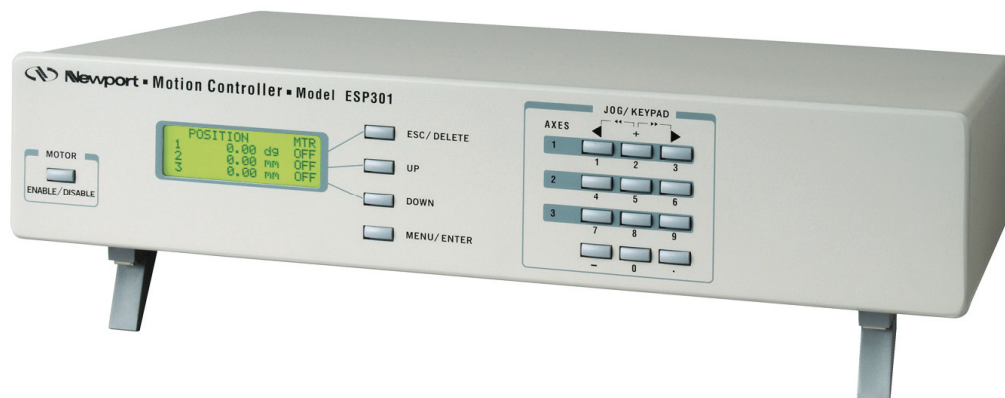


ESP301

Integrated 3-Axis Motion Controller/Driver



Newport®
Experience | Solutions 1.0.x

Commande Interface Manual

For Motion, Think Newport™

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ESP301

Integrated 3-Axis

Motion Controller/Driver

1.0 Introduction

1.1 Purpose

The purpose of this document is to provide the method Syntax of each command to communicate with the ESP301 device.

1.2 Overview

The Command Interface is the wrapper class that maintains a list of ESP301 instruments. It exposes methods to communicate with any ESP301 device.

NOTE

Each function name is defined with the command code “AA”.
For each command function, refer to the ESP301 programmer’s manual.

2.0 Command Interface

2.1 Constructor

ESP301()

The constructor is used to create an instance of the ESP301 device.

2.2 Functions

2.2.1 General

◆ CloseInstrument

Syntax

int CloseInstrument()

return: 0 = successful else failure

Description

This function allows closing communication with the selected device.

◆ GetDevices

Syntax

string[] GetDevices()

return: list of strings that contains the accessible COM ports

Description

This function allows opening communication with the selected device.

◆ OpenInstrument

Syntax

int OpenInstrument(string strCOMPort, int baudrate)

string strCOMPort: COM port

int baudrate: baud rate

return: 0 = successful else failure

Description

This function allows opening communication with the selected device.

◆ WriteToInstrument

Syntax

int WriteToInstrument(string command, ref string response, int stage)

command: Instrument command

response: Response of the command

stage: Instrument Stage

return:

Description

This Overridden function Queries or writes the command given by the user to the instrument.

2.2.2 Commands

◆ AB

Syntax

int AB(out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous AB Set command which is used to Abort Motion.

◆ AC_Get

Syntax

int AC_Get(int axisNumber, out double acceleration, out string errstring)

axisNumber: axisNumber

acceleration: acceleration

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous AC Get command which is used to Get acceleration.

◆ AC_Set

Syntax

int AC_Set(int axisNumber, double acceleration, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous AC Set command which is used to Set acceleration.

◆ **AE_Get****Syntax**

int AE_Get(int axisNumber, out double deceleration, out string errstring)
axisNumber: axisNumber
deceleration: deceleration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AE Get command which is used to Get e-stop deceleration.

◆ **AE_Set****Syntax**

int AE_Set(int axisNumber, double deceleration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AE Set command which is used to Set e-stop deceleration.

◆ **AF_Get****Syntax**

int AF_Get(int axisNumber, out double accelerationFeedForwardGainFactor, out string errstring)
axisNumber: axisNumber
accelerationFeedForwardGainFactor: accelerationFeedForwardGainFactor
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AF Get command which is used to Get acceleration feed-forward gain.

◆ **AF_Set****Syntax**

int AF_Set(int axisNumber, double accelerationFeedForwardGainFactor, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AF Set command which is used to Set acceleration feed-forward gain.

◆ **AG_Get**

Syntax

int AG_Get(int axisNumber, out double acceleration, out string errstring)
axisNumber: axisNumber
acceleration: acceleration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AG Get command which is used to Get deceleration.

◆ **AG_Set**

Syntax

int AG_Set(int axisNumber, double acceleration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AG Set command which is used to Set deceleration.

◆ **AP**

Syntax

int AP(out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AP Set command which is used to Abort program.

◆ **AU_Get**

Syntax

int AU_Get(int axisNumber, out double acceleration, out string errstring)
axisNumber: axisNumber
acceleration: acceleration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AU Get command which is used to Get maximum acceleration and deceleration.

◆ **AU_Set**

Syntax

int AU_Set(int axisNumber, double acceleration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous AU Set command which is used to Set maximum acceleration and deceleration.

◆ **BA_Get**

Syntax

int BA_Get(int axisNumber, out double backlashCompensation, out string errstring)
axisNumber: axisNumber
backlashCompensation: backlashCompensation
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BA Get command which is used to Get backlash compensation.

◆ **BA_Set**

Syntax

int BA_Set(int axisNumber, double backlashCompensation, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BA Set command which is used to Set backlash compensation.

◆ **BG_Get**

Syntax

int BG_Get(int bitNumber, out string program, out string errstring)
bitNumber: bitNumber
program: program
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BG Get command which is used to Get DIO bits to execute stored programs.

◆ BG_Set

Syntax

int BG_Set(int bitNumber, string program, out string errstring)
bitNumber: bitNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BG Set command which is used to Set DIO bits to execute stored programs.

◆ BK_Get

Syntax

int BK_Get(int axisNumber, out int bitNumber, out int bitLevel, out string errstring)
axisNumber: axisNumber
bitNumber: bitNumber
bitLevel: bitLevel
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BK Get command which is used to Assign DIO bits to inhibit motion.

◆ BK_Set

Syntax

int BK_Set(int axisNumber, int bitNumber, int bitLevel, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BK Set command which is used to Assign DIO bits to inhibit motion.

◆ BL_Get

Syntax

int BL_Get(int axisNumber, out int value, out string errstring)
axisNumber: axisNumber
value: value
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BL Get command which is used to Enable DIO bits to inhibit motion.

◆ **BL_Set**

Syntax

int BL_Set(int axisNumber, int value, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BL Set command which is used to Enable DIO bits to inhibit motion.

◆ **BM_Get**

Syntax

int BM_Get(int axisNumber, out int bitNumber, out int bitLevel, out string errstring)
axisNumber: axisNumber
bitNumber: bitNumber
bitLevel: bitLevel
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BM Get command which is used to Assign DIO bits to notify motion status.

◆ **BM_Set**

Syntax

int BM_Set(int axisNumber, int bitNumber, int bitLevel, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BM Set command which is used to Assign DIO bits to notify motion status.

◆ **BN_Get**

Syntax

int BN_Get(int axisNumber, out int value, out string errstring)
axisNumber: axisNumber
value: value
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BN Get command which is used to Enable DIO bits to notify motion status.

◆ **BN_Set**

Syntax

int BN_Set(int axisNumber, int value, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BN Set command which is used to Enable DIO bits to notify motion status.

◆ **BO_Get**

Syntax

int BO_Get(out int hardwareLimitConfiguration, out string errstring)
hardwareLimitConfiguration: hardwareLimitConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BO Get command which is used to Set DIO port A, B, C direction.

◆ **BO_Set**

Syntax

int BO_Set(int hardwareLimitConfiguration, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BO Set command which is used to Set DIO port A, B, C direction.

◆ **BP_Get**

Syntax

int BP_Get(int axisNumber, out int bitNumberNeg, out int bitNumberPos, out string errstring)
axisNumber: axisNumber
bitNumberNeg: bitNumberNeg
bitNumberPos: bitNumberPos
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous BP Get command which is used to Assign DIO bits for jog mode.

◆ BP_Set

Syntax

int BP_Set(int axisNumber, int bitNumberNeg, int bitNumberPos, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous BP Set command which is used to Assign DIO bits for jog mode.

◆ BQ_Get

Syntax

int BQ_Get(int axisNumber, out int value, out string errstring)

axisNumber: axisNumber

value: value

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous BQ Get command which is used to Enable DIO bits for jog mode.

◆ BQ_Set

Syntax

int BQ_Set(int axisNumber, int value, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous BQ Set command which is used to Enable DIO bits for jog mode.

◆ CL_Get

Syntax

int CL_Get(int axisNumber, out int interval, out string errstring)

axisNumber: axisNumber

interval: interval

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous CL Get command which is used to Set closed loop update interval.

◆ **CL_Set**

Syntax

int CL_Set(int axisNumber, int interval, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous CL Set command which is used to Set closed loop update interval.

◆ **CO_Get**

Syntax

int CO_Get(int axisNumber, out double linearCompensation, out string errstring)
axisNumber: axisNumber
linearCompensation: linearCompensation
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous CO Get command which is used to Set linear compensation.

◆ **CO_Set**

Syntax

int CO_Set(int axisNumber, double linearCompensation, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous CO Set command which is used to Set linear compensation.

◆ **DB_Get**

Syntax

int DB_Get(int axisNumber, out int deadBand, out string errstring)
axisNumber: axisNumber
deadBand: deadBand
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DB Get command which is used to Set position deadband.

◆ **DB_Set**

Syntax

int DB_Set(int axisNumber, int deadBand, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DB Set command which is used to Set position deadband.

◆ **DC**

Syntax

int DC(int dataAcquisitionMode, int axis, int data3, int data4, int dataRate, int dataNumber, out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DC Set command which is used to Setup data acquisition.

◆ **DD**

Syntax

int DD(out int status, out string errstring)

status: status

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DD Get command which is used to Get data acquisition done status.

◆ **DE**

Syntax

int DE(int value, out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DE Set command which is used to Enable/disable data acquisition.

◆ **DF****Syntax**

int DF(out int sampleNumber, out string errstring)

sampleNumber: sampleNumber

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DF Get command which is used to Get data acquisition sample count.

◆ **DG****Syntax**

int DG(out string data, out string errstring)

data: data

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DG Get command which is used to Get acquisition data.

◆ **DH_Get****Syntax**

int DH_Get(int axisNumber, out double position, out string errstring)

axisNumber: axisNumber

position: position

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DH Get command which is used to Define home.

◆ **DH_Set****Syntax**

int DH_Set(int axisNumber, double position, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous DH Set command which is used to Define home.

◆ **DL****Syntax**

int DL(int label, out string errstring)
label: label[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DL Set command which is used to Define label.

◆ **DO_Get****Syntax**

int DO_Get(int channelNumber, out double offset, out string errstring)
channelNumber: channelNumber
offset: offset
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DO Get command which is used to Set DAC offset.

◆ **DO_Set****Syntax**

int DO_Set(int channelNumber, double offset, out string errstring)
channelNumber: channelNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DO Set command which is used to Set DAC offset.

◆ **DP****Syntax**

int DP(int axisNumber, out double position, out string errstring)
axisNumber: axisNumber
position: position
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DP Get command which is used to Read desired position.

◆ **DV****Syntax**

int DV(int axisNumber, out double velocity, out string errstring)
axisNumber: axisNumber
velocity: velocity
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous DV Get command which is used to Read desired velocity.

◆ **EO_Get****Syntax**

int EO_Get(int program, out int programNumber, out int number, out string errstring)
program: program
programNumber: programNumber
number: number
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous EO Get command which is used to Automatic execution on power on.

◆ **EO_Set****Syntax**

int EO_Set(int program, int number, out string errstring)
program: program[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous EO Set command which is used to Automatic execution on power on.

◆ **EP****Syntax**

int EP(int program, out string errstring)
program: program[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous EP Set command which is used to Enter program mode.

◆ **EX****Syntax**

int EX(int program, int number, out string errstring)
program: program[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous EX Set command which is used to Execute a program.

◆ **FE_Get****Syntax**

int FE_Get(int axisNumber, out double maxAllowedFollowingError, out string errstring)
axisNumber: axisNumber
maxAllowedFollowingError: maxAllowedFollowingError
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FE Get command which is used to Set maximum following error threshold.

◆ **FE_Set****Syntax**

int FE_Set(int axisNumber, double maxAllowedFollowingError, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FE Set command which is used to Set maximum following error threshold.

◆ **FP_Get****Syntax**

int FP_Get(int axisNumber, out int displayResolution, out string errstring)
axisNumber: axisNumber
displayResolution: displayResolution
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FP Get command which is used to Set position display resolution.

◆ FP_Set

Syntax

int FP_Set(int axisNumber, int displayResolution, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FP Set command which is used to Set position display resolution.

◆ FR_Get

Syntax

int FR_Get(int axisNumber, out double encoderFullStepResolution, out string errstring)
axisNumber: axisNumber
encoderFullStepResolution: encoderFullStepResolution
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FR Get command which is used to Set full step resolution.

◆ FR_Set

Syntax

int FR_Set(int axisNumber, double encoderFullStepResolution, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous FR Set command which is used to Set full step resolution.

◆ GR_Get

Syntax

int GR_Get(int axisNumber, out double reductionRatio, out string errstring)
axisNumber: axisNumber
reductionRatio: reductionRatio
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous GR Get command which is used to Set master-slave reduction ratio.

◆ GR_Set

Syntax

int GR_Set(int axisNumber, double reductionRatio, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous GR Set command which is used to Set master-slave reduction ratio.

◆ HA_Get

Syntax

int HA_Get(int groupNumber, out double acceleration, out string errstring)

groupNumber: groupNumber

acceleration: acceleration

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous HA Get command which is used to Set group acceleration.

◆ HA_Set

Syntax

int HA_Set(int groupNumber, double acceleration, out string errstring)

groupNumber: groupNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous HA Set command which is used to Set group acceleration.

◆ HB

Syntax

int HB(out List<string> groups, out string errstring)

groups: groups

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous HB Get command which is used to Read list of groups assigned.

◆ HC_Get

Syntax

int HC_Get(int groupNumber, out double firstCoordinate, out double secondCoordinate, out double arcSweepAngle, out string errstring)
groupNumber: groupNumber
firstCoordinate: firstCoordinate
secondCoordinate: secondCoordinate
arcSweepAngle: arcSweepAngle
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HC Get command which is used to Move group along an arc.

◆ HC_Set

Syntax

int HC_Set(int groupNumber, double firstCoordinate, double secondCoordinate, double arcSweepAngle, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HC Set command which is used to Move group along an arc.

◆ HD_Get

Syntax

int HD_Get(int groupNumber, out double deceleration, out string errstring)
groupNumber: groupNumber
deceleration: deceleration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HD Get command which is used to Set group deceleration.

◆ HD_Set

Syntax

int HD_Set(int groupNumber, double deceleration, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HD Set command which is used to Set group deceleration.

◆ **HE_Get**

Syntax

int HE_Get(int groupNumber, out double deceleration, out string errstring)
groupNumber: groupNumber
deceleration: deceleration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HE Get command which is used to Set group e-stop deceleration.

◆ **HE_Set**

Syntax

int HE_Set(int groupNumber, double deceleration, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HE Set command which is used to Set group e-stop deceleration.

◆ **HF_Get**

Syntax

int HF_Get(int groupNumber, out int status, out string errstring)
groupNumber: groupNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HF Get command which is used to Group motor power off.

◆ **HF_Set**

Syntax

int HF_Set(int groupNumber, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HF Set command which is used to Group motor power off.

◆ **HJ_Get**

Syntax

int HJ_Get(int groupNumber, out double vectorJerk, out string errstring)
groupNumber: groupNumber
vectorJerk: vectorJerk
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HJ Get command which is used to Set group jerk.

◆ **HJ_Set**

Syntax

int HJ_Set(int groupNumber, double vectorJerk, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HJ Set command which is used to Set group jerk.

◆ **HL_Get**

Syntax

int HL_Get(int groupNumber, out List<double> targets, out string errstring)
groupNumber: groupNumber
targets: targets
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HL Get command which is used to Move group along a line.

◆ **HL_Set**

Syntax

int HL_Set(int groupNumber, List<double> targets, out string errstring)
groupNumber: groupNumber
targets: targets
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HL Set command which is used to Move group along a line.

◆ HN_Get

Syntax

int HN_Get(int groupNumber, out List<int> axes, out string errstring)
groupNumber: groupNumber
axes: axes
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HN Get command which is used to Create new group.

◆ HN_Set

Syntax

int HN_Set(int groupNumber, List<int> axes, out string errstring)
groupNumber: groupNumber
axes: axes
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HN Set command which is used to Create new group.

◆ HO_Get

Syntax

int HO_Get(int groupNumber, out int status, out string errstring)
groupNumber: groupNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HO Get command which is used to Group on.

◆ HO_Set

Syntax

int HO_Set(int groupNumber, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HO Set command which is used to Group on.

◆ **HP****Syntax**

int HP(int groupNumber, out List<double> positions, out string errstring)
groupNumber: groupNumber
positions: positions
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HP Get command which is used to Read group position.

◆ **HQ_Get****Syntax**

int HQ_Get(int groupNumber, out double bufferLevel, out string errstring)
groupNumber: groupNumber
bufferLevel: bufferLevel
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HQ Get command which is used to Wait for group command buffer level.

◆ **HQ_Set****Syntax**

int HQ_Set(int groupNumber, double bufferLevel, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HQ Set command which is used to Wait for group command buffer level.

◆ **HS_Get****Syntax**

int HS_Get(int groupNumber, out int status, out string errstring)
groupNumber: groupNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HS Get command which is used to Stop group motion.

◆ **HS_Set**

Syntax

int HS_Set(int groupNumber, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HS Set command which is used to Stop group motion.

◆ **HV_Get**

Syntax

int HV_Get(int groupNumber, out double velocity, out string errstring)
groupNumber: groupNumber
velocity: velocity
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HV Get command which is used to Set group velocity.

◆ **HV_Set**

Syntax

int HV_Set(int groupNumber, double velocity, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HV Set command which is used to Set group velocity.

◆ **HW**

Syntax

int HW(int groupNumber, double delay, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HW Set command which is used to Wait for group motion stop.

◆ **HX****Syntax**

int HX(int groupNumber, out string errstring)
groupNumber: groupNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HX Set command which is used to Delete group.

◆ **HZ****Syntax**

int HZ(int groupNumber, out int nbAxis, out string errstring)
groupNumber: groupNumber
nbAxis: nbAxis
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous HZ Get command which is used to Read group size.

◆ **ID****Syntax**

int ID(int axisNumber, out string modelNumber, out string serialNumber, out string errstring)
axisNumber: axisNumber
modelNumber: modelNumber
serialNumber: serialNumber
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ID Get command which is used to Read stage model and serial number.

◆ **JH_Get****Syntax**

int JH_Get(int axisNumber, out double highSpeed, out string errstring)
axisNumber: axisNumber
highSpeed: highSpeed
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JH Get command which is used to Set jog high speed.

◆ JH_Set

Syntax

int JH_Set(int axisNumber, double highSpeed, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JH Set command which is used to Set jog high speed.

◆ JK_Get

Syntax

int JK_Get(int axisNumber, out double jerk, out string errstring)
axisNumber: axisNumber
jerk: jerk
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JK Get command which is used to Set jerk rate.

◆ JK_Set

Syntax

int JK_Set(int axisNumber, double jerk, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JK Set command which is used to Set jerk rate.

◆ JL

Syntax

int JL(int label, int loopCount, out string errstring)
label: label[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JL Set command which is used to Jump to label.

◆ JW_Get

Syntax

int JW_Get(int axisNumber, out double lowSpeed, out string errstring)
axisNumber: axisNumber
lowSpeed: lowSpeed
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JW Get command which is used to Set jog low speed.

◆ JW_Set

Syntax

int JW_Set(int axisNumber, double lowSpeed, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous JW Set command which is used to Set jog low speed.

◆ KD_Get

Syntax

int KD_Get(int axisNumber, out double derivativeGain, out string errstring)
axisNumber: axisNumber
derivativeGain: derivativeGain
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KD Get command which is used to Set derivative gain.

◆ KD_Set

Syntax

int KD_Set(int axisNumber, double derivativeGain, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KD Set command which is used to Set derivative gain.

◆ **KI_Get**

Syntax

int KI_Get(int axisNumber, out double integralGain, out string errstring)
axisNumber: axisNumber
integralGain: integralGain
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KI Get command which is used to Set integral gain.

◆ **KI_Set**

Syntax

int KI_Set(int axisNumber, double integralGain, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KI Set command which is used to Set integral gain.

◆ **KP_Get**

Syntax

int KP_Get(int axisNumber, out double proportionalGain, out string errstring)
axisNumber: axisNumber
proportionalGain: proportionalGain
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KP Get command which is used to Set proportional gain.

◆ **KP_Set**

Syntax

int KP_Set(int axisNumber, double proportionalGain, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KP Set command which is used to Set proportional gain.

◆ **KS_Get**

Syntax

int KS_Get(int axisNumber, out double saturationLevel, out string errstring)
axisNumber: axisNumber
saturationLevel: saturationLevel
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KS Get command which is used to Set saturation level of integral factor.

◆ **KS_Set**

Syntax

int KS_Set(int axisNumber, double saturationLevel, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous KS Set command which is used to Set saturation level of integral factor.

◆ **LC_Get**

Syntax

int LC_Get(out int lockOption, out string errstring)
lockOption: lockOption
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous LC Get command which is used to Lock/unlock keyboard.

◆ **LC_Set**

Syntax

int LC_Set(int lockOption, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous LC Set command which is used to Lock/unlock keyboard.

◆ **LP**

Syntax

int LP(int program, out List<string> programs, out string errstring)

program: program

programs: programs

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous LP Get command which is used to List program.

◆ **MD**

Syntax

int MD(int axisNumber, out int status, out string errstring)

axisNumber: axisNumber

status: status

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous MD Get command which is used to Read motion done status.

◆ **MF_Get**

Syntax

int MF_Get(int axisNumber, out int status, out string errstring)

axisNumber: axisNumber

status: status

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous MF Get command which is used to Motor power off.

◆ **MF_Set**

Syntax

int MF_Set(int axisNumber, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous MF Set command which is used to Motor power off.

◆ **MO_Get**

Syntax

int MO_Get(int axisNumber, out int status, out string errstring)
axisNumber: axisNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MO Get command which is used to Motor power on.

◆ **MO_Set**

Syntax

int MO_Set(int axisNumber, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MO Set command which is used to Motor power on.

◆ **MT_Get**

Syntax

int MT_Get(int axisNumber, out int status, out string errstring)
axisNumber: axisNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MT Get command which is used to Move to hardware travel limit.

◆ **MT_Set**

Syntax

int MT_Set(int axisNumber, string direction, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MT Set command which is used to Move to hardware travel limit.

◆ MV_Get

Syntax

int MV_Get(int axisNumber, out int status, out string errstring)
axisNumber: axisNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MV Get command which is used to Move indefinitely.

◆ MV_Set

Syntax

int MV_Set(int axisNumber, string direction, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MV Set command which is used to Move indefinitely.

◆ MZ_Get

Syntax

int MZ_Get(int axisNumber, out int status, out string errstring)
axisNumber: axisNumber
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MZ Get command which is used to Move to nearest index.

◆ MZ_Set

Syntax

int MZ_Set(int axisNumber, string direction, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous MZ Set command which is used to Move to nearest index.

◆ OH_Get

Syntax

int OH_Get(int axisNumber, out double highSpeed, out string errstring)
axisNumber: axisNumber
highSpeed: highSpeed
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OH Get command which is used to Set home search high speed.

◆ OH_Set

Syntax

int OH_Set(int axisNumber, double highSpeed, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OH Set command which is used to Set home search high speed.

◆ OL_Get

Syntax

int OL_Get(int axisNumber, out double lowSpeed, out string errstring)
axisNumber: axisNumber
lowSpeed: lowSpeed
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OL Get command which is used to Set home search low speed.

◆ OL_Set

Syntax

int OL_Set(int axisNumber, double lowSpeed, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OL Set command which is used to Set home search low speed.

◆ OM_Get

Syntax

int OM_Get(int axisNumber, out int mode, out string errstring)
axisNumber: axisNumber
mode: mode
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OM Get command which is used to Set home search mode.

◆ OM_Set

Syntax

int OM_Set(int axisNumber, int mode, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OM Set command which is used to Set home search mode.

◆ OR

Syntax

int OR(int axisNumber, int mode, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous OR Set command which is used to Search for home.

◆ PA_Get

Syntax

int PA_Get(int axisNumber, out double position, out string errstring)
axisNumber: axisNumber
position: position
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous PA Get command which is used to Move to absolute position.

◆ **PA_Set****Syntax**

int PA_Set(int axisNumber, double position, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous PA Set command which is used to Move to absolute position.

◆ **PH****Syntax**

int PH(out int status1, out int status2, out string errstring)
status1: status1
status2: status2
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous PH Get command which is used to Get hardware status.

◆ **PR****Syntax**

int PR(int axisNumber, double increment, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous PR Set command which is used to Move to relative position.

◆ **QD****Syntax**

int QD(int axisNumber, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QD Set command which is used to Update motor driver settings.

◆ QG_Get

Syntax

int QG_Get(int axisNumber, out double gearConstant, out string errstring)

axisNumber: axisNumber

gearConstant: gearConstant

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QG Get command which is used to Set gear constant.

◆ QG_Set

Syntax

int QG_Set(int axisNumber, double gearConstant, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QG Set command which is used to Set gear constant.

◆ QI_Get

Syntax

int QI_Get(int axisNumber, out double motorCurrent, out string errstring)

axisNumber: axisNumber

motorCurrent: motorCurrent

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QI Get command which is used to Set maximum motor current.

◆ QI_Set

Syntax

int QI_Set(int axisNumber, double motorCurrent, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QI Set command which is used to Set maximum motor current.

◆ QM_Get

Syntax

int QM_Get(int axisNumber, out int motorType, out string errstring)
axisNumber: axisNumber
motorType: motorType
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QM Get command which is used to Set motor type.

◆ QM_Set

Syntax

int QM_Set(int axisNumber, int motorType, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QM Set command which is used to Set motor type.

◆ QP

Syntax

int QP(out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QP Set command which is used to Quit program mode.

◆ QR_Get

Syntax

int QR_Get(int axisNumber, out int delay, out int reductionPercentage, out string errstring)
axisNumber: axisNumber
delay: delay
reductionPercentage: reductionPercentage
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QR Get command which is used to Reduce motor torque.

◆ QR_Set

Syntax

int QR_Set(int axisNumber, int delay, int reductionPercentage, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QR Set command which is used to Reduce motor torque.

◆ QS_Get

Syntax

int QS_Get(int axisNumber, out int microStep, out string errstring)

axisNumber: axisNumber

microStep: microStep

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QS Get command which is used to Set microstep factor.

◆ QS_Set

Syntax

int QS_Set(int axisNumber, int microStep, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QS Set command which is used to Set microstep factor.

◆ QT_Get

Syntax

int QT_Get(int axisNumber, out double tachometerGain, out string errstring)

axisNumber: axisNumber

tachometerGain: tachometerGain

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous QT Get command which is used to Set tachometer gain.

◆ QT_Set

Syntax

int QT_Set(int axisNumber, double tachometerGain, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QT Set command which is used to Set tachometer gain.

◆ QV_Get

Syntax

int QV_Get(int axisNumber, out double motorVoltage, out string errstring)
axisNumber: axisNumber
motorVoltage: motorVoltage
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QV Get command which is used to Set average motor voltage.

◆ QV_Set

Syntax

int QV_Set(int axisNumber, double motorVoltage, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous QV Set command which is used to Set average motor voltage.

◆ RQ

Syntax

int RQ(int interruptNumber, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous RQ Set command which is used to Generate service request.

◆ **RS****Syntax**

int RS(out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous RS Set command which is used to Reset the controller.

◆ **SA_Get****Syntax**

int SA_Get(out int address, out string errstring)
address: address
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SA Get command which is used to Set device address.

◆ **SA_Set****Syntax**

int SA_Set(int address, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SA Set command which is used to Set device address.

◆ **SB_Get****Syntax**

int SB_Get(out int hardwareLimitConfiguration, out string errstring)
hardwareLimitConfiguration: hardwareLimitConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SB Get command which is used to Set/get DIO port A, B, C bit status.

◆ **SB_Set****Syntax**

int SB_Set(int hardwareLimitConfiguration, out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SB Set command which is used to Set/get DIO port A, B, C bit status.

◆ **SH_Get****Syntax**

int SH_Get(int axisNumber, out double homePresetPosition, out string errstring)

axisNumber: axisNumber

homePresetPosition: homePresetPosition

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SH Get command which is used to Set home preset position.

◆ **SH_Set****Syntax**

int SH_Set(int axisNumber, double homePresetPosition, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SH Set command which is used to Set home preset position.

◆ **SI_Get****Syntax**

int SI_Get(out int velocity, out string errstring)

velocity: velocity

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SI Get command which is used to Set master-slave jog velocity update interval.

◆ **SI_Set**

Syntax

int SI_Set(int velocity, out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SI Set command which is used to Set master-slave jog velocity update interval.

◆ **SK_Get**

Syntax

int SK_Get(out double coefficient1, out double coefficient2, out string errstring)

coefficient1: coefficient1

coefficient2: coefficient2

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SK Get command which is used to Set master-slave jog velocity scaling coefficients.

◆ **SK_Set**

Syntax

int SK_Set(double coefficient1, double coefficient2, out string errstring)

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SK Set command which is used to Set master-slave jog velocity scaling coefficients.

◆ **SL_Get**

Syntax

int SL_Get(int axisNumber, out double limit, out string errstring)

axisNumber: axisNumber

limit: limit

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SL Get command which is used to Set level travel limit.

◆ **SL_Set****Syntax**

int SL_Set(int axisNumber, double limit, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SL Set command which is used to Set level travel limit.

◆ **SM****Syntax**

int SM(out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SM Set command which is used to Save settings to non-volatile memory.

◆ **SN_Get****Syntax**

int SN_Get(int axisNumber, out int unit, out string errstring)
axisNumber: axisNumber
unit: unit
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SN Get command which is used to Set axis displacement units.

◆ **SN_Set****Syntax**

int SN_Set(int axisNumber, int unit, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SN Set command which is used to Set axis displacement units.

◆ SR_Get

Syntax

int SR_Get(int axisNumber, out double limit, out string errstring)

axisNumber: axisNumber

limit: limit

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SR Get command which is used to Set right travel limit.

◆ SR_Set

Syntax

int SR_Set(int axisNumber, double limit, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SR Set command which is used to Set right travel limit.

◆ SS_Get

Syntax

int SS_Get(int axisNumber, out int masterAxis, out string errstring)

axisNumber: axisNumber

masterAxis: masterAxis

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SS Get command which is used to Define master-slave relationship.

◆ SS_Set

Syntax

int SS_Set(int axisNumber, int masterAxis, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous SS Set command which is used to Define master-slave relationship.

◆ **ST****Syntax**

int ST(int axisNumber, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ST Set command which is used to Stop motion.

◆ **SU_Get****Syntax**

int SU_Get(int axisNumber, out double encoderResolution, out string errstring)
axisNumber: axisNumber
encoderResolution: encoderResolution
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SU Get command which is used to Set encoder resolution.

◆ **SU_Set****Syntax**

int SU_Set(int axisNumber, double encoderResolution, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous SU Set command which is used to Set encoder resolution.

◆ **TB****Syntax**

int TB(out string errorCode, out string timestamp, out string errorMessage, out string errstring)
errorCode: errorCode
timestamp: timestamp
errorMessage: errorMessage
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous TB Get command which is used to Read error message.

◆ **TE****Syntax**

int TE(out string errorCode, out string errstring)

errorCode: errorCode

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous TE Get command which is used to Read error code.

◆ **TJ_Get****Syntax**

int TJ_Get(int axisNumber, out int homeMode, out string errstring)

axisNumber: axisNumber

homeMode: homeMode

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous TJ Get command which is used to Set trajectory mode.

◆ **TJ_Set****Syntax**

int TJ_Set(int axisNumber, int homeMode, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous TJ Set command which is used to Set trajectory mode.

◆ **TP****Syntax**

int TP(int axisNumber, out double position, out string errstring)

axisNumber: axisNumber

position: position

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous TP Get command which is used to Read actual position.

◆ **TS****Syntax**

int TS(out status, out string errstring)
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous TS Get command which is used to Get controller status.

◆ **TV****Syntax**

int TV(int axisNumber, out double velocity, out string errstring)
axisNumber: axisNumber
velocity: velocity
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous TV Get command which is used to Get actual velocity.

◆ **TX****Syntax**

int TX(out status, out string errstring)
status: status
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous TX Get command which is used to Get controller activity.

◆ **UF****Syntax**

int UF(out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous UF Set command which is used to Update servo filter.

◆ **UF****Syntax**

int UF(int axisNumber, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous UF Set command which is used to Update servo filter.

◆ **UH****Syntax**

int UH(int bitNumber, out string errstring)
bitNumber: bitNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous UH Set command which is used to Wait for DIO bit high.

◆ **UL****Syntax**

int UL(int bitNumber, out string errstring)
bitNumber: bitNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous UL Set command which is used to Wait for DIO bit low.

◆ **VA_Get****Syntax**

int VA_Get(int axisNumber, out double velocity, out string errstring)
axisNumber: axisNumber
velocity: velocity
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous VA Get command which is used to Set velocity.

◆ **VA_Set**

Syntax

int VA_Set(int axisNumber, double velocity, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous VA Set command which is used to Set velocity.

◆ **VB_Get**

Syntax

int VB_Get(int axisNumber, out double baseVelocity, out string errstring)
axisNumber: axisNumber
baseVelocity: baseVelocity
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous VB Get command which is used to Set base velocity for step motors.

◆ **VB_Set**

Syntax

int VB_Set(int axisNumber, double baseVelocity, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous VB Set command which is used to Set base velocity for step motors.

◆ **VE**

Syntax

int VE(out string controllerVersion, out string errstring)
controllerVersion: controllerVersion
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous VE Get command which is used to Read controller firmware version.

◆ VF_Get

Syntax

int VF_Get(int axisNumber, out double velocityFeedForwardGain, out string errstring)

axisNumber: axisNumber

velocityFeedForwardGain: velocityFeedForwardGain

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous VF Get command which is used to Set velocity feed-forward gain.

◆ VF_Set

Syntax

int VF_Set(int axisNumber, double velocityFeedForwardGain, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous VF Set command which is used to Set velocity feed-forward gain.

◆ VU_Get

Syntax

int VU_Get(int axisNumber, out double maxVelocity, out string errstring)

axisNumber: axisNumber

maxVelocity: maxVelocity

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous VU Get command which is used to Set maximum velocity.

◆ VU_Set

Syntax

int VU_Set(int axisNumber, double maxVelocity, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous VU Set command which is used to Set maximum velocity.

◆ **WP****Syntax**

int WP(int axisNumber, double position, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous WP Set command which is used to Wait for absolute position crossing.

◆ **WS****Syntax**

int WS(int axisNumber, int delay, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous WS Set command which is used to Wait for motion stop.

◆ **WT****Syntax**

int WT(int delay, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous WT Set command which is used to Wait.

◆ **XM****Syntax**

int XM(out string availableStorageSpace, out string errstring)
availableStorageSpace: availableStorageSpace
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous XM Get command which is used to Get available program memory.

◆ **XX****Syntax**

int XX(int program, out string errstring)
program: program[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous XX Set command which is used to Delete a stored program.

◆ **ZA_Get****Syntax**

int ZA_Get(int axisNumber, out int amplifierIOConfiguration, out string errstring)
axisNumber: axisNumber
amplifierIOConfiguration: amplifierIOConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZA Get command which is used to Set amplifier I/O configuration.

◆ **ZA_Set****Syntax**

int ZA_Set(int axisNumber, int amplifierIOConfiguration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZA Set command which is used to Set amplifier I/O configuration.

◆ **ZB_Get****Syntax**

int ZB_Get(int axisNumber, out int feedbackConfiguration, out string errstring)
axisNumber: axisNumber
feedbackConfiguration: feedbackConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZB Get command which is used to Set feedback configuration.

◆ **ZB_Set**

Syntax

int ZB_Set(int axisNumber, int feedbackConfiguration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZB Set command which is used to Set feedback configuration.

◆ **ZE_Get**

Syntax

int ZE_Get(int axisNumber, out int estopConfiguration, out string errstring)
axisNumber: axisNumber
estopConfiguration: estopConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZE Get command which is used to Set E-stop configuration.

◆ **ZE_Set**

Syntax

int ZE_Set(int axisNumber, int estopConfiguration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZE Set command which is used to Set E-stop configuration.

◆ **ZF_Get**

Syntax

int ZF_Get(int axisNumber, out int followingErrorConfiguration, out string errstring)
axisNumber: axisNumber
followingErrorConfiguration: followingErrorConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZF Get command which is used to Set following error configuration.

◆ **ZF_Set**

Syntax

int ZF_Set(int axisNumber, int followingErrorConfiguration, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZF Set command which is used to Set following error configuration.

◆ **ZH_Get**

Syntax

int ZH_Get(int axisNumber, out int hardwareLimitConfiguration, out string errstring)

axisNumber: axisNumber

hardwareLimitConfiguration: hardwareLimitConfiguration

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZH Get command which is used to Set hardware limit configuration.

◆ **ZH_Set**

Syntax

int ZH_Set(int axisNumber, int hardwareLimitConfiguration, out string errstring)

axisNumber: axisNumber[InCommentDoc]

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZH Set command which is used to Set hardware limit configuration.

◆ **ZS_Get**

Syntax

int ZS_Get(int axisNumber, out int softwareLimitConfiguration, out string errstring)

axisNumber: axisNumber

softwareLimitConfiguration: softwareLimitConfiguration

errString: The failure reason

return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZS Get command which is used to Set software limit configuration.

◆ **ZS_Set**

Syntax

int ZS_Set(int axisNumber, int softwareLimitConfiguration, out string errstring)
axisNumber: axisNumber[InCommentDoc]
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZS Set command which is used to Set software limit configuration.

◆ **ZU**

Syntax

int ZU(out int espSystemConfiguration, out string errstring)
espSystemConfiguration: espSystemConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZU Get command which is used to Get ESP system configuration.

◆ **ZZ_Get**

Syntax

int ZZ_Get(out int systemConfiguration, out string errstring)
systemConfiguration: systemConfiguration
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZZ Get command which is used to Set system configuration.

◆ **ZZ_Set**

Syntax

int ZZ_Set(int systemConfiguration, out string errstring)
errString: The failure reason
return: 0 in success and -1 on failure

Description

This function is used to process synchronous ZZ Set command which is used to Set system configuration.

3.0 Python Example

```

=====
#Initialization Start
#The script within Initialization Start and Initialization End
#is needed for properly initializing Command
#Interface for ESP301 instrument.
#The user should copy this code as is and specify correct paths here.
import sys

#Command Interface DLL can be found here.
print "Adding location of Newport.ESP301.CommandInterface.dll to
sys.path"
sys.path.append(r' C:\Program Files
(x86)\Newport\MotionControl\ESP301\Bin)

# The CLR module provide functions for interacting with the underlying
# .NET runtime
import clr

# Add reference to assembly and import names from namespace
clr.AddReferenceToFile("Newport.ESP301.CommandInterface.dll")
from CommandInterface import *

import System
=====
# Instrument Initialization
# The key should have double slashes since
# (one of them is escape character)
instrument="COM15"
BAUDRATE = 921600
print 'Instrument Key=>', instrument

# create an ESP301 instance
ESP301Device = ESP301()

# Open communication
ret = esp301.OpenInstrument(instrument, BAUDRATE);

# Get positive software limit
result, response, errString = ESP301Device.SR_Get(1)
if result == 0 :
print 'positive software limit=>', response
else:
print 'Error=>',errString

# Get negative software limit
result, response, errString = ESP301Device.SL_Get(1)
if result == 0 :
print 'negative software limit=>', response
else:
print 'Error=>',errString

# Get controller revision information
result, response, errString = ESP301Device.VE()
if result == 0 :

```



```
print 'controller revision=>', response
else:
print 'Error=>',errString
# Get current position
result, response, errString = ESP301Device.TP(1)
if result == 0 :
print 'position=>', response
else:
print 'Error=>',errString

# Close communication
esp301.CloseInstrument();
```


Your Local Representative

Fax: _____

Return authorization #: _____

Date: _____

Phone Number: _____

Fax Number: _____

Serial #: _____

Reasons of return of goods (please list any specific problems): _____



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