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SETINSROTATION

Specifies rotational offsets between the IMU frame and other reference frames

Platform: OEM719, OEM729, OEM7500, OEM7600, OEM7700, OEM7720, PwrPak7, SPAN CPT7, SMART7-S, SMART7-SI

Firmware Stream: OEM7, Agriculture

Use the **SETINSROTATION** command to specify rotational offsets between the IMU frame and other reference frames, such as the vehicle frame or an ALIGN baseline. Offsets must be entered as the rotation from the IMU body frame, to the frame of interest. The order of rotations is Z, X, Y. All rotations are right handed.

It is very important to follow the order of rotations (Z, X, Y) when determining the rotations from IMU body frame to frame of interest.

To specify translational offsets between frames, see the [SETINSTRANSLOCATION command](#).

Message ID: 1921

Abbreviated ASCII Syntax:

```
SETINSROTATION INSRotation XRotation YRotation ZRotation [XRotationSD] [YRotationSD] [ZRotationSD]
```

Abbreviated ASCII Example:

```
SETINSROTATION RBV 0 0 90 0.0 0.0 0.0
```

Field	Field Type	ASCII Value	Binary Value	Description	Binary Format	Binary Bytes	Binary Offset
1	SETINSROTATION Header	-	-	Command header. See Messages for more information.	-	H	0
2	INS Rotation	Table: Rotational Offset Types		Rotational offset to be set.	Enum	4	H
3	XRotation	±180		X rotation offset from IMU origin (degrees)	Float	4	H+4
4	YRotation	±180		Y rotation offset from IMU origin (degrees)	Float	4	H+8
5	ZRotation	±180		Z rotation offset from IMU origin (degrees)	Float	4	H+12
6	XRotationSD	0 to 45		Optional X rotation offset standard deviation (degrees) Default: 0.0	Float	4	H+16
7	YRotationSD	0 to 45		Optional Y translation offset standard deviation (degrees) Default: 0.0	Float	4	H+20

Field	Field Type	ASCII Value	Binary Value	Description	Binary Format	Binary Bytes	Binary Offset
8	ZRotationSD	0 to 45		Optional Z translation offset standard deviation (degrees) Default: 0.0	Float	4	H+24
9	Reserved				Long	4	H+28

Rotational Offset Types

ASCII Value	Binary Value	Description
USER	4	Rotation from the IMU body frame to the user output frame. This offset shifts the attitude information in the INSPVA, INSPOS, INSVEL, INSATT, and INSSPD logs, along with their short header and extended versions.
MARK1	5	Rotation from the IMU body frame to the desired output for MARK1. This offset rotates the attitude information in the MARK1PVA log.
MARK2	6	Rotation from the IMU body frame to the desired output for MARK2. This offset rotates the attitude information in the MARK2PVA log.
ALIGN	8	Rotation from the IMU body frame to an ALIGN dual antenna solution. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;">When using a dual antenna ALIGN solution with SPAN, this offset will be calculated automatically if translational offsets to both the primary and secondary GNSS antennas are provided using the SETINSTRLATION command.</div>
MARK3	9	Rotation from the IMU body frame to the desired output for MARK3. This offset rotates the attitude information in the MARK3PVA log.
MARK4	10	Rotation from the IMU body frame to the desired output for MARK4. This offset rotates the attitude information in the MARK4PVA log.
RBV	11	Rotation from the IMU body frame to the vehicle frame.
RBM	12	Rotation from the IMU body frame to the gimbal mount body frame.

