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Frame Configuration (0x13,0x01)

Description	Defines an aiding frame associated with a specific sensor frame ID.	
Notes	<p>The frame ID used in this command should mirror the frame ID used in the aiding command (if that aiding measurement is measured in this reference frame).</p> <p>This transform satisfies the following relationship:</p> <p>Where: R is rotation matrix defined by the rotation component and t is the translation vector</p> <p>\vec{p} is a 3-element position vector expressed in the external sensor frame \vec{v} is a 3-element position vector expressed in the vehicle frame</p> <p>Rotation can be defined using Euler angles OR quaternions. If Format selector is set to Euler Angles, the fourth element in the rotation vector is ignored and should be set to 0.</p> <p>When the tracking_enabled flag is 1, the Kalman filter will track errors in the provided frame definition; when 0, no errors are tracked.</p> <p>Example: GNSS antenna lever arm</p> <p>Frame ID: 1 Format: 1 (Euler) Translation: [0,1,] (GNSS with a 1 meter Y offset in the vehicle frame) Rotation: [0,0,0,0] (Rotational component is not relevant for GNSS measurements, set to zero)</p>	
Parameter Name	Data Type	Description
<i>Field Length</i>	<i>u8</i>	6
<i>Descriptor</i>	<i>u8</i>	0x01
<i>Function Selector</i>	<i>u8</i>	This command supports the following MIP function selectors: Write Read Save Load Default [WRSLD]

Frame Id [WRSLD]	u8	Reference frame number. Limit 4.									
Format [WR]	u8 enum	<p>Format of the transformation.</p> <table border="1"> <thead> <tr> <th>Name</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>EULER</td><td>1</td><td>Translation vector followed by euler angles (roll, pitch, yaw).</td></tr> <tr> <td>QUATERNION</td><td>2</td><td>Translation vector followed by quaternion (w, x, y, z).</td></tr> </tbody> </table>	Name	Value	Description	EULER	1	Translation vector followed by euler angles (roll, pitch, yaw).	QUATERNION	2	Translation vector followed by quaternion (w, x, y, z).
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EULER	1	Translation vector followed by euler angles (roll, pitch, yaw).									
QUATERNION	2	Translation vector followed by quaternion (w, x, y, z).									
Tracking Enabled [W]	bool	If enabled, the Kalman filter will track errors.									
Translation [W]	Vector3f	Translation X, Y, and Z.									
Rotation [W]	Rotation	Rotation as specified by format.									
Ack/Nack Reply	See standard MIP ack/nack reply format.										
Response Data	Data Type	Description									
Response Length	u8	5									
Response Descriptor	u8	0x81									
Frame Id	u8	Reference frame number. Limit 4.									
Format	u8 enum	<p>Format of the transformation.</p> <table border="1"> <thead> <tr> <th>Name</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>EULER</td><td>1</td><td>Translation vector followed by euler angles (roll, pitch, yaw).</td></tr> <tr> <td>QUATERNION</td><td>2</td><td>Translation vector followed by quaternion (w, x, y, z).</td></tr> </tbody> </table>	Name	Value	Description	EULER	1	Translation vector followed by euler angles (roll, pitch, yaw).	QUATERNION	2	Translation vector followed by quaternion (w, x, y, z).
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Tracking Enabled	bool	If enabled, the Kalman filter will track errors.									
Translation	Vector3f	Translation X, Y, and Z.									
Rotation	Rotation	Rotation as specified by format.									

Structures

Rotation

Description		
Parameter Name	Data Type	Description
Euler	Vector3f	Rotation represented as euler angles in RPY format [rad]. Range +/- pi.
Quaternion	Quatf	Rotation represented as a quaternion in WXYZ format.