PPS2+STEP 5	75	PPS2+STEP 37	139	PPS2+STEP 69	203	PPS2+STEP 101
12	HVPS1-	76	HVPS1-	140	HVPS1-	204	HVPS1-
13	PPS2+STEP 6	77	PPS2+STEP 38	141	PPS2+STEP 70	205	PPS2+STEP 102
14	HVPS1 I	78	HVPS1 I	142	HVPS1 I	206	HVPS1 I
15	PPS2+STEP 7	79	PPS2+STEP 39	143	PPS2+STEP 71	207	PPS2+STEP 103
16	HVU1 30V	80	HVU1 30V	144	HVU1 30V	208	HVU1 30V
17	PPS2+STEP 8	81	PPS2+STEP 40	145	PPS2+STEP 72	209	PPS2+STEP 104
18	FSV	82	FSV	146	FSV	210	FSV
19	PPS2+STEP 9	83	PPS2+STEP 41	147	PPS2+STEP 73	211	PPS2+STEP 105
20	BMSPI	84	BMSPI	148	BMSPI	212	BMSPI
21	PPS2+STEP 10	85	PPS2+STEP 42	149	PPS2+STEP 74	213	PPS2+STEP 106
22	HVU1 30I	86	HVU1 30I	150	HVU1 30I	214	HVU1 30I
23	PPS2+STEP 11	87	PPS2+STEP 43	151	PPS2+STEP 75	215	PPS2+STEP 107
24	PPS1 I	88	PPS1 I	152	PPS1 I	216	PPS1 I
25	PPS2+STEP 12	89	PPS2+STEP 44	153	PPS2+STEP 76	217	PPS2+STEP 108
26	HVPS2+	90	HVPS2+	154	HVPS2+	218	HVPS2+
27	PPS2+STEP 13	91	PPS2+STEP 45	155	PPS2+STEP 77	219	PPS2+STEP 109
28	HVPS2-	92	HVPS2-	156	HVPS2-	220	HVPS2-
29	PPS2+STEP 14	93	PPS2+STEP 46	157	PPS2+STEP 78	221	PPS2+STEP 110
30	HVPS2 I	94	HVPS2 I	158	HVPS2 I	222	HVPS2 I
31	PPS2+STEP 15	95	PPS2+STEP 47	159	PPS2+STEP 79	223	PPS2+STEP 111
32	PPS2 I	96	PPS2 I	160	PPS2 I	224	PPS2 I
33	PPS2+STEP 16	97	PPS2+STEP 48	161	PPS2+STEP 80	225	PPS2+STEP 112
34	FSV	98	FSV	162	FSV	226	FSV
35	PPS2+STEP 17	99	PPS2+STEP 49	163	PPS2+STEP 81	227	PPS2+STEP 113
36	BMSPI	100	BMSPI	164	BMSPI	228	BMSPI
37	PPS2+STEP 18	101	PPS2+STEP 50	165	PPS2+STEP 82	229	PPS2+STEP 114
38	FPSSTAT	102	BIAS CMD STAT	166	Spare	230	BIAS CMD STAT
39	PPS2+STEP 19	103	PPS2+STEP 51	167	PPS2+STEP 83	231	PPS2+STEP 115
40	HVPS1-2 STAT	104	BIAS MON 0	168	HVPS1-2 STAT	232	BIAS MON 0
41	PPS2+STEP 20	105	PPS2+STEP 52	169	PPS2+STEP 84	233	PPS2+STEP 116
42	BIAS MON 1	106	BIAS MON 2	170	BIAS MON 1	234	BIAS MON 2
43	PPS2+STEP 21	107	PPS2+STEP 53	171	PPS2+STEP 85	235	PPS2+STEP 117
44	BIAS MON 3	108	BIAS MON 4	172	BIAS MON 3	236	BIAS MON 4
45	PPS2+STEP 22	109	PPS2+STEP 54	173	PPS2+STEP 86	237	PPS2+STEP 118
46	BIAS MON 5	110	BIAS MON 6	174	BIAS MON 5	238	BIAS MON 6
47	PPS2+STEP 23	111	PPS2+STEP 55	175	PPS2+STEP 87	239	PPS2+STEP 119
48	BIAS MON 7	112	BIAS MON 8	176	BIAS MON 7	240	BIAS MON 8
49	PPS2+STEP 24	113	PPS2+STEP 56	177	PPS2+STEP 88	241	PPS2+STEP 120
50	FSV	114	FSV	178	FSV	242	FSV
51	PPS2+STEP 25	115	PPS2+STEP 57	179	PPS2+STEP 89	243	PPS2+STEP 121
52	BMSPI	116	BMSPI	180	BMSPI	244	BMSPI
53	PPS2+STEP 26	117	PPS2+STEP 58	181	PPS2+STEP 90	245	PPS2+STEP 122
54	BIAS MON 9	118	Spare	182	BIAS MON 9	246	Spare
55	PPS2+STEP 27	119	PPS2+STEP 59	183	PPS2+STEP 91	247	PPS2+STEP 123
56	+5V CEP	120	+15V CEP	184	-15V CEP	248	+5V REF CEP
57	PPS2+STEP 28	121	PPS2+STEP 60	185	PPS2+STEP 92	249	PPS2+STEP 124
58	0V CEP	122	HVPS1 TEMP	186	CEP TEMP	250	CEP P/S TEMP
59	PPS2+STEP 29	123	PPS2+STEP 61	187	PPS2+STEP 93	251	PPS2+STEP 125
60	IPS TEMP	124	+5V FSE	188	+15V FSE	252	-15V FSE
61	PPS2+STEP 30	125	PPS2+STEP 62	189	PPS2+STEP 94	253	PPS2+STEP 126
62	+28V FSE	126	+5V REF FSE	190	HVPS2 TEMP	254	Spare
63	PPS2+STEP 31	127	PPS2+STEP 63	191	PPS2+STEP 95	255	PPS2+STEP 127

ROPE HOUSEKEEPING DATA

One 8-bit word, WD 41, in each minor frame is allocated for housekeeping data.

Format no.'s 3 + 4n.

Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:	Minor frame no.:	Housekeeping data:
0	MAF ID LSB	64	FSCONTR LSB	128	MAF ID MSB	192	FSCONTR 4 MSB
1	PPS2-STEP 0	65	PPS2-STEP 32	129	PPS2-STEP 64	193	PPS2-STEP 96
2	FSV	66	FSV	130	FSV	194	FSV
3	PPS2-STEP 1	67	PPS2-STEP 33	131	PPS2-STEP 65	195	PPS2-STEP 97
4	BMSPI	68	BMSPI	132	BMSPI	196	BMSPI
5	PPS2-STEP 2	69	PPS2-STEP 34	133	PPS2-STEP 66	197	PPS2-STEP 98
6	CMDSTAT 12 MSB	70	CMDSTAT 13 MSB	134	CMDSTAT 14 MSB	198	CMDSTAT 15 MSB
7	PPS2-STEP 3	71	PPS2-STEP 35	135	PPS2-STEP 67	199	PPS2-STEP 99
8	CMDSTAT 12 LSB	72	CMDSTAT 13 LSB	136	CMDSTAT 14 LSB	200	CMDSTAT 15 LSB
9	PPS2-STEP 4	73	PPS2-STEP 36	137	PPS2-STEP 68	201	PPS2-STEP 100
10	HVPS1+	74	HVPS1+	138	HVPS1+	202	HVPS1+
11	PPS2-STEP 5	75	PPS2-STEP 37	139	PPS2-STEP 69	203	PPS2-STEP 101
12	HVPS1-	76	HVPS1-	140	HVPS1-	204	HVPS1-
13	PPS2-STEP 6	77	PPS2-STEP 38	141	PPS2-STEP 70	205	PPS2-STEP 102
14	HVPS1 I	78	HVPS1 I	142	HVPS1 I	206	HVPS1 I
15	PPS2-STEP 7	79	PPS2-STEP 39	143	PPS2-STEP 71	207	PPS2-STEP 103
16	HVU1 30V	80	HVU1 30V	144	HVU1 30V	208	HVU1 30V
17	PPS2-STEP 8	81	PPS2-STEP 40	145	PPS2-STEP 72	209	PPS2-STEP 104
18	FSV	82	FSV	146	FSV	210	FSV
19	PPS2-STEP 9	83	PPS2-STEP 41	147	PPS2-STEP 73	211	PPS2-STEP 105
20	BMSPI	84	BMSPI	148	BMSPI	212	BMSPI
21	PPS2-STEP 10	85	PPS2-STEP 42	149	PPS2-STEP 74	213	PPS2-STEP 106
22	HVU1 30I	86	HVU1 30I	150	HVU1 30I	214	HVU1 30I
23	PPS2-STEP 11	87	PPS2-STEP 43	151	PPS2-STEP 75	215	PPS2-STEP 107
24	PPS1 I	88	PPS1 I	152	PPS1 I	216	PPS1 I
25	PPS2-STEP 12	89	PPS2-STEP 44	153	PPS2-STEP 76	217	PPS2-STEP 108
26	HVPS2+	90	HVPS2+	154	HVPS2+	218	HVPS2+
27	PPS2-STEP 13	91	PPS2-STEP 45	155	PPS2-STEP 77	219	PPS2-STEP 109
28	HVPS2-	92	HVPS2-	156	HVPS2-	220	HVPS2-
29	PPS2-STEP 14	93	PPS2-STEP 46	157	PPS2-STEP 78	221	PPS2-STEP 110
30	HVPS2 I	94	HVPS2 I	158	HVPS2 I	222	HVPS2 I
31	PPS2-STEP 15	95	PPS2-STEP 47	159	PPS2-STEP 79	223	PPS2-STEP 111
32	PPS2 I	96	PPS2 I	160	PPS2 I	224	PPS2 I
33	PPS2-STEP 16	97	PPS2-STEP 48	161	PPS2-STEP 80	225	PPS2-STEP 112
34	FSV	98	FSV	162	FSV	226	FSV
35	PPS2-STEP 17	99	PPS2-STEP 49	163	PPS2-STEP 81	227	PPS2-STEP 113
36	BMSPI	100	BMSPI	164	BMSPI	228	BMSPI
37	PPS2-STEP 18	101	PPS2-STEP 50	165	PPS2-STEP 82	229	PPS2-STEP 114
38	FPSSTAT	102	BIAS CMD STAT	166	Spare	230	BIAS CMD STAT
39	PPS2-STEP 19	103	PPS2-STEP 51	167	PPS2-STEP 83	231	PPS2-STEP 115
40	HVPS1-2 STAT	104	BIAS MON 0	168	HVPS1-2 STAT	232	BIAS MON 0
41	PPS2-STEP 20	105	PPS2-STEP 52	169	PPS2-STEP 84	233	PPS2-STEP 116
42	BIAS MON 1	106	BIAS MON 2	170	BIAS MON 1	234	BIAS MON 2
43	PPS2-STEP 21	107	PPS2-STEP 53	171	PPS2-STEP 85	235	PPS2-STEP 117
44	BIAS MON 3	108	BIAS MON 4	172	BIAS MON 3	236	BIAS MON 4
45	PPS2-STEP 22	109	PPS2-STEP 54	173	PPS2-STEP 86	237	PPS2-STEP 118
46	BIAS MON 5	110	BIAS MON 6	174	BIAS MON 5	238	BIAS MON 6
47	PPS2-STEP 23	111	PPS2-STEP 55	175	PPS2-STEP 87	239	PPS2-STEP 119
48	BIAS MON 7	112	BIAS MON 8	176	BIAS MON 7	240	BIAS MON 8
49	PPS2-STEP 24	113	PPS2-STEP 56	177	PPS2-STEP 88	241	PPS2-STEP 120
50	FSV	114	FSV	178	FSV	242	FSV
51	PPS2-STEP 25	115	PPS2-STEP 57	179	PPS2-STEP 89	243	PPS2-STEP 121
52	BMSPI	116	BMSPI	180	BMSPI	244	BMSPI
53	PPS2-STEP 26	117	PPS2-STEP 58	181	PPS2-STEP 90	245	PPS2-STEP 122
54	BIAS MON 9	118	Spare	182	BIAS MON 9	246	Spare
55	PPS2-STEP 27	119	PPS2-STEP 59	183	PPS2-STEP 91	247	PPS2-STEP 123
56	+5V CEP	120	+15V CEP	184	-15V CEP	248	+5V REF CEP
57	PPS2-STEP 28	121	PPS2-STEP 60	185	PPS2-STEP 92	249	PPS2-STEP 124
58	0V CEP	122	HVPS1 TEMP	186	CEP TEMP	250	CEP P/S TEMP
59	PPS2-STEP 29	123	PPS2-STEP 61	187	PPS2-STEP 93	251	PPS2-STEP 125
60	IPS TEMP	124	+5V FSE	188	+15V FSE	252	-15V FSE
61	PPS2-STEP 30	125	PPS2-STEP 62	189	PPS2-STEP 94	253	PPS2-STEP 126
62	+28V FSE	126	+5V REF FSE	190	HVPS2 TEMP	254	Spare
63	PPS2-STEP 31	127	PPS2-STEP 63	191	PPS2-STEP 95	255	PPS2-STEP 127

Rope Housekeeping data:

Format: Monitor Name Location Subcom Nominal Tolerance Algorithm

Legend: Monitor Name: Self explanatory
Location: Base location
Subcom: Repetitions per major frame
Nominal: Nominal value in user units, e.g. Volt, Amp., deg.C.
Tolerance: Acceptable limits in user units, % or Bits.
Algorithm: Conversion algorithm from telemetry counts to user units
UU = N * [Expression]
UU: User units
N: Telemetry reading, 0 < N < 255

Monitor Name	Location	Subcom	Nominal	Tolerance	Algorithm
FSV	2	16	Cmd.	+/- 2 LSB	V = N*2.451 Volt
BMSP_I	4	16	FSV/RI	+/- 2 LSB	I = (1900 - N*500) microamp.
MONHVPS1+V	10	4	2950/2650	+/-5 %	V = N*13.7872 Volt
MONHVPS1-V	12	4	-2950/-2650	+/-5 %	V = N*13.5924 Volt
MONHVPS1_I	14	4	36	+/-3 LSB	I = N*2.4 mA
MONHVU1_30V	16	4	30	+/-3	V = N*0.196 Volt
MONHVU1_30VI	22	4	Not constant		I = N*3.25 mA
MONPPS1_I	24	4	Not constant		I = (.18*N+7.3)*N mA
MONHVPS2+V	26	4	2950/2650	+/-5 %	V = N*13.6801 Volt
MONHVPS2-V	28	4	-2950/-2650	+/-5 %	V = N*13.6626 Volt
MONHVPS2_I	30	4	36	+/-3 LSB	I = N*2.4 mA
MONPPS2_I	32	4	Not constant		I = (.18*N+7.3)*N mA
PRESSURE	38	2	Pressure transducer is not installed.		
BIAS0MON	104	2	-5/-1	+/-2 LSB	V = N*0.02382 Volt
BIAS1MON	42	2	5/1	+/-2 LSB	V = N*0.02354 Volt
BIAS2MON	106	2	-5/-1	+/-2 LSB	V = N*0.02382 Volt
BIAS3MON	44	2	5/1	+/-2 LSB	V = N*0.02354 Volt
BIAS4MON	108	2	-5/-1	+/-2 LSB	V = N*0.02382 Volt
BIAS5MON	46	2	5/1	+/-2 LSB	V = N*0.02354 Volt
BIAS6MON	110	2	-5/-1	+/-2 LSB	V = N*0.02382 Volt
BIAS7MON	48	2	5/1	+/-2 LSB	V = N*0.02354 Volt
BIAS8MON	112	2	-5/-1	+/-2 LSB	V = N*0.02382 Volt
BIAS9MON	54	2	5/1	+/-2 LSB	V = N*0.02354 Volt
MON5V	56	1	5.0	+/-0.2 V	V = N*0.02354 Volt
0VCAL	58	1	0.0	+ 1 LSB	V = N*5/255 Volt
FPST	60	1	-30 to 80 deg C		See appendix A.
MON28VFL	62	1	28.0	+/-3.0 V	V = N*0.1507 Volt @ nom. load.
MON+15V	120	1	15.0	+/-0.5 V	V = N*0.06507 Volt
HVPS1T	122	1	-30 to 80 deg C		See appendix A.
FMON5V	124	1	5.0	+/-0.2 V	V = N*0.02354 Volt

FMONCAL5V		126		1	5.0	+/-2 LSB	V = N*0.02354 Volt
MON-15V		184		1	-15.0	+/-0.8 V	V = N*0.06507 Volt
CEPT		186		1	- 30 to 80 deg C		See appendix A.
FMON+15V		188		1	15.0	+/-0.5 V	V = N*0.06507 Volt
HVPS2T		190		1	-30 to 80 deg C		See appendix A.
MONCAL5V		248		1	5.0	+/-2 LSB	V = N*0.02354 Volt
PST		250		1	-30 to 80 deg C		See appendix A.
FMON-15V		252		1	-15.0	+/-0.8 V	V = N*0.06507 Volt
MONPPS1+V	0	MAF 0 MIF	1	1	2200	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	1	MAF 0 MIF	3	1	2017	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	2	MAF 0 MIF	5	1	1850	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	3	MAF 0 MIF	7	1	1697	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	4	MAF 0 MIF	9	1	1556	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	5	MAF 0 MIF	11	1	1427	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	6	MAF 0 MIF	13	1	1308	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	7	MAF 0 MIF	15	1	1200	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	8	MAF 0 MIF	17	1	1100	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	9	MAF 0 MIF	19	1	1009	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	10	MAF 0 MIF	21	1	925	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	11	MAF 0 MIF	23	1	848	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	12	MAF 0 MIF	25	1	778	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	13	MAF 0 MIF	27	1	713	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	14	MAF 0 MIF	29	1	654	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	15	MAF 0 MIF	31	1	600	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	16	MAF 0 MIF	33	1	550	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	17	MAF 0 MIF	35	1	504	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	18	MAF 0 MIF	37	1	463	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	19	MAF 0 MIF	39	1	424	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	20	MAF 0 MIF	41	1	389	+/-7.5 %	V = N*9.574 Volt
MONPPS1+V	21	MAF 0 MIF	43	1	357	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	22	MAF 0 MIF	45	1	327	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	23	MAF 0 MIF	47	1	300	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	24	MAF 0 MIF	49	1	275	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	25	MAF 0 MIF	51	1	252	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	26	MAF 0 MIF	53	1	231	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	27	MAF 0 MIF	55	1	212	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	28	MAF 0 MIF	57	1	195	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	29	MAF 0 MIF	59	1	178	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	30	MAF 0 MIF	61	1	164	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	31	MAF 0 MIF	63	1	150	+/-3 LSB	V = N*9.574 Volt

-27500 eV

-10,600 eV

MONPPS1+V	32	MAF 0 MIF 65	1	138	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	33	MAF 0 MIF 67	1	126	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	34	MAF 0 MIF 69	1	116	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	35	MAF 0 MIF 71	1	106	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	36	MAF 0 MIF 73	1	97.3	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	37	MAF 0 MIF 75	1	89.2	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	38	MAF 0 MIF 77	1	81.8	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	39	MAF 0 MIF 79	1	75.0	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	40	MAF 0 MIF 81	1	68.8	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	41	MAF 0 MIF 83	1	63.1	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	42	MAF 0 MIF 85	1	57.9	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	43	MAF 0 MIF 87	1	53.0	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	44	MAF 0 MIF 89	1	48.6	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	45	MAF 0 MIF 91	1	44.6	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	46	MAF 0 MIF 93	1	40.9	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	47	MAF 0 MIF 95	1	37.5	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	48	MAF 0 MIF 97	1	34.4	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	49	MAF 0 MIF 99	1	31.5	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	50	MAF 0 MIF 101	1	28.9	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	51	MAF 0 MIF 103	1	26.5	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	52	MAF 0 MIF 105	1	24.3	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	53	MAF 0 MIF 107	1	22.3	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	54	MAF 0 MIF 109	1	20.5	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	55	MAF 0 MIF 111	1	18.8	+/-3 LSB	V = N*9.574 Volt
MONPPS1+V	56	MAF 0 MIF 113	1	17.20	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	57	MAF 0 MIF 115	1	15.78	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	58	MAF 0 MIF 117	1	14.47	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	59	MAF 0 MIF 119	1	13.27	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	60	MAF 0 MIF 121	1	12.17	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	61	MAF 0 MIF 123	1	11.16	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	62	MAF 0 MIF 125	1	10.23	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	63	MAF 0 MIF 127	1	9.381	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	64	MAF 0 MIF 129	1	8.602	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	65	MAF 0 MIF 131	1	7.889	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	66	MAF 0 MIF 133	1	7.234	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	67	MAF 0 MIF 135	1	6.634	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	68	MAF 0 MIF 137	1	6.083	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	69	MAF 0 MIF 139	1	5.578	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	70	MAF 0 MIF 141	1	5.116	+/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	71	MAF 0 MIF 143	1	4.691	+/-7.5 %	V = N*0.0959 Volt

MONPPS1+V	72	MAF 0 MIF 145	1	4.302 +/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	73	MAF 0 MIF 147	1	3.945 +/-7.5 %	V = N*0.0959 Volt
MONPPS1+V	74	MAF 0 MIF 149	1	3.617 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	75	MAF 0 MIF 151	1	3.317 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	76	MAF 0 MIF 153	1	3.042 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	77	MAF 0 MIF 155	1	2.790 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	78	MAF 0 MIF 157	1	2.558 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	79	MAF 0 MIF 159	1	2.346 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	80	MAF 0 MIF 161	1	2.151 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	81	MAF 0 MIF 163	1	1.973 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	82	MAF 0 MIF 165	1	1.809 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	83	MAF 0 MIF 167	1	1.659 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	84	MAF 0 MIF 169	1	1.521 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	85	MAF 0 MIF 171	1	1.395 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	86	MAF 0 MIF 173	1	1.279 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	87	MAF 0 MIF 175	1	1.173 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	88	MAF 0 MIF 177	1	1.076 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	89	MAF 0 MIF 179	1	0.9864 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	90	MAF 0 MIF 181	1	0.9046 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	91	MAF 0 MIF 183	1	0.8295 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	92	MAF 0 MIF 185	1	0.7607 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	93	MAF 0 MIF 187	1	0.6976 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	94	MAF 0 MIF 189	1	0.6397 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	95	MAF 0 MIF 191	1	0.5866 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	96	MAF 0 MIF 193	1	0.5379 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	97	MAF 0 MIF 195	1	0.4933 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	98	MAF 0 MIF 197	1	0.4524 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	99	MAF 0 MIF 199	1	0.4148 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	100	MAF 0 MIF 201	1	0.3804 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	101	MAF 0 MIF 203	1	0.3488 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	102	MAF 0 MIF 205	1	0.3199 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	103	MAF 0 MIF 207	1	0.2933 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	104	MAF 0 MIF 209	1	0.2690 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	105	MAF 0 MIF 211	1	0.2467 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	106	MAF 0 MIF 213	1	0.2262 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	107	MAF 0 MIF 215	1	0.2074 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	108	MAF 0 MIF 217	1	0.1902 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	109	MAF 0 MIF 219	1	0.1744 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	110	MAF 0 MIF 221	1	0.1600 +/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	111	MAF 0 MIF 223	1	0.1467 +/-3 LSB	V = N*0.0959 Volt

MONPPS1+V	112	MAF 0 MIF 225	1	0.1345	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	113	MAF 0 MIF 227	1	0.1234	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	114	MAF 0 MIF 229	1	0.1131	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	115	MAF 0 MIF 231	1	0.1037	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	116	MAF 0 MIF 233	1	0.0951	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	117	MAF 0 MIF 235	1	0.0872	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	118	MAF 0 MIF 237	1	0.0800	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	119	MAF 0 MIF 239	1	0.0734	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	120	MAF 0 MIF 241	1	0.0673	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	121	MAF 0 MIF 243	1	0.0617	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	122	MAF 0 MIF 245	1	0.0566	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	123	MAF 0 MIF 247	1	0.0519	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	124	MAF 0 MIF 249	1	0.0476	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	125	MAF 0 MIF 251	1	0.0436	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	126	MAF 0 MIF 253	1	0.0400	+/-3 LSB	V = N*0.0959 Volt
MONPPS1+V	127	MAF 0 MIF 255	1	Flyback		
MONPPS1-V	0	MAF 1 MIF 1	1	2200	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	1	MAF 1 MIF 3	1	2017	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	2	MAF 1 MIF 5	1	1850	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	3	MAF 1 MIF 7	1	1697	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	4	MAF 1 MIF 9	1	1556	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	5	MAF 1 MIF 11	1	1427	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	6	MAF 1 MIF 13	1	1308	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	7	MAF 1 MIF 15	1	1200	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	8	MAF 1 MIF 17	1	1100	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	9	MAF 1 MIF 19	1	1009	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	10	MAF 1 MIF 21	1	925	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	11	MAF 1 MIF 23	1	848	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	12	MAF 1 MIF 25	1	778	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	13	MAF 1 MIF 27	1	713	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	14	MAF 1 MIF 29	1	654	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	15	MAF 1 MIF 31	1	600	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	16	MAF 1 MIF 33	1	550	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	17	MAF 1 MIF 35	1	504	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	18	MAF 1 MIF 37	1	463	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	19	MAF 1 MIF 39	1	424	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	20	MAF 1 MIF 41	1	389	+/-7.5 %	V = N*9.800 Volt
MONPPS1-V	21	MAF 1 MIF 43	1	357	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	22	MAF 1 MIF 45	1	327	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	23	MAF 1 MIF 47	1	300	+/-3 LSB	V = N*9.800 Volt

$-0.5 < V$

MONPPS1-V	24	MAF 1 MIF	49	1	275	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	25	MAF 1 MIF	51	1	252	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	26	MAF 1 MIF	53	1	231	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	27	MAF 1 MIF	55	1	212	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	28	MAF 1 MIF	57	1	195	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	29	MAF 1 MIF	59	1	178	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	30	MAF 1 MIF	61	1	164	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	31	MAF 1 MIF	63	1	150	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	32	MAF 1 MIF	65	1	138	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	33	MAF 1 MIF	67	1	126	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	34	MAF 1 MIF	69	1	116	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	35	MAF 1 MIF	71	1	106	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	36	MAF 1 MIF	73	1	97.3	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	37	MAF 1 MIF	75	1	89.2	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	38	MAF 1 MIF	77	1	81.8	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	39	MAF 1 MIF	79	1	75.0	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	40	MAF 1 MIF	81	1	68.8	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	41	MAF 1 MIF	83	1	63.1	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	42	MAF 1 MIF	85	1	57.9	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	43	MAF 1 MIF	87	1	53.0	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	44	MAF 1 MIF	89	1	48.6	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	45	MAF 1 MIF	91	1	44.6	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	46	MAF 1 MIF	93	1	40.9	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	47	MAF 1 MIF	95	1	37.5	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	48	MAF 1 MIF	97	1	34.4	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	49	MAF 1 MIF	99	1	31.5	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	50	MAF 1 MIF	101	1	28.9	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	51	MAF 1 MIF	103	1	26.5	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	52	MAF 1 MIF	105	1	24.3	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	53	MAF 1 MIF	107	1	22.3	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	54	MAF 1 MIF	109	1	20.5	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	55	MAF 1 MIF	111	1	18.8	+/-3 LSB	V = N*9.800 Volt
MONPPS1-V	56	MAF 1 MIF	113	1	17.20	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	57	MAF 1 MIF	115	1	15.78	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	58	MAF 1 MIF	117	1	14.47	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	59	MAF 1 MIF	119	1	13.27	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	60	MAF 1 MIF	121	1	12.17	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	61	MAF 1 MIF	123	1	11.16	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	62	MAF 1 MIF	125	1	10.23	+/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	63	MAF 1 MIF	127	1	9.381	+/-7.5 %	V = N*0.0980 Volt

MONPPS1-V	64	MAF 1 MIF 129	1	8.602 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	65	MAF 1 MIF 131	1	7.889 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	66	MAF 1 MIF 133	1	7.234 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	67	MAF 1 MIF 135	1	6.634 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	68	MAF 1 MIF 137	1	6.083 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	69	MAF 1 MIF 139	1	5.578 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	70	MAF 1 MIF 141	1	5.116 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	71	MAF 1 MIF 143	1	4.691 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	72	MAF 1 MIF 145	1	4.302 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	73	MAF 1 MIF 147	1	3.945 +/-7.5 %	V = N*0.0980 Volt
MONPPS1-V	74	MAF 1 MIF 149	1	3.617 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	75	MAF 1 MIF 151	1	3.317 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	76	MAF 1 MIF 153	1	3.042 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	77	MAF 1 MIF 155	1	2.790 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	78	MAF 1 MIF 157	1	2.558 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	79	MAF 1 MIF 159	1	2.346 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	80	MAF 1 MIF 161	1	2.151 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	81	MAF 1 MIF 163	1	1.973 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	82	MAF 1 MIF 165	1	1.809 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	83	MAF 1 MIF 167	1	1.659 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	84	MAF 1 MIF 169	1	1.521 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	85	MAF 1 MIF 171	1	1.395 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	86	MAF 1 MIF 173	1	1.279 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	87	MAF 1 MIF 175	1	1.173 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	88	MAF 1 MIF 177	1	1.076 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	89	MAF 1 MIF 179	1	0.9864 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	90	MAF 1 MIF 181	1	0.9046 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	91	MAF 1 MIF 183	1	0.8295 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	92	MAF 1 MIF 185	1	0.7607 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	93	MAF 1 MIF 187	1	0.6976 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	94	MAF 1 MIF 189	1	0.6397 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	95	MAF 1 MIF 191	1	0.5866 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	96	MAF 1 MIF 193	1	0.5379 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	97	MAF 1 MIF 195	1	0.4933 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	98	MAF 1 MIF 197	1	0.4524 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	99	MAF 1 MIF 199	1	0.4148 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	100	MAF 1 MIF 201	1	0.3804 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	101	MAF 1 MIF 203	1	0.3488 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	102	MAF 1 MIF 205	1	0.3199 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V	103	MAF 1 MIF 207	1	0.2933 +/-3 LSB	V = N*0.0980 Volt

MONPPS1-V 104	MAF 1 MIF 209	1	0.2690 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 105	MAF 1 MIF 211	1	0.2467 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 106	MAF 1 MIF 213	1	0.2262 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 107	MAF 1 MIF 215	1	0.2074 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 108	MAF 1 MIF 217	1	0.1902 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 109	MAF 1 MIF 219	1	0.1744 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 110	MAF 1 MIF 221	1	0.1600 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 111	MAF 1 MIF 223	1	0.1467 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 112	MAF 1 MIF 225	1	0.1345 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 113	MAF 1 MIF 227	1	0.1234 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 114	MAF 1 MIF 229	1	0.1131 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 115	MAF 1 MIF 231	1	0.1037 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 116	MAF 1 MIF 233	1	0.0951 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 117	MAF 1 MIF 235	1	0.0872 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 118	MAF 1 MIF 237	1	0.0800 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 119	MAF 1 MIF 239	1	0.0734 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 120	MAF 1 MIF 241	1	0.0673 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 121	MAF 1 MIF 243	1	0.0617 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 122	MAF 1 MIF 245	1	0.0566 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 123	MAF 1 MIF 247	1	0.0519 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 124	MAF 1 MIF 249	1	0.0476 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 125	MAF 1 MIF 251	1	0.0436 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 126	MAF 1 MIF 253	1	0.0400 +/-3 LSB	V = N*0.0980 Volt
MONPPS1-V 127	MAF 1 MIF 255	1	Flyback	
MONPPS2+V 0	MAF 2 MIF 1	1	2200 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 1	MAF 2 MIF 3	1	2017 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 2	MAF 2 MIF 5	1	1850 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 3	MAF 2 MIF 7	1	1697 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 4	MAF 2 MIF 9	1	1556 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 5	MAF 2 MIF 11	1	1427 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 6	MAF 2 MIF 13	1	1308 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 7	MAF 2 MIF 15	1	1200 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 8	MAF 2 MIF 17	1	1100 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 9	MAF 2 MIF 19	1	1009 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 10	MAF 2 MIF 21	1	925 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 11	MAF 2 MIF 23	1	848 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 12	MAF 2 MIF 25	1	778 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 13	MAF 2 MIF 27	1	713 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 14	MAF 2 MIF 29	1	654 +/-7.5 %	V = N*9.810 Volt
MONPPS2+V 15	MAF 2 MIF 31	1	600 +/-7.5 %	V = N*9.810 Volt

MONPPS2+V	16	MAF 2 MIF	33	1	550	+/-7.5 %	V = N*9.810 Volt
MONPPS2+V	17	MAF 2 MIF	35	1	504	+/-7.5 %	V = N*9.810 Volt
MONPPS2+V	18	MAF 2 MIF	37	1	463	+/-7.5 %	V = N*9.810 Volt
MONPPS2+V	19	MAF 2 MIF	39	1	424	+/-7.5 %	V = N*9.810 Volt
MONPPS2+V	20	MAF 2 MIF	41	1	389	+/-7.5 %	V = N*9.810 Volt
MONPPS2+V	21	MAF 2 MIF	43	1	357	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	22	MAF 2 MIF	45	1	327	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	23	MAF 2 MIF	47	1	300	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	24	MAF 2 MIF	49	1	275	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	25	MAF 2 MIF	51	1	252	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	26	MAF 2 MIF	53	1	231	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	27	MAF 2 MIF	55	1	212	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	28	MAF 2 MIF	57	1	195	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	29	MAF 2 MIF	59	1	178	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	30	MAF 2 MIF	61	1	164	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	31	MAF 2 MIF	63	1	150	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	32	MAF 2 MIF	65	1	138	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	33	MAF 2 MIF	67	1	126	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	34	MAF 2 MIF	69	1	116	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	35	MAF 2 MIF	71	1	106	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	36	MAF 2 MIF	73	1	97.3	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	37	MAF 2 MIF	75	1	89.2	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	38	MAF 2 MIF	77	1	81.8	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	39	MAF 2 MIF	79	1	75.0	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	40	MAF 2 MIF	81	1	68.8	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	41	MAF 2 MIF	83	1	63.1	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	42	MAF 2 MIF	85	1	57.9	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	43	MAF 2 MIF	87	1	53.0	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	44	MAF 2 MIF	89	1	48.6	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	45	MAF 2 MIF	91	1	44.6	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	46	MAF 2 MIF	93	1	40.9	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	47	MAF 2 MIF	95	1	37.5	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	48	MAF 2 MIF	97	1	34.4	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	49	MAF 2 MIF	99	1	31.5	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	50	MAF 2 MIF	101	1	28.9	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	51	MAF 2 MIF	103	1	26.5	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	52	MAF 2 MIF	105	1	24.3	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	53	MAF 2 MIF	107	1	22.3	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	54	MAF 2 MIF	109	1	20.5	+/-3 LSB	V = N*9.810 Volt
MONPPS2+V	55	MAF 2 MIF	111	1	18.8	+/-3 LSB	V = N*9.810 Volt

MONPPS2+V	56	MAF 2 MIF 113	1	17.20	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	57	MAF 2 MIF 115	1	15.78	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	58	MAF 2 MIF 117	1	14.47	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	59	MAF 2 MIF 119	1	13.27	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	60	MAF 2 MIF 121	1	12.17	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	61	MAF 2 MIF 123	1	11.16	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	62	MAF 2 MIF 125	1	10.23	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	63	MAF 2 MIF 127	1	9.381	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	64	MAF 2 MIF 129	1	8.602	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	65	MAF 2 MIF 131	1	7.889	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	66	MAF 2 MIF 133	1	7.234	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	67	MAF 2 MIF 135	1	6.634	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	68	MAF 2 MIF 137	1	6.083	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	69	MAF 2 MIF 139	1	5.578	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	70	MAF 2 MIF 141	1	5.116	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	71	MAF 2 MIF 143	1	4.691	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	72	MAF 2 MIF 145	1	4.302	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	73	MAF 2 MIF 147	1	3.945	+/-7.5 %	V = N*0.0981 Volt
MONPPS2+V	74	MAF 2 MIF 149	1	3.617	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	75	MAF 2 MIF 151	1	3.317	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	76	MAF 2 MIF 153	1	3.042	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	77	MAF 2 MIF 155	1	2.790	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	78	MAF 2 MIF 157	1	2.558	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	79	MAF 2 MIF 159	1	2.346	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	80	MAF 2 MIF 161	1	2.151	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	81	MAF 2 MIF 163	1	1.973	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	82	MAF 2 MIF 165	1	1.809	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	83	MAF 2 MIF 167	1	1.659	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	84	MAF 2 MIF 169	1	1.521	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	85	MAF 2 MIF 171	1	1.395	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	86	MAF 2 MIF 173	1	1.279	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	87	MAF 2 MIF 175	1	1.173	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	88	MAF 2 MIF 177	1	1.076	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	89	MAF 2 MIF 179	1	0.9864	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	90	MAF 2 MIF 181	1	0.9046	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	91	MAF 2 MIF 183	1	0.8295	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	92	MAF 2 MIF 185	1	0.7607	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	93	MAF 2 MIF 187	1	0.6976	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	94	MAF 2 MIF 189	1	0.6397	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	95	MAF 2 MIF 191	1	0.5866	+/-3 LSB	V = N*0.0981 Volt

MONPPS2+V	96	MAF 2 MIF 193	1	0.5379	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	97	MAF 2 MIF 195	1	0.4933	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	98	MAF 2 MIF 197	1	0.4524	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	99	MAF 2 MIF 199	1	0.4148	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	100	MAF 2 MIF 201	1	0.3804	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	101	MAF 2 MIF 203	1	0.3488	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	102	MAF 2 MIF 205	1	0.3199	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	103	MAF 2 MIF 207	1	0.2933	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	104	MAF 2 MIF 209	1	0.2690	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	105	MAF 2 MIF 211	1	0.2467	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	106	MAF 2 MIF 213	1	0.2262	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	107	MAF 2 MIF 215	1	0.2074	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	108	MAF 2 MIF 217	1	0.1902	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	109	MAF 2 MIF 219	1	0.1744	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	110	MAF 2 MIF 221	1	0.1600	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	111	MAF 2 MIF 223	1	0.1467	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	112	MAF 2 MIF 225	1	0.1345	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	113	MAF 2 MIF 227	1	0.1234	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	114	MAF 2 MIF 229	1	0.1131	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	115	MAF 2 MIF 231	1	0.1037	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	116	MAF 2 MIF 233	1	0.0951	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	117	MAF 2 MIF 235	1	0.0872	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	118	MAF 2 MIF 237	1	0.0800	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	119	MAF 2 MIF 239	1	0.0734	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	120	MAF 2 MIF 241	1	0.0673	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	121	MAF 2 MIF 243	1	0.0617	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	122	MAF 2 MIF 245	1	0.0566	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	123	MAF 2 MIF 247	1	0.0519	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	124	MAF 2 MIF 249	1	0.0476	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	125	MAF 2 MIF 251	1	0.0436	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	126	MAF 2 MIF 253	1	0.0400	+/-3 LSB	V = N*0.0981 Volt
MONPPS2+V	127	MAF 2 MIF 255	1	Flyback		
MONPPS2-V	0	MAF 3 MIF 1	1	2200	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	1	MAF 3 MIF 3	1	2017	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	2	MAF 3 MIF 5	1	1850	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	3	MAF 3 MIF 7	1	1697	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	4	MAF 3 MIF 9	1	1556	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	5	MAF 3 MIF 11	1	1427	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	6	MAF 3 MIF 13	1	1308	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	7	MAF 3 MIF 15	1	1200	+/-7.5 %	V = N*9.837 Volt

MONPPS2-V	8	MAF 3 MIF	17	1	1100	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	9	MAF 3 MIF	19	1	1009	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	10	MAF 3 MIF	21	1	925	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	11	MAF 3 MIF	23	1	848	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	12	MAF 3 MIF	25	1	778	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	13	MAF 3 MIF	27	1	713	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	14	MAF 3 MIF	29	1	654	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	15	MAF 3 MIF	31	1	600	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	16	MAF 3 MIF	33	1	550	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	17	MAF 3 MIF	35	1	504	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	18	MAF 3 MIF	37	1	463	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	19	MAF 3 MIF	39	1	424	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	20	MAF 3 MIF	41	1	389	+/-7.5 %	V = N*9.837 Volt
MONPPS2-V	21	MAF 3 MIF	43	1	357	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	22	MAF 3 MIF	45	1	327	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	23	MAF 3 MIF	47	1	300	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	24	MAF 3 MIF	49	1	275	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	25	MAF 3 MIF	51	1	252	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	26	MAF 3 MIF	53	1	231	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	27	MAF 3 MIF	55	1	212	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	28	MAF 3 MIF	57	1	195	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	29	MAF 3 MIF	59	1	178	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	30	MAF 3 MIF	61	1	164	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	31	MAF 3 MIF	63	1	150	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	32	MAF 3 MIF	65	1	138	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	33	MAF 3 MIF	67	1	126	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	34	MAF 3 MIF	69	1	116	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	35	MAF 3 MIF	71	1	106	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	36	MAF 3 MIF	73	1	97.3	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	37	MAF 3 MIF	75	1	89.2	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	38	MAF 3 MIF	77	1	81.8	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	39	MAF 3 MIF	79	1	75.0	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	40	MAF 3 MIF	81	1	68.8	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	41	MAF 3 MIF	83	1	63.1	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	42	MAF 3 MIF	85	1	57.9	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	43	MAF 3 MIF	87	1	53.0	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	44	MAF 3 MIF	89	1	48.6	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	45	MAF 3 MIF	91	1	44.6	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	46	MAF 3 MIF	93	1	40.9	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	47	MAF 3 MIF	95	1	37.5	+/-3 LSB	V = N*9.837 Volt

MONPPS2-V	48	MAF 3 MIF 97	1	34.4	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	49	MAF 3 MIF 99	1	31.5	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	50	MAF 3 MIF 101	1	28.9	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	51	MAF 3 MIF 103	1	26.5	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	52	MAF 3 MIF 105	1	24.3	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	53	MAF 3 MIF 107	1	22.3	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	54	MAF 3 MIF 109	1	20.5	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	55	MAF 3 MIF 111	1	18.8	+/-3 LSB	V = N*9.837 Volt
MONPPS2-V	56	MAF 3 MIF 113	1	17.20	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	57	MAF 3 MIF 115	1	15.78	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	58	MAF 3 MIF 117	1	14.47	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	59	MAF 3 MIF 119	1	13.27	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	60	MAF 3 MIF 121	1	12.17	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	61	MAF 3 MIF 123	1	11.16	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	62	MAF 3 MIF 125	1	10.23	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	63	MAF 3 MIF 127	1	9.381	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	64	MAF 3 MIF 129	1	8.602	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	65	MAF 3 MIF 131	1	7.889	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	66	MAF 3 MIF 133	1	7.234	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	67	MAF 3 MIF 135	1	6.634	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	68	MAF 3 MIF 137	1	6.083	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	69	MAF 3 MIF 139	1	5.578	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	70	MAF 3 MIF 141	1	5.116	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	71	MAF 3 MIF 143	1	4.691	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	72	MAF 3 MIF 145	1	4.302	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	73	MAF 3 MIF 147	1	3.945	+/-7.5 %	V = N*0.0982 Volt
MONPPS2-V	74	MAF 3 MIF 149	1	3.617	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	75	MAF 3 MIF 151	1	3.317	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	76	MAF 3 MIF 153	1	3.042	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	77	MAF 3 MIF 155	1	2.790	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	78	MAF 3 MIF 157	1	2.558	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	79	MAF 3 MIF 159	1	2.346	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	80	MAF 3 MIF 161	1	2.151	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	81	MAF 3 MIF 163	1	1.973	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	82	MAF 3 MIF 165	1	1.809	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	83	MAF 3 MIF 167	1	1.659	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	84	MAF 3 MIF 169	1	1.521	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	85	MAF 3 MIF 171	1	1.395	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	86	MAF 3 MIF 173	1	1.279	+/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	87	MAF 3 MIF 175	1	1.173	+/-3 LSB	V = N*0.0982 Volt

MONPPS2-V	88	MAF 3 MIF 177	1	1.076 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	89	MAF 3 MIF 179	1	0.9864 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	90	MAF 3 MIF 181	1	0.9046 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	91	MAF 3 MIF 183	1	0.8295 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	92	MAF 3 MIF 185	1	0.7607 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	93	MAF 3 MIF 187	1	0.6976 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	94	MAF 3 MIF 189	1	0.6397 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	95	MAF 3 MIF 191	1	0.5866 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	96	MAF 3 MIF 193	1	0.5379 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	97	MAF 3 MIF 195	1	0.4933 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	98	MAF 3 MIF 197	1	0.4524 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	99	MAF 3 MIF 199	1	0.4148 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	100	MAF 3 MIF 201	1	0.3804 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	101	MAF 3 MIF 203	1	0.3488 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	102	MAF 3 MIF 205	1	0.3199 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	103	MAF 3 MIF 207	1	0.2933 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	104	MAF 3 MIF 209	1	0.2690 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	105	MAF 3 MIF 211	1	0.2467 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	106	MAF 3 MIF 213	1	0.2262 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	107	MAF 3 MIF 215	1	0.2074 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	108	MAF 3 MIF 217	1	0.1902 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	109	MAF 3 MIF 219	1	0.1744 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	110	MAF 3 MIF 221	1	0.1600 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	111	MAF 3 MIF 223	1	0.1467 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	112	MAF 3 MIF 225	1	0.1345 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	113	MAF 3 MIF 227	1	0.1234 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	114	MAF 3 MIF 229	1	0.1131 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	115	MAF 3 MIF 231	1	0.1037 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	116	MAF 3 MIF 233	1	0.0951 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	117	MAF 3 MIF 235	1	0.0872 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	118	MAF 3 MIF 237	1	0.0800 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	119	MAF 3 MIF 239	1	0.0734 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	120	MAF 3 MIF 241	1	0.0673 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	121	MAF 3 MIF 243	1	0.0617 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	122	MAF 3 MIF 245	1	0.0566 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	123	MAF 3 MIF 247	1	0.0519 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	124	MAF 3 MIF 249	1	0.0476 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	125	MAF 3 MIF 251	1	0.0436 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	126	MAF 3 MIF 253	1	0.0400 +/-3 LSB	V = N*0.0982 Volt
MONPPS2-V	127	MAF 3 MIF 255	1	Flyback	

Digital Monitors:

1. MAF ID LSB Location MIF 0

   MAF ID MSB Location MIF 128

   The MAJOR FRAME ID represents the contents of a 16 Bit counter. The counter i reset at power up, and is incremented every major frame.(16.384 sec.)

2. FPS DATA LSB Location MIF 64: 8 LSB's from DAC register controlling the FPS.

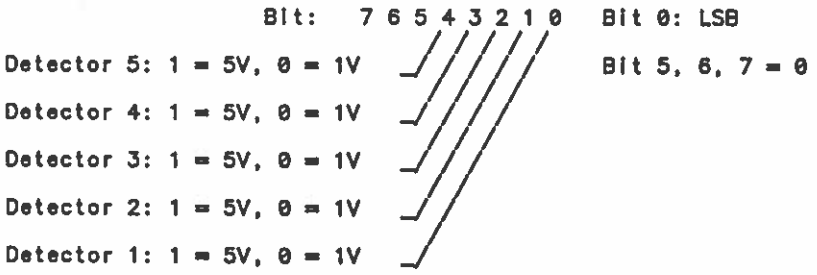
   FPS DATA MSB Location MIF 192: 4 MSB's from DAC register controlling the FPS.

3. CMDSTAT 00 through CMDSTAT FF show the last executed commands, and represent the instrument configuration. The registers will be updated upon command execution.

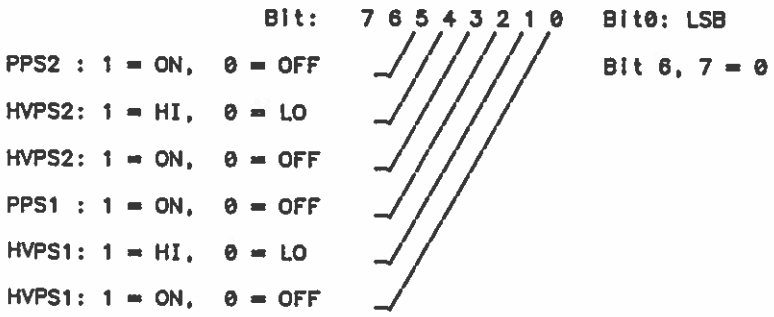
   CMDSTAT NN LSB: 8 LSB's

   CMDSTAT NN MSB: 8 MSB's

4. GRID BIAS CMD Location MIF 102 and 230: Bias command status register.



5. HVU STATUS, Location MIF 40 and 168: HVU1 and HVU2 status.



6. FPS STATUS, Location MIF 38: FPS Control Command status.

APPENDIX A

TEMPERATURE MONITORS

ROPE TEMPERATURE MONITORS

Algorithm for calculating temperature vs. TM readout.

$$\frac{1}{T} = a + b(lnR(T)) + c(lnR(T))^3$$

$$T = deg.Kelvin(t[^\circ C] + 273.15)$$

From data sheet:

$t = 0,\ T = 273.15,\ \frac{1}{T} = 3.661 \cdot 10^{-3},\ R = 7,335 \cdot 10^3$

$t = 20,\ T = 293.15,\ \frac{1}{T} = 3.4112 \cdot 10^{-3},\ R = 2,814 \cdot 10^3$

$t = 40,\ T = 313.15,\ \frac{1}{T} = 3.1934 \cdot 10^{-3},\ R = 1,200 \cdot 10^3$

1) $3.661 \cdot 10^{-3} = a + b(ln7,335 \cdot 10^3) + c(ln7,335 \cdot 10^3)^3$

2) $3.4112 \cdot 10^{-3} = a + b(ln2,814 \cdot 10^3) + c(ln2,814 \cdot 10^3)^3$

3) $3.1934 \cdot 10^{-3} = a + b(ln1.2 \cdot 10^3) + c(ln1.2 \cdot 10^3)^3$

1) $a + 8.900b + 705.067c = 3.661 \cdot 10^{-3}$

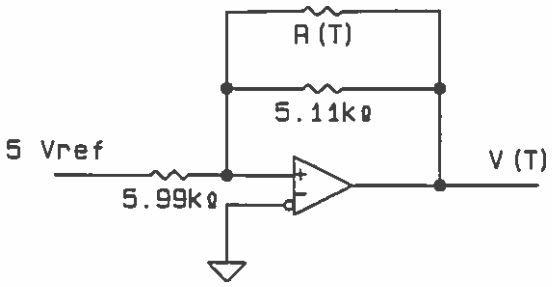
2) $a + 7.9424b + 501.013c = 3.4112 \cdot 10^{-3}$

3) $a + 7.0901b + 356.4124c = 3.1934 \cdot 10^{-3}$

$$\begin{bmatrix} 1 & 8,900 & 705.067 \\ 1 & 7,9424 & 501.013 \\ 1 & 7.0901 & 356.4124 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} 3.661 \cdot 10^{-3} \\ 3.4112 \cdot 10^{-3} \\ 3.1934 \cdot 10^{-3} \end{bmatrix}$$

$a = 1.4852 \cdot 10^{-3}\quad b = 2.3477 \cdot 10^{-4}\quad c = 1.2242 \cdot 10^{-7}$

$$t = \frac{1}{a+b(lnR(T))+c(lnR(T))^3} - 273.15$$

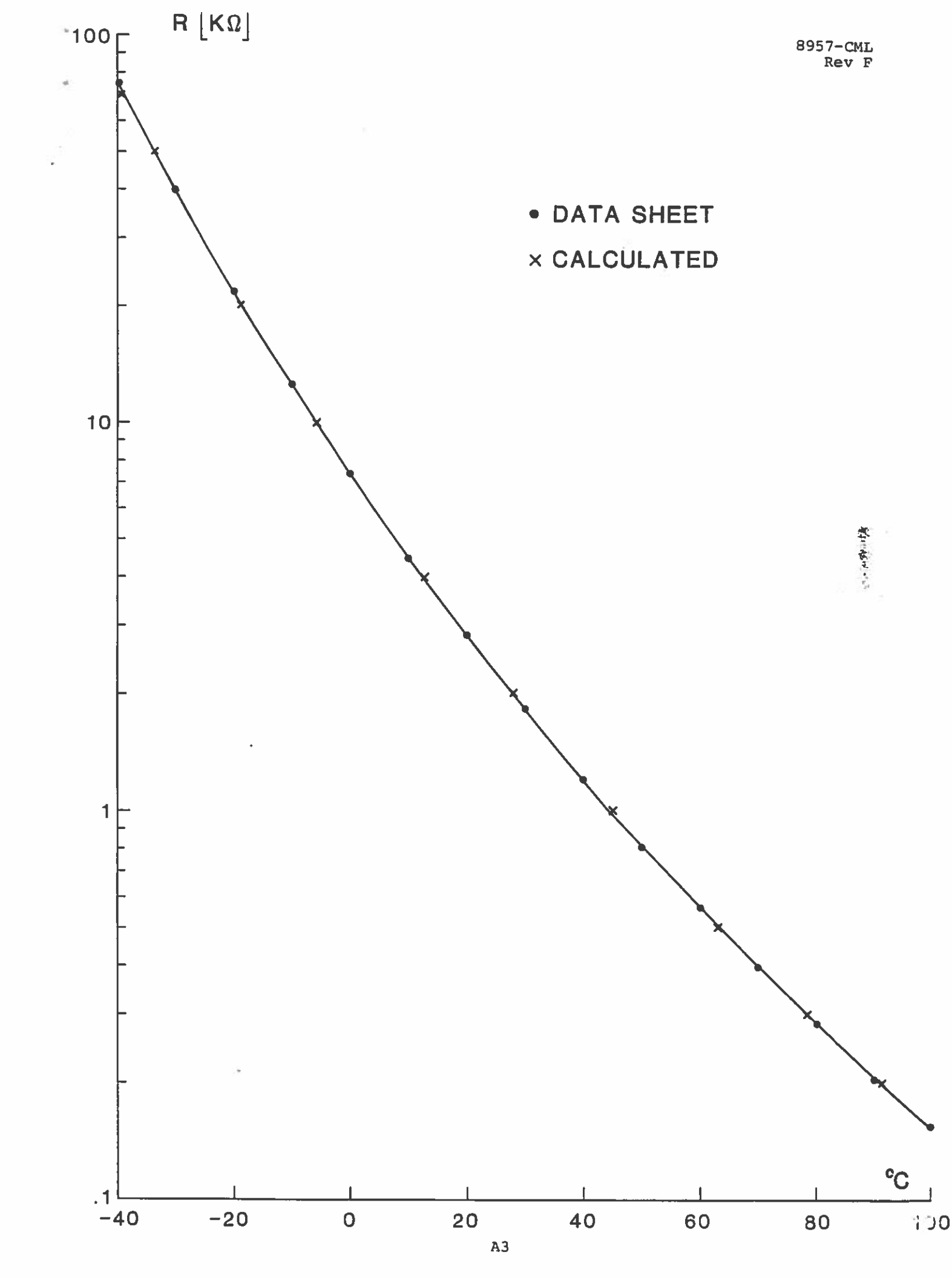


$$V = \frac{N \cdot 5}{255}$$

$N = [0 : 255]$ TM readout

$$\begin{aligned} R(T) &= \frac{\frac{V(T)\cdot 4.99\cdot 10^3}{5}\cdot 5.11\cdot 10^3}{5.11\cdot 10^3 - \frac{V(T)\cdot 4.99\cdot 10^3}{5}} \\ &= \frac{\frac{N\cdot 5\cdot 4.99\cdot 10^3}{255\cdot 5}\cdot 5.11\cdot 10^3}{5.11\cdot 10^3 - \frac{N\cdot 5\cdot 4.99\cdot 10^3}{255\cdot 5}} \\ &= \frac{N\cdot 10^5}{5.11\cdot 10^3 - N\cdot 19.57} \end{aligned}$$

$$t = \frac{1}{1.4852\cdot 10^{-3} + 2.3477\cdot 10^{-4} ln\left(\frac{N\cdot 10^5}{5.11\cdot 10^3 - N\cdot 19.57}\right) + 1.2242\cdot 10^{-7}\left(ln\left(\frac{N\cdot 10^5}{5.11\cdot 10^3 - N\cdot 19.57}\right)\right)^3} - 273.15$$


R [KΩ]
100
10
1
.1
8957-CML
Rev F
• DATA SHEET
× CALCULATED
°C
-40
-20
0
20
40
60
80
100
A3

APPENDIX B

MACRO COMMANDS

ROPE MACRO COMMANDS

ROPE MACRO CMD NO	POCC CMD (HEX)	INSTRUMENT MODE (HEX) FPS	DIFP	SPES
0	B000	D1FF	C000	B03E
1	B001	D1FF	C01A	B03E
2	B002	D1FF	C050	B03E
3	B003	D1FF	C070	B03E
4	B004	D300	C00A	B03F
5	B005	D300	C005	B042
6	B006	D300	C000	B044
7	B007	D300	C00A	B040
8	B008	D300	C005	B041
9	B009	D300	C000	B043
10	B00A	D300	C030	B03F
11	B00B	D300	C010	B041
12	B00C	D1FF	C00A	B03F
13	B00D	D1FF	C005	B042
14	B00E	D1FF	C000	B044
15	B00F	D1FF	C00A	B040
16	B010	D1FF	C005	B041
17	B011	D1FF	C000	B043
18	B012	D1FE	C000	B044
19	B013	D1FD	C000	B044
20	B014	D1FA	C000	B044
21	B015	D1F7	C000	B044
22	B016	D1F2	C000	B044
23	B017	D1ED	C000	B044
24	B018	D1E6	C000	B044
25	B019	D1DE	C000	B044
26	B01A	D1D6	C000	B044
27	B01B	D1CC	C000	B044
28	B01C	D1C1	C000	B044
29	B01D	D1B5	C000	B044
30	B01E	D1A8	C000	B044
31	B01F	D19B	C000	B044
32	B020	D18C	C000	B044
33	B021	D17C	C000	B044
34	B022	D16B	C000	B044
35	B023	D159	C000	B044
36	B024	D146	C000	B044
37	B025	D132	C000	B044
38	B026	D11D	C000	B044
39	B027	D107	C000	B044
40	B028	D1FE	C005	B041
41	B029	D1FD	C005	B041
42	B02A	D1FA	C005	B041
43	B02B	D1F7	C005	B041
44	B02C	D1F2	C005	B041
45	B02D	D1ED	C005	B041
46	B02E	D1E6	C005	B041

ROPE MACRO CMD NO	POCC CMD (HEX)	INSTRUMENT MODE (HEX) FPS	DIFP	SPES
47	B02F	D1DE	C005	B041
48	B030	D1FE	C00A	B040
49	B031	D1FD	C00A	B040
50	B032	D1FA	C00A	B040
51	B033	D1F7	C00A	B040
52	B034	D1F2	C00A	B040
53	B035	D1ED	C00A	B040
54	B036	D200	C005	B042
55	B037	D200	C000	B044
56	B038	D200	C000	B043
57	B039	D0CC	C000	B044
58	B03A	D09B	C000	B044
59	B03B	D06B	C000	B044
60	B03C	D032	C000	B044
61	B03D	D007	C000	B044

FPS MODES

CMD (HEX)	OUTPUT (VOLTS)	POWER LIMIT
D0CC	-99.61	OFF
D09B	-195.31	OFF
D06B	-289.06	OFF
D032	-400.39	OFF
D007	-484.38	OFF
D1FF	0	ON
D1FE	-1.95	ON
D1FD	-3.91	ON
D1FA	-9.77	ON
D1F7	-15.63	ON
D1F2	-25.40	ON
D1ED	-35.16	ON
D1E6	48.84	ON
D1DE	-64.47	ON
D1D6	-80.10	ON
D1CC	-99.63	ON
D1C1	-121.12	ON
D1B5	-144.57	ON
D1A8	-169.96	ON
D19B	-195.36	ON
D18C	-224.67	ON
D17C	-255.92	ON
D16B	-289.13	ON
D159	-324.30	ON
D146	-361.42	ON
D132	-400.49	ON
D11D	-441.51	ON
D107	-484.49	ON
D200	TRACKING	OFF
D300	TRACKING	ON

DIFP MODES

CMD(HEX)	OPERATION	VOLTAGE	DATA RATE
C000	STANDARD	100 V	SINGLE
C005	STANDARD	50 V	SINGLE
C00A	STANDARD	25 V	SINGLE
C010	STANDARD	100 V	DOUBLE
C01A	STANDARD	25 V	DOUBLE
C030	DEFLECTION	100 V	DOUBLE
C050	RPA	100 V	DOUBLE
C070	ELECTROMETER		DOUBLE

SPES MODES

CMD (HEX)	ENERGY RANGE SPES 1-2	SPES 3-5
B03E	ZERO	ZERO
B03F	LOW	LOW
B040	LOW	MEDIUM
B041	LOW	HIGH
B042	MEDIUM	MEDIUM
B043	MEDIUM	HIGH
B044	HIGH	HIGH

ZERO = 0 eV
LOW = 0.7 eV - 133 eV
MEDIUM= 0.7 eV - 1.8 KeV
HIGH = 4.2 EV - 10.1 KeV

APPENDIX C

POTENTIAL STATUS

BIT DEFINITION

POTEN_STATUS Bit Definitions

7	6	5	4	3	2	1	0

Bit 0 - POT_SEEK_BIT

This bit indicates if the instrument is in potential seek mode.

0 - Not in potential seek mode

1 - In potential seek mode

Bit 1 - POT_TRAK_BIT

This bit indicates if the instrument is in potential track mode.

0 - Not in potential track mode

1 - In potential track mode

Bit 2 - POT_FAIL_BIT

This bit indicates a failure scenario from within the potential seek or potential track mode. If POT_SEEK_BIT is set, the process failed in the potential seek mode; the "zero" current threshold is unattainable. If POT_TRAK_BIT is set, the process failed in the potential track mode; adding to or subtracting from the FS_CONTROL word resulted in a negative value.

0 - No Failure

1 - Failure while seeking or tracking

Bit 3 - POWER_BIT

This bit indicates if the instrument has exceeded the power consumption limit.

0 - Power consumption okay

1 - Power limit exceeded

Bit 4 - PCHECK_BIT

This bit indicates if the power consumption check needs to be performed or bypassed.

0 - Bypass power consumption check

1 - Perform power consumption check

Bit 5 - MNTR_ERR_BIT

This bit indicates if the FSV, FSI, or BMSPI monitor readings resulted in bad data values (0FFH).

0 - Monitor readings okay

1 - Monitor readings invalid

Bit 6 - FSV_BAD_BIT

This bit indicates if there was an error reading the FSV monitor value from the DAC (conversion took longer than 25 usecs).

0 - FSV monitor reading okay

1 - Bad FSV monitor reading

Bit 7 - BMSPI_BAD_BIT

This bit indicates if the BMSPI monitor value read was a valid value.

0 - BMSPI monitor reading okay

1 - Bad BMSPI monitor reading