EWHA provider

KOGANEI servo hand

Version 1.0.1

User's guide

July 17, 2012

【 Remarks 】

【 Revision history 】

Version	Date	Content
1.0.0.0	2006-02-24	First edition.
1.0.0.1	2010-02-11	Error code was added
1.0.1	2012-07-17	Document versioning rules was changed

【 Hardware 】

Model	Version	Notes

Contents

1. Introduction

This book is a user's guide of the EWHA provider that is the CAO provider for servo hand (EWHA) manufactured by KOGANEI.

The EWHA provider sends and receives the command by RS-232C for the servo hand.

2. Outline of provider

2.1. Outline

The EWHA provider executes each command with CaoController::Execute, CaoCommand::Execute, CaoVariable::putValue, and CaoVariable::getValue.

In CaoController::Execute, the character string of the command is sent as it is as a command.

In CaoCommand::Execute, the command corresponding to the command name is executed

In CaoVariable::putValue or CaoVariable::getValue, the value is set/acquired by the command that corresponding to the variable name.

The file format of the EWHA provider is DLL (Dynamic Link Library), and the table 2-1 lists details

Table2-1EWHA provider

File name	CaoProvEWHA.dll
ProgID	CaoProv.KOGANEI.EWHA
Registry registration	regsvr32 CaoProvEWHA.dll
Deregistration	regsvr32 /u CaoProvEWHA.dll

2.2. Method and property

2.2.1. CaoWorkspace::AddController method

EWHA provider refers to the connection parameter for communication and connects the communication at the time of AddController method.

Option specifies a communication form and a terminator setting at that time.

```
AddController
(
"< controller name >"                    // Controller name
 "CaoProv.KOGANEI.EWHA",          // Provider name. Fixed.
"< machine name >"                       // Execution machine name of provider.
"< option >"                        // Option character string
)
```

Following is a list of option string items..

Table 1 Option character string of CaoWorkspace::AddController

Option	Meaning
Conn =< connected parameter >	Mandatory. Set the communication form and connection parameters Please refer to 2.2.1.1. for details
Term =< terminator >	Specify the terminator when communicating. 1:CR (default) 2:LF 3:CR+LF
TimeOut =< Time-out time >	Specify time-out time when communicating. (default: 500ms)

2.2.1.1. Conn parameter

Following is connection parameter strings for Parameter option. The object in the square bracket (“[ ]”) is omittable. The underlined part written in the explanation of each parameter shows the default value that the case of without specifying options.

“com:<COM Port>[:<BaudRate>[:<Parity>:<DataBits>:<StopBits>]]"

<COM Port> : COM port number. ‘1'-COM1,‘2'-COM2, …

<BaudRate> : Communication speed.
4800,9600,19200,38400,57600,115200.

<Parity> : Parity. ‘N'-NONE,‘E'-EVEN,‘O'-ODD

<DataBits> : Number of data bits. ‘7'-7bit, ‘8'-8bit.

<StopBits> : Number of stop bits. ‘1'-1bit, ‘2'-2bit.

(example 1) “com:1" Communication port COM1 (, 38400bps, None, 8bits, 2bit)

(example 2) “com:2:9600" Communication port COM2 and 9600bps (, None, 8bits, 2bit)

(example 3) “com:3:38400:N:8:2" Communication port COM3, 38400bps, and None, 8bits, and 2bit

2.2.2. CaoController::AddVariable method

Generate a variable object that acquisition/sets information of EWHA.

Only the variable of Table2-3 and Table2-4 can be used for the variable name.

2.2.3. CaoController::AddCommand method

Generate CaoCommand that sends a command to EWHA.

Following table shows the list of the command name.

```
AddCommand
(
"< command name >"        // Command name
"< option >"    // Option character string
)
```

Table2-2Command name table

Command name	Command of EWHA	Meaning	Parameter	Result
ORG	ORG	Return to origin	-	-
MOVP	MOVP	Moves to the specified point	VT_I4: Point number	-
MOVD	MOVD	Executes coordinate specified movement	VT_R4: Coordinates position VT_I4: Speed	-
MOVH	MOVH	Executes coordinate specified gripping operation	VT_R4: Coordinates position VT_I4: Speed VT_I4: Power	-

XP	X+	+ Movement by specified distance.	-	-
XM	X-	- Movement by specified distance.	-	-
XINC	XINC	+ Movement at constant speed	-	-
XDEC	XDEC	- Movement at constant speed	-	-
SRVO	SRVO	Energizes motor	VT_I4: Energizing (1) / de-energizing (0)	-

2.2.4. CaoController::Execute method

Sends the character string specified for the parameter as it is. When the execution result is OK/READY, the character string that will be received before OK/READY comes is returned as a string array. When the execution result is NG/STOP, the character string received next to NG/STOP is returned as a string array.

In this method, "RAW" is specified in the command name of the first argument, and specify the command of EWHA for the parameter of the second argument. At this time, please specify the parameter by the character string type.

```
Execute
(
    "Raw"                 // Command name. Fixed.
    "<parameter>"         // Character string of EWHA command
)
```

2.2.5. CaoController::Cancel method

Send the cancellation command (^C)

2.2.6. CaoController::get_CommandNames property

Acquire the command name list. Please refer to Table2-2 for the acquired command name.

2.2.7. CaoController::get_VariableNames property

Acquire the variable name list. Please refer to Table2-5 for the acquired variable name.

2.2.8. CaoCommand::Execute method

Generate a command from the command name and the character string set in 2.2.9, and send.

For instance, when the Execute method of command name "ORG" is executed, returns to origin.

2.2.9. CaoCommand::put_Parameter property

Set the parameter at the time of command transmission.

Please refer to Table2-2 for the parameter of each command. If there are more than one parameters, these parameter must be stored each element in the VARIANT array, or, be specified in the comma-delimited character strings

An illegal parameter is not checked in this property. The check on the parameter is judged by the execution result of the command.

2.2.10. CaoCommand::get_Parameter property

The parameter set in 2.2.9 is acquired. When the parameter is not set, VT_EMPTY is returned.

2.2.11. CaoCommand::get_Result property

The latest execution result of 2.2.8 is acquired. The acquired content returns the data division of the response from EWHA by the character string.

2.2.12. CaoVariable::put_ID property

The point number is specified. This property is used when the variable name is only “P". Information on the specified point number can be acquired by setting this property.

2.2.13. CaoVariable::get_ID property

The value set in 2.2.12 is acquired. When the parameter is not set, VT_EMPTY is restored.

2.2.14. CaoVariable::put_Value property

Write system command of EHWA is executed.

Please refer to Table2-5 for the variable name that can be used.

The correspondence table of the command of the variable name and EWHA is shown as follows.

Table2-3 The correspondence table of the variable name at put_Value and EWHA command name

Variable name	Command of EWHA	Remarks
SRVO	SRVO	-
PNO	MOVP ORG	Execute Return to Origin by the ORG command when VT_EMPTY is specified.

2.2.15. CaoVariable::get_Value property

Read system command of EHWA is executed.

Please refer to Table2-5 for the variable name that can be used.

Table2-4Variable name at get_Value and correspondence table of EWHA command name

Variable name	Command of EWHA	Remarks
SRVO	?SRVO	-
POS	?POS	-
PNO	?PNO	-
P	?P	Specify the acquired point number in the ID property.
ORG	?ORG	-
VER	?VER	-
DIO	READ DIO	-

2.3. Variable list

2.3.1. Controller class

Table2-5Controller class user variable list

Variable name	Data type	Explanation	Attribute	
			get	put
SRVO	VT_BSTR	State of motor excitation	-	-
POS	VT_BSTR	Current location acquisition	-	-
PNO	VT_BSTR	Get: Point number Put: Point number movement	-	-
P	VT_BSTR	Point information	-	-
ORG	VT_BSTR	State of Return of origin	-	-
VER	VT_BSTR	Version information	-	-
DIO	VT_BSTR	State of I/O	-	-

2.4. Error code

In the EWHA provider, there is no peculiar error code. About the ORiN2 commonness error, Please refer to the chapter of the error code of "ORiN2 Programming guide".

3. Sample program

Following code shows the way of acquiring Return to origin state and execution of Return to origin of EWHA.

List 3-1 Sample.frm

```
Dim eng As CaoEngine
Dim ctrl As CaoController
Dim val As CaoVariable

Private Sub Form_Load()

 ' generation of CAO engine
 Set eng = New CaoEngine

 ' connection to EWHA
 Set ctrl = eng.Workspaces(0).AddController("Sample", "CaoProv.KOGANEI.EWHA", "", "Conn=com:1")

 ' generation of variable of Return to origin
 Set val = ctrl.AddVariable("ORG","")

End Sub

Private Sub Command1_Click()

 ' setting of value
 val = Text1.Text

End Sub

Private Sub Command2_Click()

 ' acquisition of value
 Text2.Text = val
End Sub
```