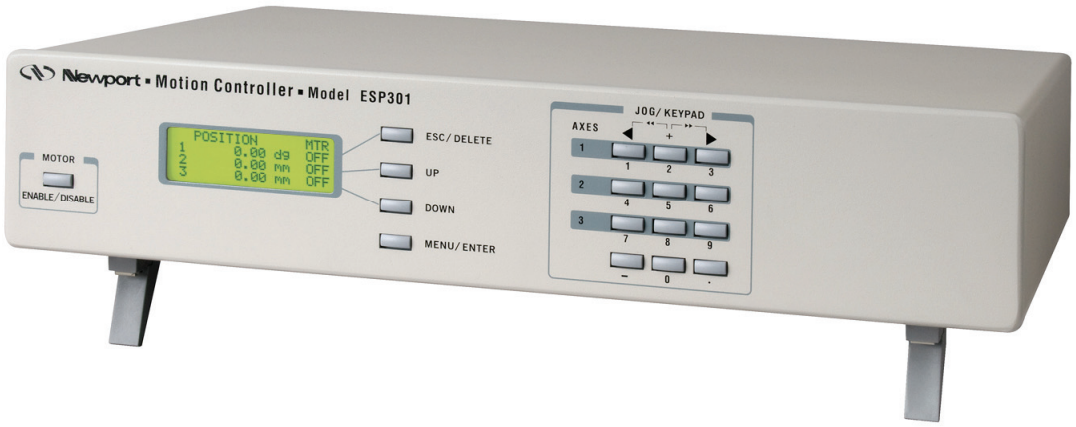
ESP301

Integrated 3-Axis Motion Controller/Driver



Commande Interface Manual

Newport®
Experience | Solutions

1.0.x

For Motion, Think Newport™

Table of Contents

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

- **CloseIntrument**

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.

- **OpenIntrument**

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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous RS Set command which is used to Reset the controller.

♦ SA_Get

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

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

♦ SA_Set

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

Description
This function is used to process synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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 synchrounous 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();
```

Service Form

Your Local Representative

Tel.: _____

Fax: _____

Name: _____

Company: _____

Address: _____

Country: _____

P.O. Number: _____

Item(s) Being Returned: _____

Model#: _____

Return authorization #: _____
(Please obtain prior to return of item)

Date: _____

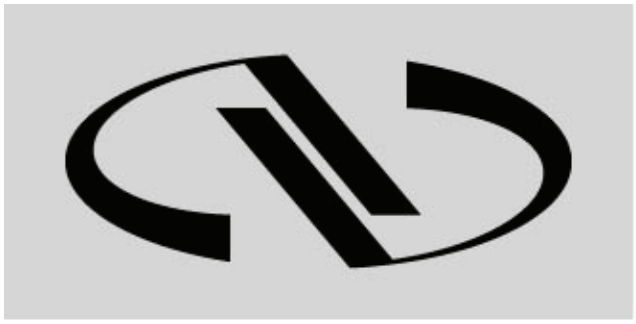
Phone Number: _____

Fax Number: _____

Serial #: _____

Description: _____

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



Newport®

Experience | Solutions

Visit Newport Online at:
www.newport.com

North America & Asia
Newport Corporation
1791 Deere Ave.
Irvine, CA 92606, USA

Sales
Tel.: (800) 222-6440
e-mail: sales@newport.com

Technical Support
Tel.: (800) 222-6440
e-mail: tech@newport.com

Service, RMAs & Returns
Tel.: (800) 222-6440
e-mail: service@newport.com

Europe
MICRO-CONTROLE Spectra-Physics S.A.S
9, rue du Bois Sauvage
91055 Évry CEDEX
France

Sales
Tel.: +33 (0)1.60.91.68.68
e-mail: france@newport.com

Technical Support
e-mail: tech_europe@newport.com

Service & Returns
Tel.: +33 (0)2.38.40.51.55