Effelsberg 100m Radio Telescope

SUBREFLECTOR PROGRAM USERS MANUAL

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Contents

Command Structure

All commands should start with the following structure:

EFFELSBERG:MTSUBREFLECTOR:[command]:[subcommand]

Where [command] & [subcommand] are entries defined below in sections

Commands

INTERLOCK

ACTIVATE

Activates the Interlock

DEACTIVATE

Deactivates the Interlock

SET float

Given one float (or int) value, sets the interlock elevation to the desired value. Value should be able to be converted to float, and must be provided otherwise error is returned

GET

Reads out the interlock elevation from the last received multicast message

HEXAPOD

SETABS float float float float float float float float

SETABS takes 8 floats expecting the following order:

x_lin y_lin z_lin v_lin x_rot y_rot z_rot v_rot

Note: Current implementation requires both linear and rotational axis to be filled. This may be patched in the future to give the option to only fill one axis.

All 6 values (velocities excluded) are checked to be within accepted safety margins of the MT Subreflector. If any fail, error is returned. Software trims edges of limits slightly due to a difficult bug caused if the motors surpass their axis limits (the MT Subreflector should check for these too, but issues have came up still). Limits of 6 axis are :
x_lin: between -225 mm and 225 mm
y_lin: between -175 mm and 175 mm
z_lin: between -195 mm and 45 mm
x_rot, y_rot, z_rot: between -0.95 deg and 0.95 deg

GETABS

Reads out the absolute positions of the 6 hexapod rotors in the following order:

x_lin y_lin z_lin x_rot y_rot z_rot

SETREL float float float float float float float float

SETREL takes 8 floats expecting the following order:

x_lin y_lin z_lin v_lin x_rot y_rot z_rot v_rot

Note: Current implementation requires both linear and rotational axis to be filled. This may be patched in the future to give the option to only fill one axis.

All 6 values (velocities excluded) are added to the current values of the motors found from an internal reference similar to GETABS. Values are appended to current values and checked to be within accepted safety margins of the MT Subreflector. If any fail, error is returned. Software trims edges of limits slightly due to a difficult bug caused if the motors surpass their axis limits (the MT Subreflector should check for these too, but issues have came up still).

Limits of 6 axis are :
x_lin: between -225 mm and 225 mm
y_lin: between -175 mm and 175 mm
z_lin: between -195 mm and 45 mm
x_rot, y_rot, z_rot: between -0.95 deg and 0.95 deg

DEACTIVATE

Deactivates the hexapod

ACTIVATE

Activates the hexapod

STOP

Immediately stops the hexapod?

INTERLOCK

We currently have no idea what this command does, the resources we have do not define it well

?

Returns all the possible hexapod commands that can be used

ASF

REST

—

PRESET

—

AUTO

—

OFFSET

—

IGNORE

Ignore any command input for asf

DEACTIVATE

Deactivates the asf

STOP

Immediately stops the asf?

ERROR

Acknowledges any errors produced by the asf to be dismissed

?

Returns all the possible asf commands that can be used

POLAR

GETABS

—

SETABS

—

SETREL

—

ACTIVATE

Activates the polar

IGNORE

—

DEACTIVATE

Deactivates the polar

STOP

Immediately stops polar?

ERROR

Acknowledges any errors produced by the asf to be dismissed

?

Returns all the possible asf commands that can be used

'message type not recognized. Correct types for polar' 'are: "GETABS", "SETABS", "SETREL",

References

Anand, U., 2010. The Elusive Free Radicals, *The Clinical Chemist,* [e-journal] Available at:<http://www.clinchem.org/content/56/10/1649.full.pdf> [Accessed 2 November 2013]