Command Handbook

For the HuskySat-1 Mission

Table of Contents

Commands

CMD_BATT_BAL_ENABLE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_BATT_BAL_ENABLE_ENABLE	enable? (or disable if false)	0	1	0	224	1	UINT	

State	Value
FALSE	0
TRUE	1

CMD_BATT_RST

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_BATT_RST_CONFIRM	Do we really want to reset all stastics?	0	1	0	224	1	UINT	

State	Value
FALSE	0
TRUE	1

CMD_IGNORE_FSW

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_IGNORE_FSW_IGNORE	ignore the bdot commands from fsw	0	1	0	224	1	UINT	

State	Value
FALSE	0
TRUE	1

CMD_PPT_SINGLE_FIRE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_PPT_SINGLE_FIRE_WITH_PULSE	Do we fire or just charge?	0	1	0	224	1	UINT	

State	Value
FALSE	0
TRUE	1

CMD_PPT_SINGLE_FIRE_OVERRIDE	Do we fire or just charge? **State** / **Value** FALSE / 0 TRUE / 1	0	1	0	225	1	UINT
CMD_PPT_SINGLE_FIRE_OVERRIDE_SMT	Whether the Schmidt Trigger is checked **State** / **Value** FALSE / 0 TRUE / 1	0	1	0	226	1	UINT

CMD_PPT_TIME_UPD

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_PPT_TIME_UPD_CHARGE	PPT Main Capacitor Charge Time	0	65535	0	224	16	UINT	
CMD_PPT_TIME_UPD_IGN_DELAY	PPT Main Igniter Delay	0	65535	0	240	16	UINT	
CMD_PPT_TIME_UPD_IGN_CHARGE	PPT Igniter Charge Time	0	65535	0	256	16	UINT	
CMD_PPT_TIME_UPD_COOLDOWN	PPT Cooldown Time	0	65535	0	272	16	UINT	

CMD_ROLLCALL

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
CMD_ROLLCALL_MSP		0	255	0	224	8	UINT	
CMD_ROLLCALL_MET	Mission Elapsed Time	0	1099511627775	0	232	40	UINT	
CMD_ROLLCALL_TYPE	Rollcall Type (Unused for now)	0	255	0	272	8	UINT	

GCMD_AUTOSEQ_ADD_1

propertires of autosequencer entry

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_ADD_1_CAN_ID	the CAN Id of the message to add	0	536870911	0	224	29	UINT	
GCMD_AUTOSEQ_ADD_1_MET	the MET of the entry to add	0	4294967295	0	253	32	UINT	
GCMD_AUTOSEQ_ADD_1_SENDFLG	whether the CAN packet should send	0	1	0	285	1	UINT	

GCMD_AUTOSEQ_ADD_2

data of CAN packet to be added to the autosequencer

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_ADD_2_DATA	the data of the CAN packet to be added to the autosequencer	0	18446744073709600768	0	224	64	UINT	

GCMD_AUTOSEQ_ENABLE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_ENABLE_ENABLE	<table><tr><th>State</th><th>Value</th></tr><tr><td>FALSE</td><td>0</td></tr><tr><td>TRUE</td><td>1</td></tr><tr><td>NULL</td><td>2</td></tr></table>	0	255	0	224	8	UINT	

GCMD_AUTOSEQ_GET_INDICES

get indices of the specified packet in the autosequencer

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_GET_INDICES_ID	the CAN Id	0	536870911	0	224	29	UINT	

GCMD_AUTOSEQ_GET_MET

get MET of the item at the specified index of the autosequencer

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_GET_MET_INDEX	the index	0	255	0	224	8	UINT	

GCMD_AUTOSEQ_REMOVE_CAN_ID

remove all occurrence of the specified CAN Id in the autosequencer

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_REMOVE_CAN_ID_ID	remove all occurrences of the specified CAN Id in the autosequencer	0	536870911	0	224	29	UINT	

GCMD_AUTOSEQ_RM_AT_INDEX

remove the autosequencer entry at the specified index

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_AUTOSEQ_RM_AT_INDEX_INDEX	the index	0	255	0	224	8	UINT	

GCMD_BATT_SET_BAL_AUTO

Sets the state of battery balancer automation

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BATT_SET_BAL_AUTO_STATE	What state the battery balancer automation should be set to **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	224	2	UINT	

GCMD_BATT_SET_HEATER_CHECK

enables/disables battery heater automation

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BATT_SET_HEATER_CHECK_STATE	the state of heater automation **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	224	2	UINT	

GCMD_BDOT_CONTROL

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BDOT_CONTROL_MODE	Chooses mode that bdot is in: 0 = NORMAL_MODE , 1 = SLEEP_MODE **State** / **Value** NORMAL_MODE / 0 SLEEP_MODE / 1 SPAM_MAG_SELF_TEST / 2 SPAM / 3	0	3	0	224	2	UINT	

GCMD_BDOT_MAG_CONTROL

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BDOT_MAG_CONTROL_MODE	Choose the best fit magnetometer from ground. 0	0	3	0	224	2	UINT	

= Auto, 1 = BDOT, 2 = SP1, 3 = SP2

State	Value
AUTO_MODE	0
BDOT_MODE	1
SP1_MODE	2
SP2_MODE	3

GCMD_BDOT_MAX_TUMBLE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BDOT_MAX_TUMBLE_TIME	Chooses the maximum time bdot is tumbling continuously. If bdot tumbles for longer than this time, will automatically go into sleep mode. Units: Minutes	0	65535	0	224	16	UINT	

GCMD_BDOT_POLE_OVERRIDE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BDOT_POLE_OVERRIDE_GAIN_X	Percentage dipole gain on x axis	0	255	0	224	8	UINT	
GCMD_BDOT_POLE_OVERRIDE_GAIN_Y	Percentage dipole gain on y axis	0	255	0	232	8	UINT	
GCMD_BDOT_POLE_OVERRIDE_GAIN_Z	Percentage dipole gain on z axis	0	255	0	240	8	UINT	
GCMD_BDOT_POLE_OVERRIDE_X	Flips the dipole signs on bdot x axis before sending command to mtq **State** / **Value** FALSE 0 TRUE 1 NULL 2	0	2	0	248	2	UINT	
GCMD_BDOT_POLE_OVERRIDE_Y	Flips the dipole signs on bdot y axis before sending command to mtq **State** / **Value** FALSE 0 TRUE 1 NULL 2	0	2	0	250	2	UINT	
GCMD_BDOT_POLE_OVERRIDE_Z	Flips the dipole signs on bdot z axis before sending command to mtq **State** / **Value**	0	2	0	252	2	UINT	

FALSE	0
TRUE	1
NULL	2

GCMD_BDOT_SPAM

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_BDOT_SPAM_TIME_ON	Chooses the amount of minutes in between SPAM	0	65535	0	224	16	UINT	
GCMD_BDOT_SPAM_TIME_OFF	Chooses the amount of time SPAM should be on for	0	65535	0	240	16	UINT	
GCMD_BDOT_SPAM_MAGNITUDE_X	What magnitude the magnetorquer should spam on x axis	-100	100	0	256	8	INT	
GCMD_BDOT_SPAM_MAGNITUDE_Y	What magnitude the magnetorquer should spam on y axis	-100	100	0	264	8	INT	
GCMD_BDOT_SPAM_MAGNITUDE_Z	What magnitude the magnetorquer should spam on z axis	-100	100	0	272	8	INT	
GCMD_BDOT_SPAM_CONTROL	Turn spam on or off **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	2	0	280	2	UINT	

GCMD_COM2_RUN

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_COM2_RUN_FILENO	Which file to run	0	255	0	224	8	UINT	
GCMD_COM2_RUN_JUMP	Do you want to jump the queue? **State** / **Value**: FALSE 0; TRUE 1	0	1	0	232	1	UINT	
GCMD_COM2_RUN_CLEAR	Do you want to clear the queue and run? **State** / **Value**: FALSE 0; TRUE 1	0	1	0	233	1	UINT	

GCMD_DIST_AUTOSHUTOFF

Set the status of dist autoshutoff for each power domain

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_AUTOSHUTOFF_COM2	Whether autoshutoff is enabled on the power domain **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	224	2	UINT	
GCMD_DIST_AUTOSHUTOFF_RAHS	Whether autoshutoff is enabled on the power domain **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	226	2	UINT	
GCMD_DIST_AUTOSHUTOFF_BDOT	Whether autoshutoff is enabled on the power domain **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	228	2	UINT	
GCMD_DIST_AUTOSHUTOFF_ESTIM	Whether autoshutoff is enabled on the power domain **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	230	2	UINT	
GCMD_DIST_AUTOSHUTOFF_EPS	Whether autoshutoff is enabled on the power domain **State** / **Value** FALSE / 0 TRUE / 1 NULL / 2	0	3	0	232	2	UINT	
GCMD_DIST_AUTOSHUTOFF_PPT	Whether autoshutoff is enabled on the power	0	3	0	234	2	UINT	

domain

State	Value
FALSE	0
TRUE	1
NULL	2

GCMD_DIST_RESET_MISSION

Resets MET and autosequencer, also sets the autosequencer to be reinitialized on next powerup

GCMD_DIST_SELF_RESTART

Causes dist to self-restart

GCMD_DIST_SET_PD_OVC_BDOT

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_BDOT_OVC	Set PD overcurrent BDOT	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_COM2

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_COM2_OVC	set PD Overcurrent Com2	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_EPS

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_EPS_OVC	Set PD Overcurrent EPS	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_ESTIM

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_ESTIM_OVC	Set PD overcurrent ESTIM	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_PPT

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_PPT_OVC	Set PD overcurrent PPT	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_RAHS

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_RAHS_OVC	Set PD overcurrent RAHS	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_OVC_WHEELS

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_OVC_WHEELS_OVC	Set PD Overcurrent Weels	0.0	15.0	0.0	224	32	FLOAT	

GCMD_DIST_SET_PD_STATE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_STATE_COM1	Enables or disables the power switch to com1 power domain	0	3	0	224	2	UINT	

State	Value
FALSE	0
TRUE	1
NULL	2

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_STATE_COM2	Enables or disables the power switch to com2 power domain	0	3	0	226	2	UINT	

State	Value
FALSE	0
TRUE	1
NULL	2

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_STATE_RAHS	Enables or disables the power switch to rahs power domain	0	3	0	228	2	UINT	

State	Value
FALSE	0
TRUE	1
NULL	2

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_DIST_SET_PD_STATE_BDOT	Enables or disables the power switch to BDOT power domain	0	3	0	230	2	UINT	

State	Value
FALSE	0
TRUE	1

NULL	2

GCMD_DIST_SET_PD_STATE_ESTIM	Enables or disables the power switch to the estimator power domain **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	3	0	232	2	UINT
GCMD_DIST_SET_PD_STATE_WHEELS	Enables or disables the power switch to the reaction wheels (empty power domain) **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	3	0	234	2	UINT
GCMD_DIST_SET_PD_STATE_EPS	Enables or disables the power switch to the EPS power domain **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	3	0	236	2	UINT
GCMD_DIST_SET_PD_STATE_PPT	Enables or disables the power switch to the PPT power domain **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	3	0	238	2	UINT

GCMD_EPS_BATT_FULLDEF

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_EPS_BATT_FULLDEF_CONST_VOLT	Limits for detecting a full state on the battery (voltage must be greater than this value)	0.0	8.0	0.0	224	32	FLOAT	
GCMD_EPS_BATT_FULLDEF_CHG_CURR	Limits for detecting a full state on the battery (current must be less than this value)	0.0	1.0	0.0	256	32	FLOAT	

GCMD_GEN_SET_PT_STATE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_GEN_SET_PT_STATE_1	enables or disables Power Tracker #1	0	3	0	224	2	UINT	
GCMD_GEN_SET_PT_STATE_2	enables or disables Power Tracker #2	0	3	0	226	2	UINT	
GCMD_GEN_SET_PT_STATE_3	enables or disables Power Tracker #3	0	3	0	228	2	UINT	

State	Value
FALSE	0
TRUE	1
NULL	2

GCMD_MTQ_PMS

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_MTQ_PMS_X	Sets permamenent dipole strength	-100	100	0	224	8	INT	
GCMD_MTQ_PMS_Y	Sets permamenent dipole strength	-100	100	0	232	8	INT	
GCMD_MTQ_PMS_Z	Sets permamenent dipole strength	-100	100	0	240	8	INT	
GCMD_MTQ_PMS_ENABLE	turns on permanent magnet setting	0	2	0	248	2	UINT	

State	Value
FALSE	0
TRUE	1
NULL	2

GCMD_MTQ_POP

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units

GCMD_MTQ_POP_X	flips the polarity on mtq x axis **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	2	0	224	2	UINT
GCMD_MTQ_POP_Y	flips the polarity on mtq y axis **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	2	0	226	2	UINT
GCMD_MTQ_POP_Z	flips the polarity on mtq z axis **State** / **Value**: FALSE 0; TRUE 1; NULL 2	0	2	0	228	2	UINT

GCMD_MTQ_PWM_TIME

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_MTQ_PWM_TIME_ACTUATION		0	255	0	224	8	UINT	
GCMD_MTQ_PWM_TIME_MEASUREMENT		0	255	0	232	8	UINT	

GCMD_PPT_HALT

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_PPT_HALT_CONFIRM	Are you sure you want to halt the ppt? **State** / **Value**: FALSE 0; TRUE 1	0	1	0	224	1	UINT	

GCMD_PPT_MULTIPLE_FIRE

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_PPT_MULTIPLE_FIRE_COUNT	How many times to fire	0	255	0	224	8	UINT	

GCMD_PPT_MULTIPLE_FIRE_OVERRIDE	Ppt fire override	0	1	0	232	1	UINT

State	Value
FALSE	0
TRUE	1

GCMD_RESET_MINMAX

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_RESET_MINMAX_BDOT	Whether to reset the subsystem	0	1	0	224	1	UINT	
GCMD_RESET_MINMAX_PPT	Whether to reset the subsystem	0	1	0	225	1	UINT	
GCMD_RESET_MINMAX_DIST	Whether to reset the subsystem	0	1	0	226	1	UINT	
GCMD_RESET_MINMAX_GEN	Whether to reset the subsystem	0	1	0	227	1	UINT	
GCMD_RESET_MINMAX_BATT	Whether to reset the subsystem	0	1	0	228	1	UINT	
GCMD_RESET_MINMAX_ESTIM	Whether to reset the subsystem	0	1	0	229	1	UINT	
GCMD_RESET_MINMAX_MPC	Whether to reset the subsystem	0	1	0	230	1	UINT	
GCMD_RESET_MINMAX_SENSORPROC	Whether to reset the subsystem	0	1	0	231	1	UINT	
GCMD_RESET_MINMAX_MTQ	Whether to reset the subsystem	0	1	0	232	1	UINT	

GCMD_SP_SET_THRESH

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GCMD_SP_SET_THRESH_THRESH	Any magnetometer reading outside of +/- the set threshold will be discarded as invalid	0	65535	0	224	16	UINT	

GRND_EPOCH

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
GRND_EPOCH_VAL		0	1099511627775	0	224	40	UINT	

TLE_1

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
TLE_1_BSTAR	TLE BSTAR drag term	-3.4e+38	3.4e+38	0.0	224	32	FLOAT	
TLE_1_MNA		-3.4e+38	3.4e+38	0.0	256	32	FLOAT	

TLE_2

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
TLE_2_DAY	TLE Day of yr	-1.7e+308	1.7e+308	0.0	224	64	FLOAT	

TLE_3

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
TLE_3_INC	TLE Orbital inclination	-3.4e+38	3.4e+38	0.0	224	32	FLOAT	
TLE_3_ECC	TLE Eccentricity	-3.4e+38	3.4e+38	0.0	256	32	FLOAT	

TLE_4

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
TLE_4_RAAN	TLE Rt ascension of the asc. node	-3.4e+38	3.4e+38	0.0	224	32	FLOAT	
TLE_4_AOP	TLE Argument of perigee	-3.4e+38	3.4e+38	0.0	256	32	FLOAT	

TLE_5

Item Name	Description	Min	Max	Default	Bit Offset	Bit Size	Data Type	Units
TLE_5_MNM		-1.7e+308	1.7e+308	0.0	224	64	FLOAT	