CONEX-AGP

Agilis-P Controller
with Encoder Feedback

Command Library API
Manual

V2.0.0

For Motion, Think Newport™

Table of Contents

CONEX-AGP
Agilis-P Controller with Encoder Feedback

1   Introduction

1.1   Purpose

The purpose of this document is to describe the application programming interface (API) of the command library (ConexAGPCmdLib.dll) that is used to communicate with the CONEX-AGP device.

1.2   Overview

The command library provides public methods to communicate with any CONEX-AGP device and these methods work in both synchronous and asynchronous mode. Many of the ASCII commands that can be programmatically sent to the instrument have a corresponding method that can be called in the command library. For example, the ASCII "VE" command can be sent to the instrument to get the controller version, and the command library has a corresponding public method "VE" that returns the controller version and error information. For more information on a particular ASCII command see the manual for the controller.

2   Command Interface

2.1   Constructor

ConexAGPCmds ()

The constructor is used to create an instance of the command library.

2.2   Functions

2.2.1   General

2.2.1.1 OpenInstrument

Syntax

int OpenInstrument(string strDeviceKey)

string strDeviceKey: the device key is a serial COM port

return: 0 = successful or -1 = failure

Decription

This function allows opening communication with the selected device. If the opening failed, the returned code is -1.

Newport.
Experience | Solutions

2.2.1.2 CloseInstrument

Syntax

int CloseInstrument()

return: 0 = successful or -1 = failure

Decription

This function allows closing communication with the selected device. If the closing failed, the returned code is -1.

2.2.1.3 GetDevices

Syntax

string[] GetDevices()

return: list of strings that contains the accessible COM ports.

Decription

This function returns the list of connected devices available to communicate.

2.2.1.4 WriteToInstrument

Syntax

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

command: Instrument command

resp: Response of the command

stage: Instrument Stage

return: function error

Decription

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

2.2.2 Commands

2.2.2.1 DB_Get

Syntax

int DB_Get(int controllerAddress, out double outDeadband, out string errString)

controllerAddress: Address of Controller

outDeadband: outDeadband

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous DB Get commandwhich is used to Get corrector deadband. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.2 DB_Set

<u>**Syntax**</u>

int DB_Set(int controllerAddress, double inDeadband, out string errString)

controllerAddress: Address of Controller

inDeadband: inDeadband.

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous DB Set command which is used to Set corrector deadband. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.3 HT_Get

<u>**Syntax**</u>

int HT_Get(int controllerAddress, out int HomeType, out string errString)

controllerAddress: Address of Controller

HomeType: HomeType

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous HT Get command which is used to Get HOME search type. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.4 HT_Set

<u>**Syntax**</u>

int HT_Set(int controllerAddress, int HomeType, out string errString)

controllerAddress: Address of Controller

HomeType: HomeType.

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous HT Set command which is used to Set HOME search type. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.5 ID_Get

<u>**Syntax**</u>

int ID_Get(int controllerAddress, out string StageIdentifier, out string errString)

controllerAddress: Address of Controller

StageIdentifier: StageIdentifier

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

Newport.
Experience | Solutions

This function is used to process synchrounous ID Get command which is used to Get stage identifier. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.6 ID_Set

Syntax

int ID_Set(int controllerAddress, string StageIdentifier, out string errString)

controllerAddress: Address of Controller

StageIdentifier: StageIdentifier.

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous ID Set command which is used to Set stage identifier. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.7 IF_Get

Syntax

int IF_Get(int controllerAddress, out double InterpolationFactor, out string errString)

controllerAddress: Address of Controller

InterpolationFactor: InterpolationFactor

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous IF Get command which is used to Get interpolation factor. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.8 IF_Set

Syntax

int IF_Set(int controllerAddress, double InterpolationFactor, out string errString)

controllerAddress: Address of Controller

InterpolationFactor: InterpolationFactor

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous IF Set command which is used to Set interpolation factor. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.9 KI_Get

Syntax

int KI_Get(int controllerAddress, out double IntegralGain, out string errString)

controllerAddress: Address of Controller

IntegralGain: IntegralGain

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous KI Get command which is used to Get integral gain. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.10 KI_Set

Syntax

int KI_Set(int controllerAddress, double IntegralGain, out string errString)

controllerAddress: Address of Controller

IntegralGain: IntegralGain

errString: The failure reason

This function is used to process synchrounous KI Set command which is used to Set integral gain. Refer to the CONEX-AGP Controller's manual to get the command description.

Decription

Return: 0 in success and -1 on failure

2.2.2.11 KP_Get

Syntax

int KP_Get(int controllerAddress, out double ProportionalGain, out string errString)

controllerAddress: Address of Controller

ProportionalGain: ProportionalGain

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous KP Get command which is used to Get proportional gain. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.12 KP_Set

Syntax

int KP_Set(int controllerAddress, double ProportionalGain, out string errString)

controllerAddress: Address of Controller

ProportionalGain: ProportionalGain

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous KP Set command which is used to Set proportional gain. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.13 LF_Get

Syntax

int LF_Get(int controllerAddress, out double Frequency, out string errString)

controllerAddress: Address of Controller

Frequency: Frequency

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous LF Get command which is used to Get low pass filter frequency. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.14 LF_Set

Syntax

int LF_Set(int controllerAddress, double Frequency, out string errString)

controllerAddress: Address of Controller

Frequency: Frequency

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous LF Set command which is used to Set low pass filter frequency. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.15 MM_Get

Syntax

int MM_Get(int controllerAddress, out string State, out string errString)

controllerAddress: Address of Controller

State: State

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous MM Get command which is used to Enter/Leave DISABLE state. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.16 MM_Set

Syntax

int MM_Set(int controllerAddress, int State, out string errString)

controllerAddress: Address of Controller

State: State

errString: The failure reason

Return: 0 in success and -1 on failure

This function is used to process synchrounous MM Set command which is used to Enter/Leave DISABLE state. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.17 OR

Syntax

int OR(int controllerAddress, out string errString)

clientID: Instrument ID

controllerAddress: controllerAddress identifying the Address of Controller

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous OR Set command which is used to execute a home search. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.18 PA_Get

Syntax

int PA_Get(int controllerAddress, out double TargetPosition, out string errString)

controllerAddress: Address of Controller

TargetPosition: TargetPosition

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous PA Get command which is used to Move absolute. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.19 PA_Set

Syntax

int PA_Set(int controllerAddress, double TargetPosition, out string errString)

controllerAddress: Address of Controller

TargetPosition: TargetPosition

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous PA Set command which is used to Move absolute. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.20 PR_Get

<u>**Syntax**</u>

int PR_Get(int controllerAddress, out double Step, out string errString)

controllerAddress: Address of Controller

Step: Step

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous PR Get command which is used to Move relative. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.21 PR_Set

<u>**Syntax**</u>

int PR_Set(int controllerAddress, double Step, out string errString)

ontrollerAddress: Address of Controller

Step: Step

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous PR Set command which is used to Move relative. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.22 PW_Get

<u>**Syntax**</u>

int PW_Get(int controllerAddress, out int ConfigurationState, out string errString)

controllerAddress: Address of Controller

ConfigurationState: ConfigurationState

errString: The failure reason

Return: 0 in success and -1 on failure

<u>**Decription**</u>

This function is used to process synchrounous PW Get command which is used to Enter/Leave CONFIGURATION state. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.23 PW_Set

<u>**Syntax**</u>

int PW_Set(int controllerAddress, int ConfigurationState, out string errString)

controllerAddress: Address of Controller

ConfigurationState: ConfigurationState

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous PW Set command which is used to Enter/Leave CONFIGURATION state. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.24 RS

Syntax

int RS(int controllerAddress, out string errString)

clientID : Instrument ID

controllerAddress: controllerAddress identifying the Address of Controller

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous RS Set command which is used to Reset controller. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.25 RS485

Syntax

int RS485(int controllerAddress, out string errString)

clientID : Instrument ID

controllerAddress: controllerAddress identifying the Address of Controller

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous RS## Set command which is used to Reset the controller address to 1. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.26 SA_Get

Syntax

int SA_Get(int controllerAddress, out int Address, out string errString)

controllerAddress: Address of Controller

Address: Address

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SA Get command which is used to Get the controller's RS-485 address. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.27 SA_Set

Syntax

int SA_Set(int controllerAddress, int Address, out string errString)

controllerAddress: Address of Controller

Address: Address

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SA Set command which is used to Set the controller's RS-485 address. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.28 SL_Get

Syntax

int SL_Get(int controllerAddress, out double LeftLimit, out string errString)

controllerAddress: Address of Controller

LeftLimit: LeftLimit

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SL Get command which is used to Get negative software limit. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.29 SL_Set

Syntax

int SL_Set(int controllerAddress, double LeftLimit, out string errString)

controllerAddress: Address of Controller

LeftLimit: LeftLimit

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SL Set command which is used to Set negative software limit. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.30 SR_Get

Syntax

int SR_Get(int controllerAddress, out double RightLimit, out string errString)

controllerAddress: Address of Controller

RightLimit: RightLimit

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SR Get command which is used to Get positive software limit. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.31 SR_Set

Syntax

int SR_Set(int controllerAddress, double RightLimit, out string errString)

controllerAddress: Address of Controller

RightLimit: RightLimit

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SR Set command which is used to Set positive software limit. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.32 ST

Syntax

int ST(int controllerAddress, out string errString)

clientID : Instrument ID

controllerAddress: controllerAddress identifying the Address of Controller

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous ST Set command which is used to Stop motion. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.33 SU_Get

Syntax

int SU_Get(int controllerAddress, out double IncrementValue, out string errString)

controllerAddress: Address of Controller

IncrementValue: IncrementValue

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SU Get command which is used to Get encoder increment value. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.34 SU_Set

Syntax

int SU_Set(int controllerAddress, double IncrementValue, out string errString)

controllerAddress: Address of Controller

IncrementValue: IncrementValue

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous SU Set command which is used to Set encoder increment value. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.35 TB

Syntax

int TB(int controllerAddress, string inErrorCode, out string outErrorCode, out string errString)

controllerAddress: Address of Controller

inErrorCode : inErrorCode.

outErrorCode : outErrorCode

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous TB Get command which is used to Get command error string. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.36 TE

Syntax

int TE(int controllerAddress, out string LastCommandError, out string errString)

controllerAddress: Address of Controller

LastCommandError: LastCommandError

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous TE Get command which is used to Get last command error. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.37 TH

Syntax

int TH(int controllerAddress, out double SetPointPosition, out string errString)

controllerAddress: Address of Controller

SetPointPosition: SetPointPosition

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous TH Get command which is used to Get set-point position. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.38 TP

Syntax

int TP(int controllerAddress, out double CurrentPosition, out string errString)

controllerAddress: Address of Controller

CurrentPosition: CurrentPosition

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous TP Get command which is used to Get current position. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.39 TS

Syntax

int TS(int controllerAddress, out string errorCode, out string controllerState, out string errString)

controllerAddress: Address of Controller

errorCode : errorCode

controllerState : controllerState

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous TS Get command which is used to Get positioner error and controller state. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.40 VE

Syntax

int VE(int controllerAddress, out string ControllerVersion, out string errString)

controllerAddress: Address of Controller

ControllerVersion: ControllerVersion

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous VE Get command which is used to Get controller revision information. Refer to the CONEX-AGP Controller's manual to get the command description.

2.2.2.41 ZT

Syntax

int ZT(int controllerAddress, out List<string> Parameters, out string errString)

controllerAddress: Address of Controller

Parameters: Parameters

errString: The failure reason

Return: 0 in success and -1 on failure

Decription

This function is used to process synchrounous ZT Get command which is used to Get all controller parameters. Refer to the CONEX-AGP Controller's manual to get the command description.

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)
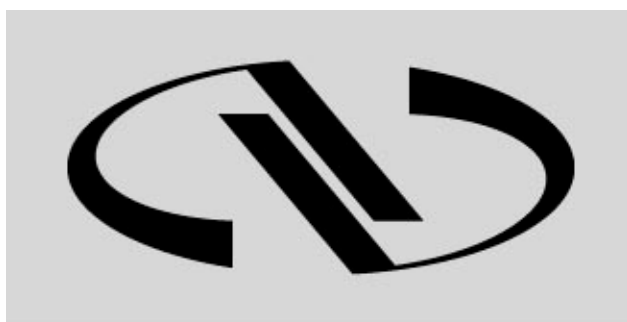
Date: _____

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: rma.service@newport.com

Europe
MICRO-CONTROLE Spectra-Physics S.A.S
1, rue Jules Guesde – Bât. B
ZI Bois de l'Épine – BP189
91006 Evry Cedex
France

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

Technical Support
e-mail: tech_europe@newport.com

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