Telemetry Format

Table 57: State Telemetry Format

ID	188		**Frame Length (bytes)**		3

Description	All Service States				
Channels	**Offset (bits)**	**Length (bits)**	**Name**	**Data Type**	**Description**
	0	8	MagSvc State	ENUM	CubeMag Service State. Possible values are in Table 58
	8	8	Primary Mag State	ENUM	Primary Magnetometer State. Possible values are in Table 59
	16	8	Red Mag State	ENUM	Redundant Magnetometer State. Possible values are in Table 59

Table 58: MagState Enumeration Values

Numeric Value	Name	Description
0	Deploy Arm	CubeMag Svc is Armed to Deploy
1	Deploy	CubeMag Svc is Deploying
2	Idle	CubeMag Svc is Idle
3	Error	CubeMag Svc is in an error state

Table 59: MntState Enumeration Values

Numeric Value	Name	Description
0	Off	Mnt Svc is off
1	Init	Mnt Svc is Initializing
2	Idle	Mnt Svc is Idle
3	Auto	Mnt Svc is Auto Sampling
4	Sample	Mnt Svc is Sampling
5	Error	Mnt Svc is in an error state

Table 61: Deployment Status Telemetry Format

ID	190		**Frame Length (bytes)**		5
Description	Deployment Status. Only Applicable to CubeMag Deploy type				
Channels	**Offset (bits)**	**Length (bits)**	**Name**	**Data Type**	**Description**
	0	32	Burn Current	UINT	Burn Wire Current. (Unit of measure is [mA])

	32	1	Deployment Pin State	BOOL	Deployment Detection Pin State
	33	1	Burn Pin State	BOOL	Deployment Burn Wire Enable Pin State
	34	1	Burn UnderCurrent	BOOL	Burn Wire Under Current Flag
	35	1	Burn OverCurrent	BOOL	Burn Wire Over Current Flag
	36	1	Deployment Timeout	BOOL	CubeMag did not detect deployment before configured timeout

Table 64: Redundant Magnetometer Measurement Telemetry Format

ID	193		**Frame Length (bytes)**		13
Description	Redundant Magnetometer Measurement				
Channels	**Offset (bits)**	**Length (bits)**	**Name**	**Data Type**	**Description**
	0	32	X_axis	FLOAT	X_axis. (Unit of measure is [nT])
	32	32	Y_axis	FLOAT	Y_axis. (Unit of measure is [nT])
	64	32	Z_axis	FLOAT	Z_axis. (Unit of measure is [nT])
	96	1	Data Valid	BOOL	Is Data Valid

Table 68: Primary Magnetometer Measurement Telemetry Format

ID	197		**Frame Length (bytes)**		13
Description	Primary Magnetometer Measurement				
Channels	**Offset (bits)**	**Length (bits)**	**Name**	**Data Type**	**Description**
	0	32	X_axis	FLOAT	X_axis. (Unit of measure is [nT])
	32	32	Y_axis	FLOAT	Y_axis. (Unit of measure is [nT])
	64	32	Z_axis	FLOAT	Z_axis. (Unit of measure is [nT])
	96	1	Data Valid	BOOL	Is Data Valid

Table 47 : Wheel Speed Telemetry Format

ID	188		**Frame Length (bytes)**		5
Description	Wheel speed measurement				
Channels	**Offset (bits)**	**Length (bits)**	**Name**	**Data Type**	**Description**
	0	32	Wheel Speed	FLOAT	Wheel speed measurement in rpm. (Unit of measure is [RPM])
	32	8	Wheel Error State	ENUM	Wheel error state. Possible values are in Table 48

Table 48 : WheelErrorState Enumeration Values

Numeric Value	Name	Description
0	Data Valid	Data is valid
1	Encoder No Response	No response from encoder
2	Hall Sensor Encoder Mismatch	Mismatch between speed reported from hall sensors vs that of encoder
3	Speed Not Reached Timeout	Speed setpoint not reached within allocated time period

Table 56 : Wheel Reference Speed Telemetry Format

ID	196		Frame Length (bytes)	4
Description	Set momentum wheel reference speed			
Channels	Offset (bits)	Length (bits)	Name	Data Type	Description
	0	32	Reference Speed	FLOAT	Wheel reference speed. (Unit of measure is [RPM])

Table 57 : Motor Power Telemetry Format

ID	197		Frame Length (bytes)	1
Description	Switch motor power on/off			
Channels	Offset (bits)	Length (bits)	Name	Data Type	Description
	0	1	Motor Power Switch	BOOL	Switch motor power switch on/off

wheel reference torque 186번 못찾겠음