GROUPPOSITIONCURRENTGET COMMAND ON HXP-ELEC & HXP-ELEC-D

The purpose of this technote is to highlight the difference between the ways GroupPositionCurrentGet command is handled on HXP-ELEC-D (newer hardware) vs. HXP-ELEC (older hardware), as well as recommend a solution for a single code to work with either hardware.

Summary of Differences:
HXP-ELEC (HXP-Q firmware):
- GroupPositionCurrentGet(Group, …) returns 6 coordinates (X,Y,Z,U,V,W) of Tool axes in Work
- GroupPositionCurrentGet(Group.1, …) returns the position of strut/actuator #1
- GroupPositionCurrentGet(Group.X, …) returns X coordinate of Tool axis in Work
- HexapodPositionCurrentGet(Group, …) not supported

HXP-ELEC-D (XPS-Unified firmware):
- GroupPositionCurrentGet(Group, …) returns individual struts/actuator positions for all 6 struts/actuators
- GroupPositionCurrentGet(Group.1, …) returns the position of strut/actuator #1
- GroupPositionCurrentGet(Group.X, …) returns X coordinate of Tool axis in Work
- HexapodPositionCurrentGet(Group, …) returns 6 coordinates (X,Y,Z,U,V,W) of Tool axes in Work

Recommended Solutions:
Two possible options to ensure the same software code works on both HXP-ELEC and HXP-ELEC-D controllers are shown below.

Option 1:
Use an API to find out the configuration (HXP ELEC or HXP-ELEC-D), and based on the answer, have the SW select the proper API to query, i.e. GroupPositionCurrentGet or HexapodPositionCurrentGet.

For example: If FirmwareVersionGet returns “XPS-D Standard…”, it means the hardware is HXP-ELEC-D, so HexapodPositionCurrentGet should be selected.

Option 2:
Use GroupPositionCurrentGet(Hexapod.X), GroupPositionCurrentGet(Hexapod.Y), etc. in the code for both HXP-ELEC and HXP-ELEC-D. This will allow getting axis coordinates using the same command, but needs to be sent for each axis individually/one axis at a time.
Appendix: Detailed command descriptions

**GroupPositionCurrentGet [HXP-ELEC-D]**

Gets the current position for all or individual positioners of the selected group.

*GroupName:*

When queried for the Group, this function returns the CurrentPosition for all positioners of the selected group. The current position is defined as:

\[
\text{CurrentPosition} = \text{SetpointPosition} - \text{FollowingError}
\]

*PositionerName:*

When queried for the positioner, this function returns the CurrentPosition for one positioner if PositionerName is:

- Hexapod.1
- Hexapod.2
- Hexapod.3
- Hexapod.4
- Hexapod.5
- Hexapod.6

Or

The X, Y, Z, U, V or W coordinate of the Hexapod platform, if *PositionerName* is:

- Hexapod.X
- Hexapod.Y
- Hexapod.Z
- Hexapod.U
- Hexapod.V
- Hexapod.W

**HexapodPositionCurrentGet [HXP-ELEC-D]**

This function returns the current X, Y, Z, U, V, W coordinates (all or individual) of the Hexapod platform.

*GroupName:*

When queried for the Group, this function returns X,Y,Z,U,V and W coordinates of Tool axes in Work system.

*PositionerName:*

When queried for the positioner, this function returns X,Y,Z,U,V, or W coordinate of Tool axis in Work system, if *PositionerName* is:

- Hexapod.X
- Hexapod.Y
- Hexapod.Z
- Hexapod.U
- Hexapod.V
- Hexapod.W

**GroupPositionCurentGet [HXP-ELEC]**

When queried for a group, returns current position of the Tool coordinate system in the Work coordinate system with X, Y, Z, U, V, W values. Otherwise, can return the current position for one positioners or coordinate of the selected group.