

## **SMEI Instrument Commanding Specification**

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And

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Issue 1

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CMD ID	CMD MNEMONIC	Parameter#	Bits	Data Type	Min	Max	Default	Units	Description
	Keep to 10 characters Fill in characters 0-9 only SM_0123456789								
00	SM_ENBL_SAFE	00	0-15	Hex	1480	1480	1480		SMEI Sub-Address 4
00	SM_ENBL_SAFE	01	0-7	Hex			0		Command Identifier
00	SM_ENBL_SAFE	01	8-15	Hex	0	FF			Sequence Identifier
00	SM_ENBL_SAFE	02	0-15	Hex	0	FFFF			CRC
00	SM_ENBL_SAFE	03-32	0-15	Hex	0	0	0		Spare (0)
01	SM_GOTO_SAFE	00		Hex			1480		SMEI Sub-Address 4
01	SM_GOTO_SAFE	01	0-7	Hex			1		Command Identifier
01	SM_GOTO_SAFE	01	8-15	Hex	0	FF			Sequence Identifier
01	SM_GOTO_SAFE	02		Hex	0	FFFF			CRC
01	SM_GOTO_SAFE	03-32		Hex	0	0	0		Spare (0)
02	SM_ENBL_PTCH	00		Hex	1480	1480	1480		SMEI Sub-Address 4
02	SM_ENBL_PTCH	01	0-7	Hex			2		Command Identifier
02	SM_ENBL_PTCH	01	8-15	Hex	0	FF			Sequence Identifier
02	SM_ENBL_PTCH	02		Hex	0	FFFF			CRC
02	SM_ENBL_PTCH	03-32		Hex	0	0	0		Spare (0)
03	SM_GOTO_PTCH	00		Hex	1480	1480	1480		SMEI Sub-Address 4
03	SM_GOTO_PTCH	01	0-7	Hex			3		Command Identifier
03	SM_GOTO_PTCH	01	8-15	Hex	0	FF			Sequence Identifier
03	SM_GOTO_PTCH	02		Hex	0	FFFF			CRC
03	SM_GOTO_PTCH	03-32		Hex	0	0	0		Spare (0)
05	SM_GOTO_CONF	00		Hex	1480	1480	1480		SMEI Sub-Address 4
05	SM_GOTO_CONF	01	0-7	Hex			5		Command Identifier
05	SM_GOTO_CONF	01	8-15	Hex	0	FF			Sequence Identifier
05	SM_GOTO_CONF	02		Hex	0	FFFF			CRC
05	SM_GOTO_CONF	03-32		Hex	0	0	0		Spare (0)

07	SM_GOTO_OBS	00			Hex	1480	1480	1480	SMEI Sub-Address 4
07	SM_GOTO_OBS	01	0-7		Hex		7		Command Identifier
07	SM_GOTO_OBS	01	8-15		Hex	0	FF		Sequence Identifier
07	SM_GOTO_OBS	02			Hex	0	FFFF		CRC
07	SM_GOTO_OBS	03-32			Hex	0	0	0	Spare (0)
40	SM_DHU_COLD	00			Hex	1480	1480	1480	SMEI Sub-Address 4
40	SM_DHU_COLD	01	0-7		Hex		40		Command Identifier
40	SM_DHU_COLD	01	8-15		Hex	0	FF		Sequence Identifier
40	SM_DHU_COLD	02			Hex	0	FFFF		CRC
40	SM_DHU_COLD	03-32			Hex	0	0	0	Spare (0)
43	SM_PATCH_UPL	00			Hex	1480	1480	1480	SMEI Sub-Address 4
43	SM_PATCH_UPL	01	0-7		Hex		43		Command Identifier
43	SM_PATCH_UPL	01	8-15		Hex	0	FF		Sequence Identifier
43	SM_PATCH_UPL	02			Hex	0	FFFF		CRC
43	SM_PATCH_UPL	03			Hex	0	1FE4	0	Patch Buffer Offset
43	SM_PATCH_UPL	04-32			Hex	0	FFFF	0	Binary Patch Data (padded with 0)
44	SM_PATCH_CMT	00			Hex	1480	1480	1480	SMEI Sub-Address 4
44	SM_PATCH_CMT	01	0-7		Hex		44		Command Identifier
44	SM_PATCH_CMT	01	8-15		Hex	0	FF		Sequence Identifier
44	SM_PATCH_CMT	02			Hex	0	FFFF		CRC
44	SM_PATCH_CMT	03			Hex	0	1FEF	0	Patch Buffer Offset
44	SM_PATCH_CMT	04			Hex	0	2000		Patch Data Words
44	SM_PATCH_CMT	05			Hex	0	7F		Patch Destination Page
44	SM_PATCH_CMT	06			Hex	0	3FFF		Patch Destination Page Offset
44	SM_PATCH_CMT	07-32			Hex	0	0	0	Spare (0)

46	SM_PATCH_DEA	00			Hex	1480	1480	1480	SMEI Sub-Address 4
46	SM_PATCH_DEA	01	0-7		Hex		46		Command Identifier
46	SM_PATCH_DEA	01	8-15		Hex	0	FF		Sequence Identifier
46	SM_PATCH_DEA	02			Hex	0	FFFF		CRC
46	SM_PATCH_DEA	03			Hex	0	FFFF	0	Code Patch Buffer Offset
46	SM_PATCH_DEA	04-32			Hex	0	0	0	Spare (0)
47	SM_PATCH_ACT	00			Hex	1480	1480	1480	SMEI Sub-Address 4
47	SM_PATCH_ACT	01	0-7		Hex			47	Command Identifier
47	SM_PATCH_ACT	01	8-15		Hex	0	FF		Sequence Identifier
47	SM_PATCH_ACT	02			Hex	0	FFFF		CRC
47	SM_PATCH_ACT	03			Hex	0	FFFF	0	Code Patch Buffer Offset
47	SM_PATCH_ACT	04-32			Hex	0	0	0	Spare (0)
48	SM_THERM_CTRL	00			Hex	1480	1480	1480	SMEI Sub-Address 4
48	SM_THERM_CTRL	01	0-7		Hex			48	Command Identifier
48	SM_THERM_CTRL	01	8-15		Hex	0	FF		Sequence Identifier
48	SM_THERM_CTRL	02			Hex	0	FFFF		CRC
48	SM_THERM_CTRL	03			Hex	0	FF	0	Camera 1 Set Temperature
48	SM_THERM_CTRL	04			Hex	0	FF	0	Camera 2 Set Temperature
48	SM_THERM_CTRL	05			Hex	0	FF	0	Camera 3 Set Temperature
48	SM_THERM_CTRL	06			Hex	0	3	1	Maximum Active Heaters
48	SM_THERM_CTRL	07-32			Hex	0	0	0	Spare(0)
51	SM_1_PWR_ON	00			Hex	1480	1480	1480	SMEI Sub-Address 4
51	SM_1_PWR_ON	01	0-7		Hex			51	Command Identifier
51	SM_1_PWR_ON	01	8-15		Hex	0	FF		Sequence Identifier
51	SM_1_PWR_ON	02			Hex	0	FFFF		CRC
51	SM_1_PWR_ON	03-32			Hex	0	0	0	Spare (0)

52	SM_1_ICE_OFF	00			Hex	1480	1480	1480	SMEI Sub-Address 4
52	SM_1_ICE_OFF	01	0-7		Hex		52		Command Identifier
52	SM_1_ICE_OFF	01	8-15		Hex	0	FF		Sequence Identifier
52	SM_1_ICE_OFF	02			Hex	0	FFFF		CRC
52	SM_1_ICE_OFF	03-32			Hex	0	0		Spare (0)
53	SM_1_ICE_ON	00			Hex	1480	1480	1480	SMEI Sub-Address 4
53	SM_1_ICE_ON	01	0-7		Hex		53		Command Identifier
53	SM_1_ICE_ON	01	8-15		Hex	0	FF		Sequence Identifier
53	SM_1_ICE_ON	02			Hex	0	FFFF		CRC
53	SM_1_ICE_ON	03			Hex	0	FF		Target Temperature
53	SM_1_ICE_ON	04			Hex	0	FFFF	Minutes	Duration
53	SM_1_ICE_ON	05-32			Hex	0	0		Spare (0)
54	SM_1_HOP_EN	00			Hex	1480	1480	1480	SMEI Sub-Address 4
54	SM_1_HOP_EN	01	0-7		Hex		54		Command Identifier
54	SM_1_HOP_EN	01	8-15		Hex	0	FF		Sequence Identifier
54	SM_1_HOP_EN	02			Hex	0	FFFF		CRC
54	SM_1_HOP_EN	03-32			Hex	0	0		Spare (0)
55	SM_1_HOP_TEST	00			Hex	1480	1480	1480	SMEI Sub-Address 4
55	SM_1_HOP_TEST	01	0-7		Hex		55		Command Identifier
55	SM_1_HOP_TEST	01	8-15		Hex	0	FF		Sequence Identifier
55	SM_1_HOP_TEST	02			Hex	0	FFFF		CRC
55	SM_1_HOP_TEST	03-32			Hex	0	0		Spare (0)
57	SM_1_HOP_ACT	00			Hex	1480	1480	1480	SMEI Sub-Address 4
57	SM_1_HOP_ACT	01	0-7		Hex		57		Command Identifier
57	SM_1_HOP_ACT	01	8-15		Hex	0	FF		Sequence Identifier
57	SM_1_HOP_ACT	02			Hex	0	FFFF		CRC
57	SM_1_HOP_ACT	03			Hex	0	FFFF	Seconds	Duration (max)
57	SM_1_HOP_ACT	04-32			Hex	0	0		Spare (0)

59	SM_1_CONF	00				Hex	1480	1480	1480	SMEI Sub-Address 4
59	SM_1_CONF	01	0-7		Hex	59				Command Identifier
59	SM_1_CONF	01	8-15		Hex	0	FF			Sequence Identifier
59	SM_1_CONF	02			Hex	0	FFFF			CRC
59	SM_1_CONF	03			Hex	0	20	0		Configuration Number
59	SM_1_CONF	04-32			Hex	0	0	0		Spare (0)
5B	SM_1_DYN_CONF	00			Hex	1480	1480	1480		SMEI Sub-Address 4
5B	SM_1_DYN_CONF	01	0-7		Hex			5B		Command Identifier
5B	SM_1_DYN_CONF	01	8-15		Hex	0	FF			Sequence Identifier
5B	SM_1_DYN_CONF	02			Hex	0	FFFF			CRC
5B	SM_1_DYN_CONF	03			Hex	0	FFFF			New configuration data 00
5B	SM_1_DYN_CONF	04			Hex	0	FFFF			New configuration data 01
5B	SM_1_DYN_CONF	05			Hex	0	FFFF			New configuration data 02
5B	SM_1_DYN_CONF	06			Hex	0	FFFF			New configuration data 03
5B	SM_1_DYN_CONF	07			Hex	0	FFFF			New configuration data 04
5B	SM_1_DYN_CONF	08			Hex	0	FFFF			New configuration data 05
5B	SM_1_DYN_CONF	09			Hex	0	FFFF			New configuration data 06
5B	SM_1_DYN_CONF	10			Hex	0	FFFF			New configuration data 07
5B	SM_1_DYN_CONF	11			Hex	0	FFFF			New configuration data 08
5B	SM_1_DYN_CONF	12			Hex	0	FFFF			New configuration data 09
5B	SM_1_DYN_CONF	13			Hex	0	FFFF			New configuration data 10
5B	SM_1_DYN_CONF	14			Hex	0	FFFF			New configuration data 11
5B	SM_1_DYN_CONF	15			Hex	0	FFFF			New configuration data 12
5B	SM_1_DYN_CONF	16			Hex	0	FFFF			New configuration data 13
5B	SM_1_DYN_CONF	17			Hex	0	FFFF			New configuration data 14
5B	SM_1_DYN_CONF	18			Hex	0	FFFF			New configuration data 15
5B	SM_1_DYN_CONF	19			Hex	0	FFFF			New configuration data 16
5B	SM_1_DYN_CONF	20			Hex	0	FFFF			New configuration data 17
5B	SM_1_DYN_CONF	21			Hex	0	FFFF			New configuration data 18
5B	SM_1_DYN_CONF	22			Hex	0	FFFF			New configuration data 19
5B	SM_1_DYN_CONF	23			Hex	0	FFFF			New configuration data 20
5B	SM_1_DYN_CONF	24			Hex	0	FFFF			New configuration data 21
5B	SM_1_DYN_CONF	25			Hex	0	FFFF			New configuration data 22



63	SM_2_ICE_ON	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
63	SM_2_ICE_ON	01	0-7		Hex		63			Command Identifier
63	SM_2_ICE_ON	01	8-15		Hex	0	FF			Sequence Identifier
63	SM_2_ICE_ON	02			Hex	0	FFFF			CRC
63	SM_2_ICE_ON	03			Hex	0	FF			Target Temperature
63	SM_2_ICE_ON	04			Hex	0	FFFF	Minutes		Duration
63	SM_2_ICE_ON	05-32			Hex	0	0			Spare (0)
64	SM_2_HOP_EN	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
64	SM_2_HOP_EN	01	0-7		Hex					Command Identifier
64	SM_2_HOP_EN	01	8-15		Hex	0	FF			Sequence Identifier
64	SM_2_HOP_EN	02			Hex	0	FFFF			CRC
64	SM_2_HOP_EN	03-32			Hex	0	0			Spare (0)
65	SM_2_HOP_TEST	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
65	SM_2_HOP_TEST	01	0-7		Hex					Command Identifier
65	SM_2_HOP_TEST	01	8-15		Hex	0	FF			Sequence Identifier
65	SM_2_HOP_TEST	02			Hex	0	FFFF			CRC
65	SM_2_HOP_TEST	03-32			Hex	0	0			Spare (0)
67	SM_2_HOP_ACT	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
67	SM_2_HOP_ACT	01	0-7		Hex					Command Identifier
67	SM_2_HOP_ACT	01	8-15		Hex	0	FF			Sequence Identifier
67	SM_2_HOP_ACT	02			Hex	0	FFFF			CRC
67	SM_2_HOP_ACT	03			Hex	0	FFFF	Seconds		Duration
67	SM_2_HOP_ACT	04-32			Hex	0	0			Spare (0)
69	SM_2_CONF	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
69	SM_2_CONF	01	0-7		Hex					Command Identifier
69	SM_2_CONF	01	8-15		Hex	0	FF			Sequence Identifier
69	SM_2_CONF	02			Hex	0	FFFF			CRC
69	SM_2_CONF	03			Hex	0	20			Configuration Number
69	SM_2_CONF	04-32			Hex	0	0			Spare (0)



6D	SM_2_MOTOR	00			Hex	1480	1480	1480	1480			SMEI Sub-Address 4
6D	SM_2_MOTOR	01	0-7		Hex				6D			Command Identifier
6D	SM_2_MOTOR	01	8-15		Hex	0	FF	FF				Sequence Identifier
6D	SM_2_MOTOR	02			Hex	0	FFFF	FFFF				CRC
6D	SM_2_MOTOR	03			Hex	0	3					Coil
6D	SM_2_MOTOR	04			Hex	0	4			Seconds		Duration
6D	SM_2_MOTOR	05-32			Hex	0	0	0	0			Spare (0)
71	SM_3_PWR_ON	00			Hex	1480	1480	1480	1480			SMEI Sub-Address 4
71	SM_3_PWR_ON	01	0-7		Hex				71			Command Identifier
71	SM_3_PWR_ON	01	8-15		Hex	0	FF	FF				Sequence Identifier
71	SM_3_PWR_ON	02			Hex	0	FFFF	FFFF				CRC
71	SM_3_PWR_ON	03-32			Hex	0	0	0	0			Spare (0)
72	SM_3_ICE_OFF	00			Hex	1480	1480	1480	1480			SMEI Sub-Address 4
72	SM_3_ICE_OFF	01	0-7		Hex				72			Command Identifier
72	SM_3_ICE_OFF	01	8-15		Hex	0	FF	FF				Sequence Identifier
72	SM_3_ICE_OFF	02			Hex	0	FFFF	FFFF				CRC
72	SM_3_ICE_OFF	03-32			Hex	0	0	0	0			Spare (0)
73	SM_3_ICE_ON	00			Hex	1480	1480	1480	1480			SMEI Sub-Address 4
73	SM_3_ICE_ON	01	0-7		Hex				73			Command Identifier
73	SM_3_ICE_ON	01	8-15		Hex	0	FF	FF				Sequence Identifier
73	SM_3_ICE_ON	02			Hex	0	FFFF	FFFF				CRC
73	SM_3_ICE_ON	03			Hex	0	FF	FF				Target Temperature
73	SM_3_ICE_ON	04			Hex	0	FFFF	FFFF		Minutes		Duration
73	SM_3_ICE_ON	05-32			Hex	0	0	0	0			Spare (0)
74	SM_3_HOP_EN	00			Hex	1480	1480	1480	1480			SMEI Sub-Address 4
74	SM_3_HOP_EN	01	0-7		Hex				74			Command Identifier
74	SM_3_HOP_EN	01	8-15		Hex	0	FF	FF				Sequence Identifier
74	SM_3_HOP_EN	02			Hex	0	FFFF	FFFF				CRC
74	SM_3_HOP_EN	03-32			Hex	0	0	0	0			Spare (0)

75	SM_3_HOP_TEST	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
75	SM_3_HOP_TEST	01	0-7		Hex			75		Command Identifier
75	SM_3_HOP_TEST	01	8-15		Hex	0	FF			Sequence Identifier
75	SM_3_HOP_TEST	02			Hex	0	FFFF			CRC
75	SM_3_HOP_TEST	03-32			Hex	0	0	0		Spare (0)
77	SM_3_HOP_ACT	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
77	SM_3_HOP_ACT	01	0-7		Hex			77		Command Identifier
77	SM_3_HOP_ACT	01	8-15		Hex	0	FF			Sequence Identifier
77	SM_3_HOP_ACT	02			Hex	0	FFFF			CRC
77	SM_3_HOP_ACT	03			Hex	0	FFFF	0	Seconds	Duration
77	SM_3_HOP_ACT	04-32			Hex	0	0	0		Spare (0)
79	SM_3_CONF	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
79	SM_3_CONF	01	0-7		Hex			79		Command Identifier
79	SM_3_CONF	01	8-15		Hex	0	FF			Sequence Identifier
79	SM_3_CONF	02			Hex	0	FFFF			CRC
79	SM_3_CONF	03			Hex	0	20	0		Configuration Number
79	SM_3_CONF	04-32			Hex	0	0	0		Spare (0)
7B	SM_3_DYN_CONF	00			Hex	1480	1480	1480	1480	SMEI Sub-Address 4
7B	SM_3_DYN_CONF	01	0-7		Hex			7B		Command Identifier
7B	SM_3_DYN_CONF	01	8-15		Hex	0	FF			Sequence Identifier
7B	SM_3_DYN_CONF	02			Hex	0	FFFF			CRC
7B	SM_3_DYN_CONF	03			Hex	0	FFFF			New configuration data 00
7B	SM_3_DYN_CONF	04			Hex	0	FFFF			New configuration data 01
7B	SM_3_DYN_CONF	05			Hex	0	FFFF			New configuration data 02
7B	SM_3_DYN_CONF	06			Hex	0	FFFF			New configuration data 03
7B	SM_3_DYN_CONF	07			Hex	0	FFFF			New configuration data 04
7B	SM_3_DYN_CONF	08			Hex	0	FFFF			New configuration data 05
7B	SM_3_DYN_CONF	09			Hex	0	FFFF			New configuration data 06
7B	SM_3_DYN_CONF	10			Hex	0	FFFF			New configuration data 07
7B	SM_3_DYN_CONF	11			Hex	0	FFFF			New configuration data 08
7B	SM_3_DYN_CONF	12			Hex	0	FFFF			New configuration data 09

7B	SM_3_DYN_CONF	13				Hex	0	FFFF				New configuration data 10
7B	SM_3_DYN_CONF	14				Hex	0	FFFF				New configuration data 11
7B	SM_3_DYN_CONF	15				Hex	0	FFFF				New configuration data 12
7B	SM_3_DYN_CONF	16				Hex	0	FFFF				New configuration data 13
7B	SM_3_DYN_CONF	17				Hex	0	FFFF				New configuration data 14
7B	SM_3_DYN_CONF	18				Hex	0	FFFF				New configuration data 15
7B	SM_3_DYN_CONF	19				Hex	0	FFFF				New configuration data 16
7B	SM_3_DYN_CONF	20				Hex	0	FFFF				New configuration data 17
7B	SM_3_DYN_CONF	21				Hex	0	FFFF				New configuration data 18
7B	SM_3_DYN_CONF	22				Hex	0	FFFF				New configuration data 19
7B	SM_3_DYN_CONF	23				Hex	0	FFFF				New configuration data 20
7B	SM_3_DYN_CONF	24				Hex	0	FFFF				New configuration data 21
7B	SM_3_DYN_CONF	25				Hex	0	FFFF				New configuration data 22
7B	SM_3_DYN_CONF	26				Hex	0	FFFF				New configuration data 23
7B	SM_3_DYN_CONF	27				Hex	0	FFFF				New configuration data 24
7B	SM_3_DYN_CONF	28				Hex	0	FFFF				New configuration data 25
7B	SM_3_DYN_CONF	29				Hex	0	FFFF				New configuration data 26
7B	SM_3_DYN_CONF	30				Hex	0	FFFF				New configuration data 27
7B	SM_3_DYN_CONF	31				Hex	0	FFFF				New configuration data 28
7B	SM_3_DYN_CONF	32				Hex	0	FFFF				New configuration data 29
7D	SM_3_MOTOR	00				Hex	1480	1480		1480		SMEI Sub-Address 4
7D	SM_3_MOTOR	01			0-7	Hex				7D		Command Identifier
7D	SM_3_MOTOR	01			8-15	Hex	0	FF				Sequence Identifier
7D	SM_3_MOTOR	02				Hex	0	FFFF				CRC
7D	SM_3_MOTOR	03				Hex	0	3				Coil
7D	SM_3_MOTOR	04				Hex	0	4			Seconds	Duration
7D	SM_3_MOTOR	05-32				Hex	0	0				Spare (0)

CMD ID	CMD MNEMONIC	Parameter#	Bits	Data Type	Min	Max	Default	Units	Description
	Keep to 10 characters Fill in characters 0-9 only SM_0123456789								
0E	SM_EMERG_SAFE	00	0-15	Hex	14A0	14A0	14A0		SMEI Sub-Address 5
0E	SM_EMERG_SAFE	01	0-7	Hex	0E	0E	0E		Command Identifier
0E	SM_EMERG_SAFE	01	8-15	Hex	FF	FF	FF		Sequence Identifier
0E	SM_EMERG_SAFE	02	0-15	Hex	0	FFFF			CRC
0E	SM_EMERG_SAFE	03	0-15	Hex	C369	C369	C369		Verification Code
0E	SM_EMERG_SAFE	04-32	0-15	Hex	0	0	0		Spare (0)

CMD ID	CMD MNEMONIC	Parameter#	Bits	Data Type	Min	Max	Default	Units	Description
	Keep to 10 characters Fill in characters 0-9 only SM_0123456789								
*	SM_SC_ATT	00	0-15	Hex	14C0	14C0	14C0		SMEI Sub-Address 6
	SM_SC_ATT	01	0-15	Hex					Packet Identifiers
	SM_SC_ATT	02	0-15	Hex	0	FFFF			CRC
	SM_SC_ATT	03	0-15	Hex	0	FFFF		Seconds	UTC Seconds (MSW)
	SM_SC_ATT	04	0-15	Hex	0	FFFF		Seconds	UTC Seconds (LSW)
	SM_SC_ATT	05	0-15	Hex	0	FFFF			UTC Subseconds
	SM_SC_ATT	06-31	0-15	Hex	0	FFFF			Attitude Data (ICD Figure C6.3)
	SM_SC_ATT	32	0-15	Hex	0	FFFF	0		Spare (0)

\* Not really a SMEI command. Here for completeness