Brother
Protocol2 provider

Version 1.2.2

User's guide

March 23, 2020

Remarks:

This document uses the machine translation.

【 revision history 】

Version	Date	Content
1.0.0	2018-01-24	First edition.
1.1.0	2018-02-28	Addition of method and variable concerning file data "Tool data" and "Macro variable"
1.1.1	2018-04-23	Object version describing clearly Omission correction
1.2.0	2018-07-05	Added KeepAlive option.
1.2.1	2018-09-18	Bug fixed. - Get version. - Received data analysis
1.2.2	2020-03-23	Bug fixed. - Multiple connections.

【 connected confirmation ending equipment 】

■ Equipment name

Model name	Firmware version	Notes
SPEEDIO	WX01.08.060	

Contents

1. Introduction

 This book is an user's guide of the Brother Protocol2 provider that reads data by using communication device communication protocol method 2 only for NC for the compact machining center made by the brother company (SPEEDIO etc.), and writes it. The underFigure1-1However, it becomes a whole of device block diagram with [hon] provider.
 The compact machining center is named a machining centre at following brother.
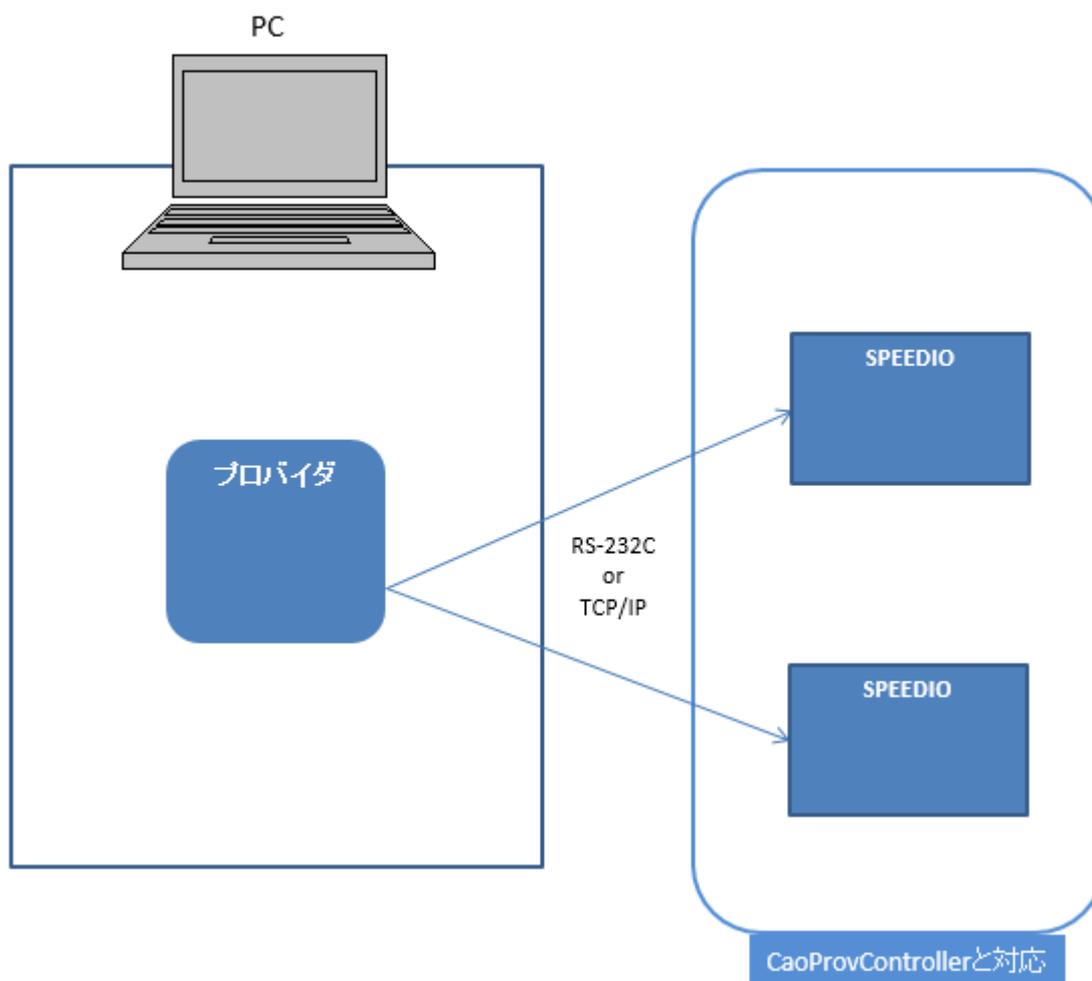
Figure1-1Whole block diagram

Moreover, figure where this provider and correspondence each device were shown is the under.
Figure1-2It becomes it.
(* It is one example. It is not because everything is shown.)
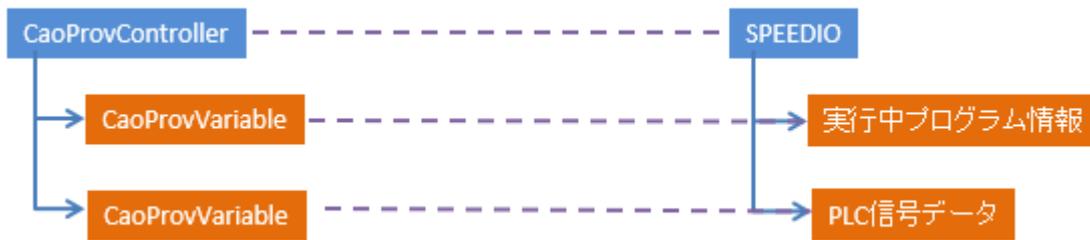
Figure1-2Brother Protocol2 provider and figure for data of SPEEDIO

1.1. Environment and version that this book assumes

  Client PC operates on Windows, and the environment whose targeted machining centre is version 5 or more is assumed.   The development setting of PC can be developed in case of the programming environment that supports Component Object Model (COM and Component Object Model).

1.2. Connection method and notes

 [1]The Brother Protocol2 provider connects it with the machining centre by serial communications or the TCP/IP communication. Because the connection is cut after the response watch time passes from a communication the last in the specification in the machining centre when connecting it by the TPC/IP communication, it is necessary to keep communicating at the cycle of less than response watch time.

1.3. Source that becomes reference

  C++ and Java though all the programming cases with this book have been described with Visual Basic 6.0 . It is possible to develop in various program languages such as NET, LabVIEW, and Delphi. Please refer to "ORiN 2 programming guide" for use.
 "ORiN 2 programming guide" corresponds to the following files of the ORiN2 SDK installation folder.
 ・ ORiN2¥CAO¥Doc¥ORiN2_ProgrammersGuide_<lang>.pdf
 - Please replace with the language character string of each environment and read the part of < lang >.
  ORiN2 needed in developing the application that uses the provider and COM/DCOM are explained while exchanging the example for basic knowledge and the technology.

Please obtain the communication specification in the machining centre from Brother Industries, Ltd..

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[1] Set item in machining center

2. Environmental setup for application development

2.1. Setup of PC environment

2.1.1. Automated install of Brother Protocol2 provider

If it is an environment in which ORiN2 SDK is installed, the preparation for the system requirements (line time) to connect it with the Brother machining centre is completed.

Please prepare the programming environment that separately supports Component Object Model (COM and Component Object Model) such as Microsoft Visual Studio 6.0, 2003/2005/2008/2010, and LabVIEW for the setup of the development setting.

2.1.2. Manual installation of Brother Protocol2 provider

It is necessary to register the following registry by the hand work when setting it up without using the installer.

Table2-1Brother Protocol2 provider

File name	CaoProvBrotherProtocol2.dll
ProgID	CaoProv.Brother.Protocol2
Registry registration	regsvr32 CaoProvBrotherProtocol2.dll
Blotting out of registry registration	regsvr32 /u CaoProvBrotherProtocol2.dll

If one regular ORiN2 SDK license of each PC is not registered beforehand so that the CAO engine may work, it doesn't become it. Please refer to the paragraph of "Addition and deletion of the license" in the ORiN2 SDK user's guide.

3. Programming by Brother Protocol2 provider

In the Brother Protocol2 provider, PC can be connected with the machining centre according to the following procedures.

- Making of CaoEngine
- Making of CaoWorkspace
- Making of CaoController

After it connects it with the machining centre, it can access information in the machining center by using the Execute method of CaoController or generating the CaoVariabe object.

3.1. Sample programming accessed PLC

The sample program that reads and writes the value of the data register of global OM of PLC as an example is shown here. Table3-1The requirement for [ni] sample programFigure3-1The flow of [ni] sample program is described respectively.

Table3-1Requirement for sample program

Requirement	Explanation
Connection destination	It connects it by TCP/IP.
	Connection destination Internet Protocol address is 192.168.1.2.
	The connection destination port number is 10000.
Content of processing	The value is read from D0100 of PLC.
	..acquisition.. value + D1100 of PLC The value of one is written.
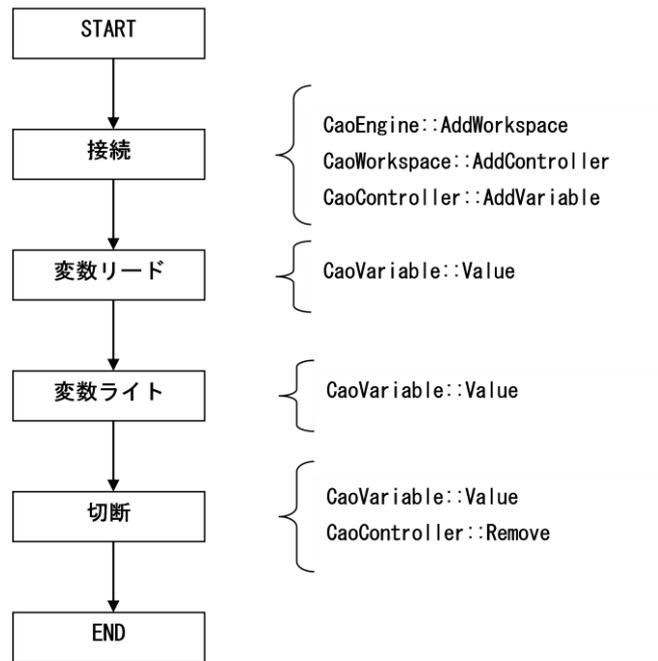
Figure3-1Flow of PLC access

A concrete code is shown from the following paragraphs.

3.1.1. Sample program

The whole image of the sample program is shown as follows.

Sample	READ_WRITE_PLC.vb

```vb
Sub Main
    ' object
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Dim varD0100 As CaoVariable
    Dim varD1100 As CaoVariable

    ' generation of CaoEngine object
    Set engine = New caoEngine
    ' generation of CaoWorkspace object
    Set workspace = engine.AddWorkspace("NewWrks", "")
    ' generation of CaoController object
    Set ctrl = workspace.AddController("BrotherMC", _
                                       "CaoProv.Brother.Protocol2", _
                                       "", _
                                       "CONN=ETH:192.168.1.2, TIMEOUT=3000")

    ' CalVarialbe accessed D0100 ' is added to CaoController.
```

```
    Set varD0100 = ctrl.AddVariable("PLC_D0100", "KIND=D, NO=100")
    ' CalVarialbe accessed D1100  is added to CaoController.
    Set varD1100 = ctrl.AddVariable("PLC_D1100", "KIND=D, NO=1100")

    '   The value is read from D0100.
    Dim value As Integer
    value = D0100.value

    'Value ..reading from D0100.. .... +  One is written in D1100.
    varD1100.value = value + 1

    CaoVarialbe '  is cleared from CaoController.
    Call ctrl.Variables.Clear
    ' deletion of CaoVariable
    Set varD0100 = Nothing
    Set varD1100 = Nothing

    CaoController '  is deleted from CaoWorkspace.
    Call workspace.Controllers.Remove(ctrl.Index)
    ' deletion of CaoController
    Set ctrl = Nothing

    CaoWorkspace '  is deleted from CaoEngine.
    Call engine.Workspaces.Remove(workspace.Index)
    ' deletion of CaoWorkspace
    Set workspace = Nothing

    ' deletion of CaoEngine
    Set engine = Nothing
End Sub
```

3.1.1.1. Connection

To connect it with the machining centre, the following procedures are taken.

(1) The variable to maintain the object is prepared. The object necessary for the controller connection is CaoEngine object, CaoWorkspace object, and CaoController object. When the CaoController object is acquired from CaoWorkspaces, the CaoWorkpace object need not prepare the variable. Moreover, the CaoVariable object to access the variable is needed. The example of the code in VB6 is shown as follows.

```
Dim engine As caoEngine        '  variable for CaoEngine object
Dim workspace As caoWorkspace  '  variable for CaoWorkspace object
Dim ctrl As CaoController       '  variable for CaoController object
Dim varD0100 As CaoVariable    '  variable for CaoVariable object
Dim varD1100 As CaoVariable    '  variable for CaoVariable object
```

(2) The CaoEngine object is generated. The CaoEngine object uses and generates the New key
    word.

```
'  generation of CaoEngine object
Set engine = New caoEngine
```

(3) The CaoWorkspace object is acquired or it generates it. When the CaoEngine object is
    generated, the CaoWorkspaces object and the CaoWorkspace object are generated with default
    one by one. The example of the code of newly generating the CaoWorkspace object and
    CaoWorkspace of default are shown as follows.

```
'  generation of CaoWorkspace object
Set workspace = engine.AddWorkspace("NewWrks", "")
```

(4) The CaoController object is generated. The CaoController object is set and to generate
    it, the provider name used and the parameter to use it are set. In the Brother Protocol2
    provider, Internet Protocol address of the controller of the connection destination is
    specified in the option. The example of the code is shown as follows.

```
'  generation of CaoController object
Set ctrl = g_wrks.AddController("BrotherMC", _
                                "CaoProv.Brother.Protocol2", _
                                "", _
                                "CONN=ETH:192.168.1.2, TIMEOUT=3000:10000")
```

(5) The CaoVariable object is generated. The CaoVariable object of the variable to be connected
    is generated. The example of the code of generating the variable object accessed PLC(D0100)
    and PLC(D1100) is shown as follows.

```
   Set varD0100 = ctrl.AddVariable("PLC_D0100", "KIND=D, NO=100")
   Set varD1100 = ctrl.AddVariable("PLC_D1100", "KIND=D, NO=1100")
```

3.1.1.2. Lead light in PLC address

Acquisition/to set the value of the connected PLC address, the Value property of the
CaoVariable object reference/is set. When the value of the PLC address acquisition/is set,
it is necessary to prepare 32 bit integer type variable. The example of the code is shown as
follows.

```
Dim value As Integer
value = D0100.value                          '  acquisition of value
varD1100.value = value + 1                    '  setting of value
```

3.1.1.3. Cutting

The generated object is deleted, and the object deleted from the collection class that manages the object is deleted when cutting it with the controller. The example of the code is shown as follows.

```
 CaoVarialbe '  is cleared from CaoController.
Call ctrl.Variables.Clear
 '  deletion of CaoVariable
Set varD0100 = Nothing
Set varD1100 = Nothing
 CaoController '  is deleted from CaoWorkspace.
Call workspace.Controllers.Remove(ctrl.Index)
 '  deletion of CaoController
Set ctrl = Nothing
 CaoWorkspace '  is deleted from CaoEngine.
Call engine.Workspaces.Remove(workspace.Index)
 '  deletion of CaoWorkspace
Set workspace = Nothing
 '  deletion of CaoEngine
Set engine = Nothing
```

4. Command reference

4.1. Command list

Table4-1Command list

Category	Method/property	Function	Reference
CaoWorkspace	AddController	It connects it with the controller.	P. 15
CaoController	AddVariable	It connects it with the user system variable.	P. 17
	GetVariableNames	Acquisition of list of user system variable	P. 18
	Execute	Execution of command being mounted by controller class	P. 18
CaoVariable	get_Value	Acquisition of value	P. 56
	put_Value	Setting of value	P. 56

4.2. Method property

4.2.1. CaoWorkspace::AddController method

The Controller object is generated.

Optional, each information to connect it with the device is specified.

The specification of AddController is shown as follows.

Format

```
AddController
(
        "< controller name >"          ' Controller name (arbitrariness)
        "CaoProv.Brother.Protocol2",   ' Provider  name  (fixation)
        "< machine name >"             ' Provider execution machine name (unused)
        "< option >"                   ' Optional character string
)
```

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")

'   when connecting it with the machining centre by using serial communications
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=COM:2, Timeout=500")
'   when connecting it with the machining centre by using the TCP/IP communication
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```

The character string specified for an optional character string is shown as follows.

Table4-2Optional character string of CaoWorkspace::AddController

Option	Indispensability	Explanation	Range of value	Default value
conn=com:<COM Port> [:<BaudRate> [:<Parity>:<DataBits> :<StopBits>]]	✓[2]	Please specify it when connecting it with the machining centre by using serial communications. The serial port number that can be used on the PC side is specified.	–	Baud rate: 9600 Parity: NONE data bits: 7bit stop bits: 1bit
conn=eth:<IP address> [:<port>]	✓[2]	Please specify it when connecting it with the machining centre by using the TCP/IP communication. Internet Protocol address and the port number of the connection	–	Port: 10000

[2] Required com or eth option

Option	Indispensabili ty	Explanation	Range of value	Default value
		destination are specified.		
timeout=<Timeout-out time>	-	Sending and receiving time-out time ms is set.	1 - 65535	500
KeepaliveTime=<keepaliv e waiting time>	-	Set the keep-alive time waiting time. [ms]	1 - 4294967 295	10000
KeepaliveInterval=<Keep alive interval time>	-	Set the keep-alive time interval time. [ms]	1 - 4294967 295	2000

4.2.2. CaoController::AddVariable method

The CaoVariable object is generated from CaoController. To the variable identifierTable4-4Only the shown [ni] variable identifier can be used.

The specification of AddVariable is shown as follows.

Format

AddVariable
(
        "< variable identifier >"   ' variable identifier
        "< option >"   ' Optional character string
)

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")

    The variable of PLC signal X3FF '  is added.
```

```
Dim varPLC As CaoVarialbe
Set varPLC = ctrl.AddVariable("PLC_X_3FF", "KIND=X,NO=3FF")
```

4.2.3. CaoController::GetVariableNames method

The list of the variable identifier and the system variable identifier that can be specified by the AddVariable method is acquired.

4.2.4. CaoController::Execute method

The method is executed with Controller.

A necessary argument is specified for the argument for the method.

The specification of Execute is shown as follows.

Format

Execute

(

       "< method name >"   ' Method name

       "< argument >"   ' Argument

)

The method list that can be specified with Execute is shown as follows. Each method is detailed and the usage example is described.

Table4-3CaoController::Execute method list

Method name	Explanation	Command type + function
ReadFileManagementData	The file management data is acquired.	REDFILE
ReadSelectPRGInfo	Program information is acquired while executing it.	REDPRGN
ReadDate	The date and time are acquired.	REDDATE
ReadPLCData	The PLC signal data is acquired.	REDPLCD
WriteRelativePOSOffset	The preset of the amount of the relative coordinates offset is done.	WRTREL
WriteRelativePOSOffsetAll	The preset of the amount of the relative coordinates offset is done. (all axes)	WRTREL
	The amount of the tool correction is	WRTTOFS

Method name	Explanation	Command type + function
WriteToolOffset	set.	
WriteToolLife	The longevity of the tool is set.	WRTTLLF
WriteToolGroup	The tool is set to the tool group.	WRTTGRP
WriteDate	The date and time are set.	WRTDATE
WriteOperatingtime	Operating time is set.	WRTOPTM
WritePLCData	The PLC signal data is set.	WRTPLCD
ClearToolLife	The longevity of the tool is initialized.	CLRTLLF
ClearToolGroup	The tool of the tool group is deleted.	CLRTGRP
IOReference	Refer to the external I/O signal.	IOCREF
IOModiy	The external I/O signal is operated.	IOCMOD
RefreshPDSP	"Positional data" file data is updated.	LOD
GetPDSP	"Positional data" file data is acquired.	LOD
GetMachinePOS	The machine coordinates position is acquired.	LOD
GetRelativePOS	The relative coordinates position is acquired.	LOD
GetAbsolutePOS	The coordinates position is absolutely acquired.	LOD
GetDistanceTarget	The remainder movement is acquired.	LOD
GetSpeed	The sending speed is acquired.	LOD
GetToolNo	The main axis tool number is acquired.	LOD
GetNextToolNo	The next tool keeper title is acquired.	LOD
GetMagagineNo	The magazine number is acquired.	LOD
RefreshALARM	"Present alarm" file data is updated.	LOD
GetALARM	"Present alarm" file data is acquired.	LOD
GetAlarmCount	The number of effective alarm information is acquired.	LOD
GetCurrentAlarm	The alarm is acquired now.	LOD
RefreshPANEL	"Operation panel data" file data is	LOD

Method name	Explanation	Command type + function
	updated.	
GetPANEL	"Operation panel data" file data is acquired.	LOD
GetMode	The mode is acquired.	LOD
RefreshWKCNTR	"Work counter" file data is updated.	LOD
GetWKCNTR	"Work counter" file data is acquired.	LOD
GetNCWorkCounter	Production counter (NC) is acquired.	LOD
GetInteractiveWorkCounter	The production counter (conversation) is acquired.	LOD
RefreshPRDC2	"Production data 2(time display)" file data is updated.	LOD
GetPRDC2	"Production data 2(time display)" file data is acquired.	LOD
GetOpeTimeHistoryCount	The effective operating time number of records is acquired.	LOD
GetOpeTimeHistory	The operating time record is acquired.	LOD
RefreshHEAC	"Heat displacement automatic operation correction" file data is updated.	LOD
GetHEAC	"Heat displacement automatic operation correction" file data is acquired.	LOD
SetHEACRange	The data range of the heat displacement automatic operation correction history is set.	LOD
GetHEACHistoryCount	The number of effective heat displacement automatic operation correction histories within the range of specified data is acquired.	LOD
GetHEACZHistory	The heat displacement automatic operation correction history (Z axis) is acquired.	LOD
GetHEACXHistory	The heat displacement automatic operation correction history (X axis) is acquired.	LOD

Method name	Explanation	Command type + function
GetHEACYHistory	The heat displacement automatic operation correction history (Y axis) is acquired.	LOD
RefreshTOLS	"Tool data" file data is updated.	LOD
GetTOLS	"Tool data" file data is acquired.	LOD
GetToolData	The tool data is acquired.	LOD
RefreshMCRS	"Macro variable" file data is updated.	LOD
GetMCRS	"Macro variable" file data is acquired.	LOD
GetMacroVariable	Macro variable (#500~#999) is acquired.	LOD

4.2.4.1. ReadFileManagementData

The file management data is acquired.

Item	Type explanation			
Argument	None			
Return value	VT_ARRAY | VT_VARIANT			
	0	VT_UI2	The number of registration is returned.	
	1	VT_UI2	The number of remainder registration is returned.	
	2	VT_UI8	The memory utilization is returned. (unit: Byte)	
	3	VT_UI8	The memory remainder capacity is returned. (unit: Byte)	

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
The file management data '   is acquired.
Dim vArray() As Variant
vArray = ctrl.Execute("ReadFileManagementData")
```

4.2.4.2. ReadSelectPRGInfo

Program information is acquired while executing it.

Item	Type explanation		
Argument	None		
Return value	VT_ARRAY | VT_BSTR		
	0	VT_BSTR	The program number is returned while executing it.
	1	VT_BSTR	The main program number is returned.
	2	VT_BSTR	The block number is returned while executing it.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Program information when being executing it ' is acquired.
Dim strArray() As String
strArray = ctrl.Execute("ReadSelectPRGInfo")
```

4.2.4.3. ReadDate

The date and time are acquired.

Item	Type explanation		
Argument	None		
Return value	VT_ARRAY | VT_UI2		
	0	VT_UI2	The age (Christian era) is returned.
	1	VT_UI2	The moon is returned.
	2	VT_UI2	The sun is returned.
	3	VT_UI2	Time is returned.
	4	VT_UI2	The amount is returned.
	5	VT_UI2	The second is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
```

```
                              "CaoProv.Brother.Protocol2", _
                              "", _
                              "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    The date and time '  are acquired.
    Dim vArray As Variant
    vArray = ctrl.Execute("ReadDate")
```

4.2.4.4. ReadPLCData

The PLC signal data is acquired. Please refer to the capter Appendix C for the signal kind and the signal number that can be specified.

Item	Type explanation			
Argument	VT_ARRAY | VT_BSTR			
	0	VT_BSTR	The signal kind is specified.	
	1	VT_BSTR	The signal number is specified.	
Return value	VT_I4		A set value is returned.	

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                              "CaoProv.Brother.Protocol2", _
                              "", _
                              "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Program information when being executing it '  is acquired.
    Dim val As Integer
    val = ctrl.Execute("ReadPLCData", Array("D", "100"))
```

4.2.4.5. WriteRelativePOSOffset

It is a preset (re-setting) against a specified axis as for the amount of the offset at the relative coordinates position.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
	0	VT_I2	The axis number is specified.	
	1	VT_R8	The amount of the offset of the specified axis number is specified.	
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
12.3 ' is set to the amount of the offset of axis number 1.
Call ctrl.Execute("WriteRelativePOSOffset", Array(1, 12.3))
```

4.2.4.6. WriteRelativePOSOffsetAll

It is a preset (re-setting) against all axes as for the amount of the offset at the relative coordinates position.

Item	Type explanation			
Argument	VT_ARRAY | VT_R8			
		0	VT_R8	The amount of the offset of axis number 1 is specified.
		1	VT_R8	The amount of the offset of axis number 2 is specified.
		2	VT_R8	The amount of the offset of axis number 3 is specified.
		3	VT_R8	The amount of the offset of axis number 4 is specified.
		4	VT_R8	The amount of the offset of axis number 5 is specified.
		5	VT_R8	The amount of the offset of axis number 6 is specified.
		6	VT_R8	The amount of the offset of axis number 7 is specified.
		7	VT_R8	The amount of the offset of axis number 8 is specified.
		8	VT_R8	The amount of the offset of axis number 9 is specified.
		9	VT_R8	The amount of the offset of axis number 10 is specified.
		10	VT_R8	The amount of the offset of axis number 11 is specified.
		11	VT_R8	The amount of the offset of axis number 12 is specified.
		12	VT_R8	The amount of the offset of axis number 13 is specified.
		13	VT_R8	The amount of the offset of axis number 14 is specified.
		14	VT_R8	The amount of the offset of axis number 15 is specified.
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
```

```
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
The amount of the offset ' is set to axis number 1-15 respectively.
```
Call ctrl.Execute("WriteRelativePOSOffsetAll", Array(10, 2.2, 0, 12.2, 50, 0.5, 10.1, 0, 20.5,
1.12, 11.12, 0, 55, 0, 10))
```

4.2.4.7. WriteToolOffset

The amount of the tool correction is set.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
	0	VT_UI2	The tool number is specified. (1 - 90)	
	1	VT_UI2	The correction kind is specified. 0:Tool length offset 1:Wear-out of length of tool correction 2:Cutter compensation 3:Tool diameter wear-out correction	
	2	VT_R8	The amount of the correction is specified.	
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
Ten ' is set to the tool length offset of tool number 1.
```
Call ctrl.Execute("WriteToolOffset", Array(1, 0, 10))
```

4.2.4.8. WriteToolLife

The longevity of the tool is set.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
	0	VT_UI2	The tool number is specified. (1 - 90)	

Item	Type explanation			
	1	VT_UI2	The longevity kind is specified.	
			0:Unit of longevity	
			1:Initial longevity	
			2:The previous notice longevity	
			3:Longevity	
	2	VT_UI4	A set value is specified.	
			When 0 is specified for a longevity kind, the following units	
			of longevity can be set.	
			1:It doesn't count.	
			2:Time (amount)	
			3:Number of hole processings (hole)	
			4:Program (times)	
			Longevity value when 1-3 is specified for longevity kind	
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")

The time of each longevity of tool number 1(amount) '  is set.
Call ctrl.Execute("WriteToolLife", Array(1, 0, 4))
```

4.2.4.9. WriteToolGroup

The tool is set to the tool group.

Item	Type explanation		
	VT_ARRAY | VT_UI2		
Argument	0	VT_UI2	The group number is specified. (1 ? 30)
	1	VT_UI2	The order of use is specified. (1 ? 30)
	2	VT_UI2	The tool number is specified. (1 - 99)
Return value	None		

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Tool number 2 '  is set in order 10 of use of tool group 1.
Call ctrl.Execute("WriteToolGroup", Array(1, 10, 2))
```

4.2.4.10. WriteDate

The date and time are set.

Item	Type explanation			
	VT_ARRAY | VT_UI2			
		0	VT_UI2	The age (Christian era) is specified.
		1	VT_UI2	The moon is specified.
		2	VT_UI2	The day is specified.
Argument		3	VT_UI2	Time is specified.
		4	VT_UI2	The amount is specified.
		5	VT_UI2	The second is specified.
Return value	None			

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
15:51:00, April 26, 2018 '  is set at the date and the time of NC.
Call ctrl.Execute("WriteDate", Array(2018, 4, 26, 15, 51, 00))
```

4.2.4.11. WriteOperatingtime

Operating time is set.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
	0	VT_UI4	Time is specified.	
	1	VT_UI2	The amount is specified.	
	2	VT_UI2	The second is specified.	
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
11 seconds of 112 hours and 51 minutes ' are set at operating time.
Call ctrl.Execute("WriteOperatingtime", Array(112, 51, 11))
```

4.2.4.12. WritePLCData

The PLC signal data is set. About the signal kind and the signal number that can be specified,
Please refer to "WritePLCData".

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	The signal kind is specified.	
	1	VT_BSTR	The signal number is specified.	
	2	VT_I4	A set value is specified.	
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
```

```
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
One ' is set to the signal data of signal D and number 1100.
```
Call ctrl.Execute("WritePLCData", Array("D", "1100", 1))
```

4.2.4.13. ClearToolLife

The longevity of the tool is initialized.

Item	Type explanation	
Argument	VT_UI2	The tool number is specified. (1 ? 99)
Return value	None	

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
The longevity of tool number 99 ' is initialized.
```
Call ctrl.Execute("ClearToolLife", 99)
```

4.2.4.14. ClearToolGroup

The tool of the tool group is deleted.

Item	Type explanation			
Argument	VT_ARRAY | VT_UI2			
		0	VT_UI2	The group number is specified. (1-30)
		1	VT_UI2	The order of use is specified. (1-30)
Return value	None			

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
```

```
                              "CONN=ETH:192.168.1.2, TIMEOUT=3000")
   The tool of order 30 of use of tool group 1 '  is deleted.
   Call ctrl.Execute("ClearToolGroup", Array(1, 30))
```

4.2.4.15. IOReference

Refer to the external I/O signal. About the signal name that can be specified

Item	Type explanation	
Argument	VT_BSTR	The signal name is specified.
Return value	VT_BOOL	The signal value is returned.

Usage example

```
   Dim engine As caoEngine
   Dim workspace As caoWorkspace
   Dim ctrl As CaoController
   Set engine = New caoEngine
   Set workspace = engine.AddWorkspace("NewWrks", "")
   Set ctrl = workspace.AddController("Controller", _
                           "CaoProv.Brother.Protocol2", _
                           "", _
                           "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    The value of PRO1 '  is acquired.
   Dim val As Boolean
   val = ctrl.Execute("IOReference", "PRO1")
```

4.2.4.16. IOModiy

The external I/O signal is operated (setting).

Item	Type explanation		
Argument	VT_ARRAY | VT_VARIANT		
	0	VT_BSTR	The signal name is specified.
	1	VT_BOOL	A set value is specified.
Return value	None		

Usage example

```
   Dim engine As caoEngine
   Dim workspace As caoWorkspace
   Dim ctrl As CaoController
   Set engine = New caoEngine
   Set workspace = engine.AddWorkspace("NewWrks", "")
   Set ctrl = workspace.AddController("Controller", _
                           "CaoProv.Brother.Protocol2", _
                           "", _
                           "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```

The value of PRO2 ' is set to turning on.
Call ctrl.Execute("IOModify", Array("PRO2", True))

4.2.4.17. RefreshPDSP

"Positional data" file data that the provider is maintaining is updated.

Item	Type explanation
Argument	None
Return value	None

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Positional data" file data that the provider is maintaining '  is updated.
Call ctrl.Execute("RefreshPDSP")
```

4.2.4.18. GetPDSP

"Positional data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_BSTR	"Positional data" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 "Positional data" file data is updated, and "Positional data" file data '  is acquired.
Dim strPDSP As String
strPDSP = ctrl.Execute("GetPDSP", True)
```

4.2.4.19. GetMachinePOS

The machine coordinates position in "Positional data" file data is acquired.

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_R8		
	0	VT_R8	The machine coordinates (X axis) are returned.
	1	VT_R8	The machine coordinates (Y axis) are returned.
	2	VT_R8	The machine coordinates (Z axis) are returned.
	3	VT_R8	The machine coordinates (four axes) are returned.
	4	VT_R8	The machine coordinates (five axes) are returned.
	5	VT_R8	The machine coordinates (six axes) are returned.
	6	VT_R8	The machine coordinates (seven axes) are returned.
	7	VT_R8	The machine coordinates (eight axes) are returned.
	8	VT_R8	The machine coordinates (P1 axis) are returned.
	9	VT_R8	The machine coordinates (P2 axis) are returned.
	10	VT_R8	The machine coordinates (P3 axis) are returned.
	11	VT_R8	The machine coordinates (P4 axis) are returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Positional data" file data is updated, the machine coordinates position' is acquired.
Dim dblMachinePos() As Double
dblMachinePos = ctrl.Execute("GetMachinePOS", True)
```

4.2.4.20. GetRelativePOS

The relative coordinates position in "Positional data" file data is acquired.

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_R8		
	0	VT_R8	Relative coordinates (X axis) are returned.

Item	Type explanation			
	1	VT_R8	Relative coordinates (Y axis) are returned.	
	2	VT_R8	Relative coordinates (Z axis) are returned.	
	3	VT_R8	Relative coordinates (four axes) are returned.	
	4	VT_R8	Relative coordinates (five axes) are returned.	
	5	VT_R8	Relative coordinates (six axes) are returned.	
	6	VT_R8	Relative coordinates (seven axes) are returned.	
	7	VT_R8	Relative coordinates (eight axes) are returned.	
	8	VT_R8	Relative coordinates (P1 axis) are returned.	
	9	VT_R8	Relative coordinates (P2 axis) are returned.	
	10	VT_R8	Relative coordinates (P3 axis) are returned.	
	11	VT_R8	Relative coordinates (P4 axis) are returned.	

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
 After "Positional data" file data is updated, the relative coordinates position ' is acquired.
```
Dim dblRelativePos() As Double
dblRelativePos = ctrl.Execute("GetRelativePos", True)
```

4.2.4.21. GetAbsolutePOS

The coordinates position is absolutely acquired ..in "Positional data" file data...

Item	Type explanation			
Argument	VT_BOOL		The data refreshing execution existence is specified.	
Return value	VT_ARRAY | VT_R8			
	0	VT_R8	The absolute coordinate (X axis) is returned.	
	1	VT_R8	The absolute coordinate (Y axis) is returned.	
	2	VT_R8	The absolute coordinate (Z axis) is returned.	
	3	VT_R8	The absolute coordinate (four axes) is returned.	
	4	VT_R8	The absolute coordinate (five axes) is returned.	

Item	Type explanation		
	5	VT_R8	The absolute coordinate (six axes) is returned.
	6	VT_R8	The absolute coordinate (seven axes) is returned.
	7	VT_R8	The absolute coordinate (eight axes) is returned.
	8	VT_R8	The absolute coordinate (P1 axis) is returned.
	9	VT_R8	The absolute coordinate (P2 axis) is returned.
	10	VT_R8	The absolute coordinate (P3 axis) is returned.
	11	VT_R8	The absolute coordinate (P4 axis) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
 After "Positional data" file data is updated, the coordinates position ' is absolutely acquired.
```
Dim dblAbsolutePos() As Double
dblAbsolutePos = ctrl.Execute("GetAbsolutePos", True)
```

4.2.4.22. GetDistanceTarget

The remainder movement in "Positional data" file data is acquired.

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_R8		
	0	VT_R8	The remainder movement (X axis) is returned.
	1	VT_R8	The remainder movement (Y axis) is returned.
	2	VT_R8	The remainder movement (Z axis) is returned.
	3	VT_R8	The remainder movement (four axes) is returned.
	4	VT_R8	The remainder movement (five axes) is returned.
	5	VT_R8	The remainder movement (six axes) is returned.
	6	VT_R8	The remainder movement (seven axes) is returned.
	7	VT_R8	The remainder movement (eight axes) is returned.
	8	VT_R8	The remainder movement (P1 axis) is returned.

Item	Type explanation			
		9	VT_R8	The remainder movement (P2 axis) is returned.
		10	VT_R8	The remainder movement (P3 axis) is returned.
		11	VT_R8	The remainder movement (P4 axis) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Positional data" file data is updated, the remainder movement position ' is acquired.
Dim dblDistance() As Double
dblDistance = ctrl.Execute("GetDistanceTarget", True)
```

4.2.4.23. GetSpeed

The sending speed in "Positional data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_R8	The sending speed is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Positional data" file data is updated, the speed ' is acquired.
Dim dblSpeed As Double
dblSpeed = ctrl.Execute("GetSpeed", True)
```

4.2.4.24. GetToolNo

The main axis tool number in "Positional data" file data is acquired.

Item	Type explanation

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI1	The main axis tool number is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Positional data" file data is updated, the main axis tool number '  is acquired.
Dim bytToolNo As Byte
bytToolNo = ctrl.Execute("GetToolNo", True)
```

4.2.4.25. GetNextToolNo

The next tool keeper title in "Positional data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI1	The next tool keeper title is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Positional data" file data is updated, the next main axis tool number '  is acquired.
Dim bytNextToolNo As Byte
bytNextToolNo = ctrl.Execute("GetNextToolNo", True)
```

4.2.4.26. GetMagagineNo

The magazine number in "Positional data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.

Item	Type explanation	
Return value	VT_R8	The magazine number is returned.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
     After "Positional data" file data is updated, the magazine number '  is acquired.
    Dim bytMagagineNo As Byte
    bytMagagineNo = ctrl.Execute("GetMagagineNo", True)
```

4.2.4.27. RefreshALARM

"Present alarm" file data is updated.

Item	Type explanation
Argument	None
Return value	None

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    "Present alarm" file data that the provider is maintaining '  is updated.
    Call ctrl.Execute("RefreshALARM")
```

4.2.4.28. GetALARM

"Present alarm" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_BSTR	"Present alarm" file data is returned.

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
   After "Alarm" file data is updated, alarm file information ' is acquired.
Dim strALARM As String
strALARM = ctrl.Execute("GetALARM", True)
```

4.2.4.29. GetAlarmCount

The number of effective alarm information in "Present alarm" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI1	The number of effective alarm information is returned.

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
   After "Present alarm" file data is updated, the number of effective alarm information '  is
acquired.
Dim bytAlarmCount As Byte
bytAlarmCount = ctrl.Execute("GetAlarmCount", True)
```

4.2.4.30. GetCurrentAlarm

Alarm information is acquired now ..in "Present alarm" file data...

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_VARIANT		
	n^3	VT_ARRAY | VT_UI2	

---

[3] n=35

Item	Type explanation			
			VT_UI2	The generation location is returned.
			VT_UI2	The number is returned.
			VT_UI2	A supplementary number is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Present alarm" file data is updated, alarm information of present '  is acquired.
Dim vntCurrentAlaram As Variant
vntCurrentAlaram = ctrl.Execute("GetCurrentAlarm", True)
```

4.2.4.31. RefreshPANEL

"Operation panel data" file data is updated.

Item	Type explanation
Argument	None
Return value	None

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Operation panel data" file data that the provider is maintaining '  is updated.
Call ctrl.Execute("RefreshPANEL")
```

4.2.4.32. GetPANEL

"Operation panel data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.

Item	Type explanation	
Return value	VT_BSTR	"Operation panel data" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Operation panel" file data is updated, operation panel information '  is acquired.
Dim strPANEL As String
strPANEL = ctrl.Execute("GetPANEL", True)
```

4.2.4.33. GetMode

The mode in "Operation panel data" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI1	The mode is returned. 0:Manual operation 1:MDI driving 2:Memory driving 3:Program edit 4:MDI manual operation 5:Edit when being driving

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Operation panel" file data is updated, the mode '  is acquired.
Dim bytMode As Byte
bytMode = ctrl.Execute("GetMode", True)
```

4.2.4.34. RefreshWKCNTR

"Work counter" file data is updated.

Item	Type explanation	
Argument	None	
Return value	None	

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Work counter" file data that the provider is maintaining ' is updated.
Call ctrl.Execute("RefreshWKCNTR")
```

4.2.4.35. GetWKCNTR

"Work counter" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_BSTR	"Work counter" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 After "Work counter" file data is updated, "Work counter" file data ' is acquired.
Dim strWKCNTR As String
strWKCNTR = ctrl.Execute("GetWKCNTR", True)
```

4.2.4.36. GetNCWorkCounter

Production counter (NC) in "Work counter" file data is acquired.

Item	Type explanation

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_I4		
	0	VT_I4	The number of counts (counter 1) is returned.
	1	VT_I4	The value (counter 1) is returned now.
	2	VT_I4	The end value (counter 1) is returned.
	3	VT_I4	The previous notice of the end value (counter 1) is returned.
	⋮		
	12	VT_I4	The number of counts (counter 4) is returned.
	13	VT_I4	The value (counter 4) is returned now.
	14	VT_I4	The end value (counter 4) is returned.
	15	VT_I4	The previous notice of the end value (counter 4) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
After 'Work counter" file data is updated, production counter (NC) is acquired.
Dim lCounter() As Long
lCounter = ctrl.Execute("GetNCWorkCounter", True)
```

4.2.4.37. GetInteractiveWorkCounter

The production counter (conversation) in "Work counter" file data is acquired.

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
Return value	VT_ARRAY | VT_I4		
	0	VT_I4	The number of counts (counter 1) is returned.
	1	VT_I4	The value (counter 1) is returned now.
	2	VT_I4	The end value (counter 1) is returned.
	3	VT_I4	The previous notice of the end value (counter 1) is returned.
	⋮		
	12	VT_I4	The number of counts (counter 4) is returned.

Item	Type explanation			
	13	VT_I4	The value (counter 4) is returned now.	
	14	VT_I4	The end value (counter 4) is returned.	
	15	VT_I4	The previous notice of the end value (counter 4) is returned.	

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
After 'Work counter" file data is updated, the production counter (conversation) is acquired.
Dim lCounter() As Long
lCounter = ctrl.Execute("GetInteractiveWorkCounter", True)
```

4.2.4.38. RefreshPRDC2

"Production data 2(time display)" file data is updated.

Item	Type explanation
Argument	None
Return value	None

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Provider..maintain..production..data..time display..file data..update.
Call ctrl.Execute("RefreshPRDC2")
```

4.2.4.39. GetPRDC2

"Production data 2(time display)" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.

Item	Type explanation	
Return value	VT_BSTR	"Production data 2(time display)" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")

'  after updating "Production data 2(time display)" file data
"Production data 2(time display)" file data '  is acquired.
Dim strPRDC2 As String
strPRDC2 = ctrl.Execute("GetPRDC2", True)
```

4.2.4.40. GetOpeTimeHistoryCount

The effective operating time in "Production data 2(time display)" file data number of records is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI1	The effective operating time number of records is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
After "Production data 2(time display)" file data is updated, the effective operating time
number of records '  is acquired.
Dim bytCount As Byte
bytCount = ctrl.Execute("GetOpeTimeHistoryCount", True)
```

4.2.4.41. GetOpeTimeHistory

The record of operating time in "Production data 2(time display)" file data is acquired.

Item	Type explanation			
Argument	VT_BOOL		The data refreshing execution existence is specified.	
Return value	VT_ARRAY | VT_VARIANT			
		0	VT_BSTR	The date (record 1 at operating time) is returned.
		1	VT_BSTR	Operating time (record 1 at operating time) is returned.
		2	VT_I4	The driving frequency (record 1 at operating time) is returned.
		3	VT_I4	Utilization rates (record 1 at operating time) is returned.
		⋮		
		76	VT_BSTR	The date (record 20 at operating time) is returned.
		77	VT_BSTR	Operating time (record 20 at operating time) is returned.
		78	VT_I4	The driving frequency (record 20 at operating time) is returned.
		79	VT_I4	Utilization rates (record 20 at operating time) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
After "Production data 2(time display)" file data is updated, the record at operating time
' is acquired.
Dim vntHistory As Variant
vntHistory = ctrl.Execute("GetOpeTimeHistory", True)
```

4.2.4.42. RefreshHEAC

"Heat displacement automatic operation correction" file data is updated. As for the file data, the one of the system of the unit of present automatically becomes an object.

Item	Type explanation
Argument	None
Return value	None

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
"Heat displacement automatic operation correction" file data that the provider is maintaining
' is updated.
```
Call ctrl.Execute("RefreshHEAC")
```

4.2.4.43. GetHEAC

"Heat displacement automatic operation correction" file data is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_BSTR	"Heat displacement automatic operation correction" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```
After "Production data 2(time display)" file data is updated, "Heat displacement automatic
operation correction" file data ' is acquired.
```
Dim strHEAC As String

strHEAC = ctrl.Execute("GetHEAC", True)
```

4.2.4.44. SetHEACRange

The data range of the heat displacement automatic operation correction history in "Heat
displacement automatic operation correction" file data is set. 「GetHEACHistoryCount」,
「GetHEACZHistory」,「GetHEACXHistory」,「GetHEACYHistory" The heat displacement automatic
operation correction history data that becomes an object by the method is data within the range

set by this method. When the data range is not specified by this method, all data in the acquired file data becomes an object.

 Moreover, when "Heat displacement automatic operation correction" file data is only unacquisition, the file data is updated.

Item	Type explanation			
Argument	VT_ARRAY | VT_I2			
		0	VT_I2	The data range beginning position is specified. (1 ? 1080)
		1	VT_I2	The number of data is specified. (1 - 1080)
Return value	None			

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```

The data range of the heat displacement automatic operation correction history' is set from the tenth to 20.

```
    Call ctrl.Execute("SetHEACRange", Array(1, 20))
```


The heat displacement automatic operation correction history (Z axis)' is acquired from 20 the tenth.

```
    Dim vntHEACZHist As Variant

    vntHEACZHist = ctrl.Execute("GetHEACZHistory", False)
```


The heat displacement automatic operation correction history (X axis)' is acquired from 20 the tenth.

```
    Dim vntHEACXHist As Variant

    vntHEACXHist = ctrl.Execute("GetHEACXHistory", False)
```


The heat displacement automatic operation correction history (Y axis)' is acquired from 20 the tenth.

```
    Dim vntHEACYHist As Variant

    vntHEACYHist = ctrl.Execute("GetHEACYHistory", False)
```

4.2.4.45. GetHEACHistoryCount

"in the heat displacement automatic operation correction history of "Heat displacement automatic operation correction" file data. SetHEACRange" The number of data within the range specified by the method of effective heat displacement automatic operation correction histories is acquired.

Item	Type explanation	
Argument	VT_BOOL	The data refreshing execution existence is specified.
Return value	VT_UI2	The number of effective heat displacement automatic operation correction histories is returned.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
```

     After "Heat displacement automatic operation correction" file data is updated, the number of effective heat displacement automatic operation correction histories within the range of specified data ' is acquired.

```
    Dim vValue As Variant

    vValue = caoController.Execute("GetHEACHistoryCount", true)
```

4.2.4.46. GetHEACZHistory

The heat displacement automatic operation correction history (Z axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Item	Type explanation		
Argument	VT_BOOL		The data refreshing execution existence is specified.
	VT_ARRAY | VT_VARIANT		
Return value	0	VT_BSTR	[4]The date (history m) is returned.
	1	VT_BSTR	Time (history m) is returned.
	2	VT_I4	The calculation frequency (history m) is returned.
	3	VT_R8	The average speed (history m) is returned.

---

[4] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置

Item	Type explanation			
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.	
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.	
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.	
	7	VT_R4	The amount of the main axis displacement (history m) is returned.	
	⋮			
	n×8-8	VT_BSTR	[5]The date (history m+n-1) is returned.	
	n×8-7	VT_BSTR	Time (history m+n-1) is returned.	
	n×8-6	VT_I4	The calculation frequency (history m+n-1) is returned.	
	n×8-5	VT_R8	The average speed (history m+n-1) is returned.	
	n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.	
	n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.	
	n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.	
	n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.	

Usage example

SetHEACRangeRefer to [wo].

4.2.4.47. GetHEACXHistory

The heat displacement automatic operation correction history (X axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Item	Type explanation			
Argument	VT_BOOL		The data refreshing execution existence is specified.	
Return value	VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	[6]The date (history m) is returned.	
	1	VT_BSTR	Time (history m) is returned.	

---

[5] n = 「SetHEACRange」メソッドで指定したデータ数
[6] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置

Item	Type explanation			
	2	VT_I4	The calculation frequency (history m) is returned.	
	3	VT_R8	The average speed (history m) is returned.	
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.	
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.	
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.	
	7	VT_R4	The amount of the main axis displacement (history m) is returned.	
	⋮			
	n×8-8	VT_BSTR	[7]The date (history m+n-1) is returned.	
	n×8-7	VT_BSTR	Time (history m+n-1) is returned.	
	n×8-6	VT_I4	The calculation frequency (history m+n-1) is returned.	
	n×8-5	VT_R8	The average speed (history m+n-1) is returned.	
	n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.	
	n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.	
	n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.	
	n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.	

Usage example

SetHEACRangeRefer to [wo].

4.2.4.48. GetHEACYHistory

The heat displacement automatic operation correction history (Y axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Item	Type explanation			
Argument	VT_BOOL		The data refreshing execution existence is specified.	
Return value	VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	[8]The date (history m) is returned.	

---

[7] n = 「SetHEACRange」メソッドで指定したデータ数

Item	Type explanation			
	1	VT_BSTR	Time (history m) is returned.	
	2	VT_I4	The calculation frequency (history m) is returned.	
	3	VT_R8	The average speed (history m) is returned.	
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.	
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.	
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.	
	7	VT_R4	The amount of the main axis displacement (history m) is returned.	
	⋮			
	n×8-8	VT_BSTR	[9]The date (history m+n-1) is returned.	
	n×8-7	VT_BSTR	Time (history m+n-1) is returned.	
	n×8-6	VT_I4	The calculation frequency (history m+n-1) is returned.	
	n×8-5	VT_R8	The average speed (history m+n-1) is returned.	
	n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.	
	n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.	
	n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.	
	n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.	

Usage example

SetHEACRangeRefer to [wo].

4.2.4.49. RefreshTOLS

"Tool data" file data is updated.

Item	Type explanation			
	VT_ARRAY | VT_UI1			
Argument	0	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)	

[8] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置
[9] n = 「SetHEACRange」メソッドで指定したデータ数

Item	Type explanation			
		1	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	None			

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Tool data" file data that the provider is maintaining '  is updated.
Call ctrl.Execute("RefreshTOLS", Array(1, 1))
```

4.2.4.50. GetTOLS

"Tool data" file data is acquired.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
		0	VT_BOOL	The data refreshing execution existence is specified.
		1	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)
		2	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	VT_BSTR			"Tool data" file data is returned.

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Tool data" file data is '  metric it.
After it updates it in the data of data number 1, "Tool data" file data '  is acquired.
Dim strTOLS As String
```

```
    strTOLS = ctrl.Execute("GetTOLS", Array(True, 1, 1))
```

4.2.4.51. GetToolData

The tool data in "Tool data" file data is acquired.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
		0	VT_BOOL	The data refreshing execution existence is specified.
		1	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)
		2	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	VT_ARRAY | VT_VARIANT			
		0	VT_BSTR	The tool name (tool number 1) is returned.
		1	VT_R8	The tool length offset (tool number 1) is returned.
		2	VT_R8	The wear-out of the length of the tool correction (tool number 1) is returned.
		3	VT_R8	The tool diameter offset (tool number 1) is returned.
		4	VT_R8	The tool diameter wear-out correction (tool number 1) is returned.
		5	VT_I4	Initial longevity (tool number 1) is returned.
		6	VT_I4	The previous notice longevity (tool number 1) is returned.
		7	VT_I4	Longevity (tool number 1) is returned.
		8	VT_R8	The rim speed (tool number 1) is returned.
		9	VT_R4	The rotation sending (tool number 1) is returned.
		10	VT_R4	S specification value (tool number 1) is returned.
		11	VT_R8	F specification value (tool number 1) is returned.
		12	VT_I4	The maximum speed (tool number 1) is returned.
		13	VT_BOOL	The tool washing (tool number 1) is returned.
		14	VT_BOOL	CTS (tool number 1) is returned.
		⋮		
		1470	VT_BSTR	The tool name (tool number 99) is returned.
		1471	VT_R8	The tool length offset (tool number 99) is returned.
		1472	VT_R8	The wear-out of the length of the tool correction (tool number 99) is returned.
		1473	VT_R8	The tool diameter offset (tool number 99) is returned.

Item	Type explanation		
	1474	VT_R8	The tool diameter wear-out correction (tool number 99) is returned.
	1475	VT_I4	Initial longevity (tool number 99) is returned.
	1476	VT_I4	The previous notice longevity (tool number 99) is returned.
	1477	VT_I4	Longevity (tool number 99) is returned.
	1478	VT_R8	The rim speed (tool number 99) is returned.
	1479	VT_R4	The rotation sending (tool number 99) is returned.
	1480	VT_R4	S specification value (tool number 99) is returned.
	1481	VT_R8	F specification value (tool number 99) is returned.
	1482	VT_I4	The maximum speed (tool number 99) is returned.
	1483	VT_BOOL	The tool washing (tool number 99) is returned.
	1484	VT_BOOL	CTS (tool number 99) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                     "CaoProv.Brother.Protocol2", _
                     "", _
                     "CONN=ETH:192.168.1.2, TIMEOUT=3000")
"Tool data" file data is ' metric it.
After it updates it in the data of data number 1, the tool data ' is acquired.
Dim vntToolData As Variant
vntToolData = ctrl.Execute("GetToolData", Array(True, 1, 1))
```

4.2.4.52. RefreshMCRS

"Macro variable" file data is updated.

Item	Type explanation		
	VT_ARRAY | VT_UI1		
Argument	0	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)
	1	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	None		

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                     "CaoProv.Brother.Protocol2", _
                     "", _
                     "CONN=ETH:192.168.1.2, TIMEOUT=3000")
'  "Macro variable" file data that the provider is maintaining
It '  updates it in the data of metric and data number 1.
Call ctrl.Execute("RefreshMCRS ", Array(1, 1))
```

4.2.4.53. GetMCRS

"Macro variable" file data is acquired.

Item	Type explanation		
Argument	VT_ARRAY | VT_VARIANT		
	0	VT_BOOL	The data refreshing execution existence is specified.
	1	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)
	2	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	VT_BSTR		"Macro variable" file data is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                     "CaoProv.Brother.Protocol2", _
                     "", _
                     "CONN=ETH:192.168.1.2, TIMEOUT=3000")
 "Macro variable" file data is '  metric it.
After it updates it in the data of data number 1, "Macro variable" file data '  is acquired.
Dim strMCRS As String
strMCRS = ctrl.Execute("GetMCRS", Array(True, 1, 1))
```

4.2.4.54. GetMacroVariable

Macro variable (#500~#999) in "Macro variable" file data is acquired.

Item	Type explanation			
Argument	VT_ARRAY | VT_VARIANT			
		0	VT_BOOL	The data refreshing execution existence is specified.
		1	VT_UI1	The unit system is specified. (0: Present unit system and 1: Metric and 2: Inch)
		2	VT_UI1	The data number is specified. (0: Current side and 1-10: Data number)
Return value	VT_ARRAY | VT_R8			
		0	VT_R8	Macro variable (#500) is returned.
		1	VT_R8	Macro variable (#501) is returned.
		⋮		
		498	VT_R8	Macro variable (#998) is returned.
		499	VT_R8	Macro variable (#999) is returned.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
'  "Macro variable" file data
After it updates it in the data of metric and data number 1, macro variable (#500~#999) '  is
acquired.
Dim vntMacroVariable As Variant
vntMacroVariable = ctrl.Execute("GetMacroVariable ", Array(True, 1, 1))
```

4.2.5. CaoVariable::get_Value property

The value of the variable that corresponds to the object is acquired.

The mounting situation and the data type of the variable are "Table4-4Please refer to".

4.2.6. CaoVariable::put_Value property

The value is set to the variable that corresponds to the object.

The mounting situation and the data type of the variable are "Table4-4Please refer to".

4.3. Variable list
4.3.1. Controller class

The variable list that can be used in the CaoController class is shown below.

Table4-4Controller class variable list

Variable identifier	Data type	Explanation	Value	
			get	put
@MAKER_NAME	VT_BSTR	Acquisition of manufacturer name	–	–
@VERSION	VT_BSTR	Acquisition of version of DLL	–	–
PLC<??>	VT_I4	Acquisition and setting of PLC signal data	–	–
IO<??>	VT_BOOL	Acquisition and setting of external I/O signal	–	–
@FILE_DATA	VT_ARRAY | VT_VARIANT	Acquisition of file management data	–	–
@SELECT_PRG_INFO	VT_ARRAY | VT_BSTR	Acquisition of program information when being executing it	–	–
@DATE	VT_ARRAY | VT_UI2	Acquisition at time and setting at date	–	–
MACHINE_POS<??>	VT_ARRAY | VT_R8	Acquisition of machine coordinates position	–	–
RELATIVE_POS<??>	VT_ARRAY | VT_R8	Acquisition of relative coordinates position	–	–
ABSOLUTE_POS<??>	VT_ARRAY | VT_R8	Absolute acquisition of coordinates position	–	–
DISTANCE_TARGET<??>	VT_ARRAY | VT_R8	Acquisition of the remainder movement	–	–
SPEED<??>	VT_R8	Acquisition of sending speed	–	–
TOOL_NO<??>	VT_UI1	Acquisition of main axis tool number	–	–
NEXT_TOOL_NO<??>	VT_UI1	Acquisition of the next tool keeper title	–	–

Variable identifier	Data type	Explanation	Value	
			get	put
MAGAGINE_NO<??>	VT_UI1	Acquisition of magazine number	–	–
ALARM_COUNT<??>	VT_UI1	Acquisition of number of effective alarms	–	–
ALARM<??>	VT_ARRAY | VT_VARIANT	Acquisition of alarm information of present	–	–
MODE<??>	VT_UI1	Acquisition of mode	–	–
NC_WORK_COUNTER<??>	VT_ARRAY | VT_I4	Acquisition of production counter (NC)	–	–
INTERACTIVE_WORK_COUNTER<??>	VT_ARRAY | VT_I4	Acquisition of production counter (conversation)	–	–
OPE_TIME_COUNT<??>	VT_UI1	Acquisition of effective operating time number of records	–	–
OPE_TIME_HISTORY<??>	VT_ARRAY | VT_VARIANT	Acquisition of record at operating time	–	–
HEAC_HISTORY_COUNT<??>	VT_I2	Acquisition of number of effective heat displacement automatic operation correction histories	–	–
HEAC_Z_HISTORY<??>	VT_ARRAY | VT_VARIANT	Acquisition of heat displacement automatic operation correction history (Z axis)	–	–
HEAC_X_HISTORY<??>	VT_ARRAY | VT_VARIANT	Acquisition of heat displacement automatic operation correction history (X axis)	–	–
HEAC_Y_HISTORY<??>	VT_ARRAY | VT_VARIANT	Acquisition of heat displacement automatic operation correction history (Y axis)	–	–

Variable identifier	Data type	Explanation	Value	
			get	put
TOOL_DATA<??>	VT_ARRAY | VT_VARIANT	Acquisition of tool data	–	–
MACRO<??>	VT_ARRAY | VT_R8	Acquisition of macro variable (#500~#999)	–	–

4.3.1.1. @MAKER_NAME

The manufacturer name is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("@MAKER_NAME")
Value ' acquisition
Dim strVal As String
strVal = var.value
```

● Data type

Item	Type explanation	
Return value	VT_BSTR	The manufacturer name is acquired.

4.3.1.2. @VERSION

The version of DLL is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("@VERSIONE")
Value ' acquisition
Dim value As String
value = var.value
```

● Data type

Item	Type explanation	
Return value	VT_BSTR	The version of DLL is acquired.

4.3.1.3. PLC<??>

The PLC signal data is acquired, and set.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("@VERSIONE")
Value ' acquisition
Dim value As String
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
KIND= <The PLC signal kind is specified >	–	The PLC signal kind is specified.	–	–
NO= <The PLC signal number is specified >	–	The PLC signal number is specified.	–	–

● Data type

Type explanation	
VT_I4	The PLC signal data is acquired.

● Correspondence command

Command type + function	get	REDPLCD
	put	WRTPLCD

4.3.1.4. IO<??>

The external I/O signal is acquired, and set.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                     "CaoProv.Brother.Protocol2", _
                     "", _
                     "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("IO_PRO2", "SIGNAL=PRO2")
Value ' acquisition
Dim value As Boolean
value = var.value
Value ' setting
If (value = True) Then
 var.value = False
Else
 var.value = True
```

```
    End If
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
SIGNAL= <The external I/O signal name is specified >	－	The external I/O signal name is specified.	－	－

● Data type

Type explanation	
VT_BOOL	The external I/O signal is acquired.

● Correspondence command

Command type + function	get	IOCREF
	put	IOCMOD

4.3.1.5. @FILE_DATA

The file management data is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                         "CaoProv.Brother.Protocol2", _
                         "", _
                         "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable '  addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("@FILE_DATA")
    Value '  acquisition
    Dim value As Variant
    value = var.value
```

● Data type

Type explanation
VT_ARRAY	VT_VARIANT

Type explanation			
	0	VT_UI2	The number of registration is returned.
	1	VT_UI2	The number of remainder registration is returned.
	2	VT_UI8	The memory utilization is returned. (unit: Byte)
	3	VT_UI8	The memory remainder capacity is returned. (unit: Byte)

● Correspondence command

Command type + function	REDFILE

4.3.1.6. @SELECT_PRG_INFO

Program information is acquired while executing it.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("@SELECT_PRG_INFO")
Value ' acquisition
Dim value As Variant
value = var.value
```

● Data type

Type explanation			
VT_ARRAY	VT_BSTR			
	0	VT_BSTR	The program number is returned while executing it.
	1	VT_BSTR	The main program number is returned.
	2	VT_BSTR	The block number is returned while executing it.

● Correspondence command

Command type + function	REDPRGN

4.3.1.7. @DATE

The date and time are acquired, and set.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                            "CaoProv.Brother.Protocol2", _
                            "", _
                            "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable '  addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("@DATE")
Value '  acquisition
    Dim value As Variant
    value = var.value
Value '  setting
    var.Value = Array(2018, 04, 27, 11, 55, 00)
```

● Data type

Type explanation			
VT_ARRAY | VT_UI2			
	0	VT_UI2	The age (Christian era) is specified.
	1	VT_UI2	The moon is specified.
	2	VT_UI2	The day is specified.
	3	VT_UI2	Time is specified.
	4	VT_UI2	The amount is specified.
	5	VT_UI2	The second is specified.
None			

● Correspondence command

Command type + function	REDDATE
	WRTDATE

4.3.1.8. MACHINE_POS<??>

The machine coordinates position in "Positional data" file data is acquired.

Usage example

```
        Dim engine As caoEngine
        Dim workspace As caoWorkspace
        Dim ctrl As CaoController
        Set engine = New caoEngine
        Set workspace = engine.AddWorkspace("NewWrks", "")
        Set ctrl = workspace.AddController("Controller", _
                            "CaoProv.Brother.Protocol2", _
                            "", _
                            "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
        Dim var As CaoVariable
        Set var = ctrl.AddVariable("MACHINE_POS", "REFRESH=True")
    Value ' acquisition
        Dim values() As Double
        values = var.value
```

- Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	True/Falsee	-

- Data type

Type explanation			
VT_ARRAY | VT_R8			
	0	VT_R8	The machine coordinates (X axis) are returned.
	1	VT_R8	The machine coordinates (Y axis) are returned.
	2	VT_R8	The machine coordinates (Z axis) are returned.
	3	VT_R8	The machine coordinates (four axes) are returned.
	4	VT_R8	The machine coordinates (five axes) are returned.
	5	VT_R8	The machine coordinates (six axes) are returned.
	6	VT_R8	The machine coordinates (seven axes) are returned.
	7	VT_R8	The machine coordinates (eight axes) are returned.
	8	VT_R8	The machine coordinates (P1 axis) are returned.
	9	VT_R8	The machine coordinates (P2 axis) are returned.
	10	VT_R8	The machine coordinates (P3 axis) are returned.
	11	VT_R8	The machine coordinates (P4 axis) are returned.

● Correspondence command

| Command type + function | LOD |

4.3.1.9. RELATIVE_POS<??>

The relative coordinates position in "Positional data" file data is acquired.

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                          "CaoProv.Brother.Protocol2", _
                          "", _
                          "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("RELATIVE_POS", "REFRESH=True")
    Value ' acquisition
    Dim values() As Double
    values = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	–	The presence of the file data update processing is specified.	0 – 1	–

● Data type

Type explanation			
VT_ARRAY | VT_R8			
	0	VT_R8	Relative coordinates (X axis) are returned.
	1	VT_R8	Relative coordinates (Y axis) are returned.
	2	VT_R8	Relative coordinates (Z axis) are returned.
	3	VT_R8	Relative coordinates (four axes) are returned.
	4	VT_R8	Relative coordinates (five axes) are returned.
	5	VT_R8	Relative coordinates (six axes) are returned.

Type explanation			
	6	VT_R8	Relative coordinates (seven axes) are returned.
	7	VT_R8	Relative coordinates (eight axes) are returned.
	8	VT_R8	Relative coordinates (P1 axis) are returned.
	9	VT_R8	Relative coordinates (P2 axis) are returned.
	10	VT_R8	Relative coordinates (P3 axis) are returned.
	11	VT_R8	Relative coordinates (P4 axis) are returned.

● Correspondence command

Command type + function	LOD

4.3.1.10. ABSOLUTE_POS<??>

The coordinates position is absolutely acquired ..in "Positional data" file data...

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("ABSOLUTE_POS", "REFRESH=True")
Value ' acquisition
    Dim values() As Double
    values = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	—	The presence of the file data update processing is specified.	0 − 1	—

● Data type

Type explanation

Type explanation			
VT_ARRAY | VT_R8			
	0	VT_R8	The absolute coordinate (X axis) is returned.
	1	VT_R8	The absolute coordinate (Y axis) is returned.
	2	VT_R8	The absolute coordinate (Z axis) is returned.
	3	VT_R8	The absolute coordinate (four axes) is returned.
	4	VT_R8	The absolute coordinate (five axes) is returned.
	5	VT_R8	The absolute coordinate (six axes) is returned.
	6	VT_R8	The absolute coordinate (seven axes) is returned.
	7	VT_R8	The absolute coordinate (eight axes) is returned.
	8	VT_R8	The absolute coordinate (P1 axis) is returned.
	9	VT_R8	The absolute coordinate (P2 axis) is returned.
	10	VT_R8	The absolute coordinate (P3 axis) is returned.
	11	VT_R8	The absolute coordinate (P4 axis) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.11. DISTANCE_TARGET<??>

The movement remainder in "Positional data" file data is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("DISTANCE_TARGET", "REFRESH=True")
Value ' acquisition
    Dim values() As Double
    values = var.value
```

● Option

Option	Indispensability	Explanation	Range	Default

			of value	value
REFRESH= 〈The file data update existence is specified〉	–	The presence of the file data update processing is specified.	0 − 1	–

● Data type

Type explanation			
VT_ARRAY | VT_R8			
	0	VT_R8	The movement remainder (X axis) is returned.
	1	VT_R8	The movement remainder (Y axis) is returned.
	2	VT_R8	The movement remainder (Z axis) is returned.
	3	VT_R8	The movement remainder (four axes) is returned.
	4	VT_R8	The movement remainder (five axes) is returned.
	5	VT_R8	The movement remainder (six axes) is returned.
	6	VT_R8	The movement remainder (seven axes) is returned.
	7	VT_R8	The movement remainder (eight axes) is returned.
	8	VT_R8	The movement remainder (P1 axis) is returned.
	9	VT_R8	The movement remainder (P2 axis) is returned.
	10	VT_R8	The movement remainder (P3 axis) is returned.
	11	VT_R8	The movement remainder (P4 axis) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.12. SPEED〈??〉

The sending speed in "Positional data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
```

```
Dim var As CaoVariable
Set var = ctrl.AddVariable("SPEED", "REFRESH=True")
Value '  acquisition
Dim value As Double
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	−	The presence of the file data update processing is specified.	0 − 1	−

● Data type

Type explanation	
VT_R8	The sending speed is returned.

● Correspondence command

Command type + function	LOD

4.3.1.13. TOOL_NO<??>

The main axis tool number in "Positional data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                     "CaoProv.Brother.Protocol2", _
                     "", _
                     "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable '  addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("TOOL_NO", "REFRESH=True")
Value '  acquisition
Dim value As Byte
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	−	The presence of the file data update processing is specified.	0 − 1	−

- Data type

Type explanation	
VT_UI1	The main axis tool number is returned.

- Correspondence command

Command type + function	LOD

4.3.1.14. NEXT_TOOL_NO<??>

The next tool keeper title in "Positional data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("NEXT_TOOL_NO", "REFRESH=True")
Value ' acquisition
Dim value As Byte
value = var.value
```

- Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	−	The presence of the file data update processing is specified.	0 − 1	−

● Data type

Type explanation	
VT_UI1	The next tool keeper title is returned.

4.3.1.15. MAGAGINE_NO<??>

The magazine number in "Positional data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("MAGAGINE_NO", "REFRESH=True")
Value ' acquisition
Dim value As Byte
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified>	–	The presence of the file data update processing is specified.	0 – 1	–

● Data type

Type explanation	
VT_UI1	The magazine number is returned.

● Correspondence command

Command type + function	LOD

4.3.1.16. ALARM_COUNT<??>

The number of effective alarms in "Present alarm" file data is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                            "CaoProv.Brother.Protocol2", _
                            "", _
                            "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("ALARM_COUNT ", "REFRESH=True")
    Value ' acquisition
    Dim value As Byte
    value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-

● Data type

Type explanation	
VT_UI1	The number of effective alarms is returned.

4.3.1.17. ALARM<??>

Alarm information is acquired now ..in "Present alarm" file data...

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                            "CaoProv.Brother.Protocol2", _
                            "", _
                            "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
```

```
Dim var As CaoVariable
Set var = ctrl.AddVariable("ALARM", "REFRESH=True")
Value '  acquisition
Dim value As Variant
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	－	The presence of the file data update processing is specified.	0 － 1	－

● Data type

Type explanation			
VT_ARRAY | VT_VARIANT			
n[10]	VT_ARRAY | VT_UI2		
	VT_UI2	The generation location is returned.	
	VT_UI2	The number is returned.	
	VT_UI2	A supplementary number is returned.	

● Correspondence command

Command type + function	LOD

4.3.1.18. MODE<??>

The mode in "Operation panel data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable '  addition
Dim var As CaoVariable
```

---

[10] n=35

```
Set var = ctrl.AddVariable("MODE", "REFRESH=True")
Value ' acquisition
Dim value As Byte
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified>	-	The presence of the file data update processing is specified.	0 - 1	-

● Data type

Type explanation	
VT_UI1	The mode is returned. 0:Manual operation 1:MDI driving 2:Memory driving 3:Program edit 4:MDI manual operation 5:Edit when being driving

● Correspondence command

Command type + function	LOD

4.3.1.19. NC_WORK_COUNTER<??>

Production counter (NC) in "Work counter" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
```

```
Set var = ctrl.AddVariable("NC_WORK_COUNTER", "REFRESH=True")
Value ' acquisition
Dim values() As Long
values = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-

● Data type

Type explanation			
VT_ARRAY | VT_I4			
	0	VT_I4	The number of counts (counter 1) is returned.
	1	VT_I4	The value (counter 1) is returned now.
	2	VT_I4	The end value (counter 1) is returned.
	3	VT_I4	The previous notice of the end value (counter 1) is returned.
	⋮		
	12	VT_I4	The number of counts (counter 4) is returned.
	13	VT_I4	The value (counter 4) is returned now.
	14	VT_I4	The end value (counter 4) is returned.
	15	VT_I4	The previous notice of the end value (counter 4) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.20. INTERACTIVE_WORK_COUNTER<??>

The production counter (conversation) in "Work counter" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
```

```
                              "CaoProv.Brother.Protocol2", _
                              "", _
                              "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable '  addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("INTERACTIVE_WORK_COUNTER", "REFRESH=True")
Value '  acquisition
Dim values() As Long
values = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	－	The presence of the file data update processing is specified.	0 - 1	－

● Data type

Type explanation			
VT_ARRAY | VT_I4			
	0	VT_I4	The number of counts (counter 1) is returned.
	1	VT_I4	The value (counter 1) is returned now.
	2	VT_I4	The end value (counter 1) is returned.
	3	VT_I4	The previous notice of the end value (counter 1) is returned.
	⋮		
	12	VT_I4	The number of counts (counter 4) is returned.
	13	VT_I4	The value (counter 4) is returned now.
	14	VT_I4	The end value (counter 4) is returned.
	15	VT_I4	The previous notice of the end value (counter 4) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.21. OPE_TIME_COUNT<??>

The effective operating time in "Production data 2(time display)" file data number of records is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                           "CaoProv.Brother.Protocol2", _
                           "", _
                           "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable '  addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("OPE_TIME_COUNT", "REFRESH=True")
    Value '  acquisition
    Dim value As Byte
    value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	–	The presence of the file data update processing is specified.	0 – 1	–

● Data type

Type explanation	
VT_UI1	The effective operating time number of records is returned.

● Correspondence command

Command type + function	LOD

4.3.1.22. OPE_TIME_HISTORY<??>

The record of operating time in "Production data 2(time display)" file data is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                           "CaoProv.Brother.Protocol2", _
                           "", _
```

```
                          "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("OPE_TIME_HISTORY", "REFRESH=True")
    Value ' acquisition
    Dim value As Variant
    value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-

● Data type

Type explanation			
VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	The date (record 1 at operating time) is returned.
	1	VT_BSTR	Operating time (record 1 at operating time) is returned.
	2	VT_I4	The driving frequency (record 1 at operating time) is returned.
	3	VT_I4	Utilization rates (record 1 at operating time) is returned.
	⋮		
	76	VT_BSTR	The date (record 20 at operating time) is returned.
	77	VT_BSTR	Operating time (record 20 at operating time) is returned.
	78	VT_I4	The driving frequency (record 20 at operating time) is returned.
	79	VT_I4	Utilization rates (record 20 at operating time) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.23. HEAC_HISTORY_COUNT<??>

"in the heat displacement automatic operation correction history of "Heat displacement automatic operation correction" file data. SetHEACRange" The number of data within the range specified by the method of effective heat displacement automatic operation correction histories is acquired.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("HEAC_HISTORY_COUNT", "REFRESH=True")
    Value ' acquisition
    Dim value As Variant
    value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	−	The presence of the file data update processing is specified.	0 − 1	−

● Data type

Type explanation	
VT_UI2	The number of effective heat displacement automatic operation correction histories is returned.

● Correspondence command

Command type + function	LOD

4.3.1.24. HEAC_Z_HISTORY<??>

The heat displacement automatic operation correction history (Z axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
```

```
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("HEAC_Z_HISTORY", "REFRESH=True")
    Value ' acquisition
    Dim value As Variant
    value = var.value
```

- **Option**

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-

- **Data type**

Type explanation			
VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	[11]The date (history m) is returned.
	1	VT_BSTR	Time (history m) is returned.
	2	VT_I4	The calculation frequency (history m) is returned.
	3	VT_R8	The average speed (history m) is returned.
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.
	7	VT_R4	The amount of the main axis displacement (history m) is returned.
	⋮		
	$n \times 8-8$	VT_BSTR	[12]The date (history m+n-1) is returned.
	$n \times 8-7$	VT_BSTR	Time (history m+n-1) is returned.
	$n \times 8-6$	VT_I4	The calculation frequency (history m+n-1) is returned.

---

[11] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置
[12] n = 「SetHEACRange」メソッドで指定したデータ数

Type explanation			
n×8-5	VT_R8	The average speed (history m+n-1) is returned.	
n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.	
n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.	
n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.	
n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.	

● Correspondence command

Command type + function	LOD

4.3.1.25. HEAC_X_HISTORY<??>

The heat displacement automatic operation correction history (X axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Usage example

```
    Dim engine As caoEngine
    Dim workspace As caoWorkspace
    Dim ctrl As CaoController
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("HEAC_X_HISTORY", "REFRESH=True")
    Value ' acquisition
    Dim value As Variant
    value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-

- Data type

Type explanation			
VT_ARRAY	VT_VARIANT			
	0	VT_BSTR	[13]The date (history m) is returned.
	1	VT_BSTR	Time (history m) is returned.
	2	VT_I4	The calculation frequency (history m) is returned.
	3	VT_R8	The average speed (history m) is returned.
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.
	7	VT_R4	The amount of the main axis displacement (history m) is returned.
	⋮		
	n×8-8	VT_BSTR	[14]The date (history m+n-1) is returned.
	n×8-7	VT_BSTR	Time (history m+n-1) is returned.
	n×8-6	VT_I4	The calculation frequency (history m+n-1) is returned.
	n×8-5	VT_R8	The average speed (history m+n-1) is returned.
	n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.
	n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.
	n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.
	n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.

- Correspondence command

Command type + function	LOD

4.3.1.26. HEAC_Y_HISTORY<??>

The heat displacement automatic operation correction history (Y axis) in "Heat displacement automatic operation correction" file data is acquired. The range of the acquired data is "SetHEACRange" It specifies it by the method.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
```

---

[13] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置
[14] n = 「SetHEACRange」メソッドで指定したデータ数

```
    Set engine = New caoEngine
    Set workspace = engine.AddWorkspace("NewWrks", "")
    Set ctrl = workspace.AddController("Controller", _
                        "CaoProv.Brother.Protocol2", _
                        "", _
                        "CONN=ETH:192.168.1.2, TIMEOUT=3000")
    Variable ' addition
    Dim var As CaoVariable
    Set var = ctrl.AddVariable("HEAC_Y_HISTORY", "REFRESH=True")
    Value ' acquisition
    Dim value As Variant
    value = var.value
```

- Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	–	The presence of the file data update processing is specified.	0 – 1	–

- Data type

Type explanation			
VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	[15]The date (history m) is returned.
	1	VT_BSTR	Time (history m) is returned.
	2	VT_I4	The calculation frequency (history m) is returned.
	3	VT_R8	The average speed (history m) is returned.
	4	VT_R4	Amount 1 of the ball screw displacement (history m) is returned.
	5	VT_R4	Amount 2 of the ball screw displacement (history m) is returned.
	6	VT_UI4	The main axis rotation amount accumulation value (history m) is returned.
	7	VT_R4	The amount of the main axis displacement (history m) is returned.
	⋮		
	n×8−8	VT_BSTR	[16]The date (history m+n−1) is returned.
	n×8−7	VT_BSTR	Time (history m+n−1) is returned.
	n×8−6	VT_I4	The calculation frequency (history m+n−1) is returned.

---

[15] m = 「SetHEACRange」メソッドで指定したデータ範囲開始位置
[16] n = 「SetHEACRange」メソッドで指定したデータ数

Type explanation			
n×8-5	VT_R8	The average speed (history m+n-1) is returned.	
n×8-4	VT_R4	Amount 1 of the ball screw displacement (history m+n-1) is returned.	
n×8-3	VT_R4	Amount 2 of the ball screw displacement (history m+n-1) is returned.	
n×8-2	VT_UI4	The main axis rotation amount accumulation value (history m+n-1) is returned.	
n×8-1	VT_R4	The amount of the main axis displacement (history m+n-1) is returned.	

● Correspondence command

Command type + function	LOD

4.3.1.27. TOOL_DATA<??>

The tool data in "Tool data" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("TOOL_DATA_M_1", "REFRESH=True, UNIT=1, NO=1")
Value ' acquisition
Dim value As Variant
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value
REFRESH= <The file data update existence is specified >	-	The presence of the file data update processing is specified.	0 - 1	-
UNIT= <The unit system is specified >	-	The unit system of the file data is specified. (0: Present unit system and 1:	0 ? 2	0

Option	Indispensability	Explanation	Range of value	Default value
		Metric and 2: Inch)		
DATA_NO= 〈The data number is specified 〉	–	The data number of the file data is specified. (0: Current side and 1-10: Data number)	0 ? 10	0

● Data type

Type explanation			
VT_ARRAY | VT_VARIANT			
	0	VT_BSTR	The tool name (tool number 1) is returned.
	1	VT_R8	The tool length offset (tool number 1) is returned.
	2	VT_R8	The wear-out of the length of the tool correction (tool number 1) is returned.
	3	VT_R8	The tool diameter offset (tool number 1) is returned.
	4	VT_R8	The tool diameter wear-out correction (tool number 1) is returned.
	5	VT_I4	Initial longevity (tool number 1) is returned.
	6	VT_I4	The previous notice longevity (tool number 1) is returned.
	7	VT_I4	Longevity (tool number 1) is returned.
	8	VT_R8	The rim speed (tool number 1) is returned.
	9	VT_R4	The rotation sending (tool number 1) is returned.
	10	VT_R4	S specification value (tool number 1) is returned.
	11	VT_R8	F specification value (tool number 1) is returned.
	12	VT_I4	The maximum speed (tool number 1) is returned.
	13	VT_BOOL	The tool washing (tool number 1) is returned.
	14	VT_BOOL	CTS (tool number 1) is returned.
	⋮		
	1470	VT_BSTR	The tool name (tool number 99) is returned.
	1471	VT_R8	The tool length offset (tool number 99) is returned.
	1472	VT_R8	The wear-out of the length of the tool correction (tool number 99) is returned.
	1473	VT_R8	The tool diameter offset (tool number 99) is returned.

Type explanation			
1474	VT_R8	The tool diameter wear-out correction (tool number 99) is returned.
1475	VT_I4	Initial longevity (tool number 99) is returned.
1476	VT_I4	The previous notice longevity (tool number 99) is returned.
1477	VT_I4	Longevity (tool number 99) is returned.
1478	VT_R8	The rim speed (tool number 99) is returned.
1479	VT_R4	The rotation sending (tool number 99) is returned.
1480	VT_R4	S specification value (tool number 99) is returned.
1481	VT_R8	F specification value (tool number 99) is returned.
1482	VT_I4	The maximum speed (tool number 99) is returned.
1483	VT_BOOL	The tool washing (tool number 99) is returned.
1484	VT_BOOL	CTS (tool number 99) is returned.

● Correspondence command

Command type + function	LOD

4.3.1.28. MACRO<??>

Macro variable (#500~#999) in "Macro variable" file data is acquired.

Usage example

```
Dim engine As caoEngine
Dim workspace As caoWorkspace
Dim ctrl As CaoController
Set engine = New caoEngine
Set workspace = engine.AddWorkspace("NewWrks", "")
Set ctrl = workspace.AddController("Controller", _
                    "CaoProv.Brother.Protocol2", _
                    "", _
                    "CONN=ETH:192.168.1.2, TIMEOUT=3000")
Variable ' addition
Dim var As CaoVariable
Set var = ctrl.AddVariable("MACRO_M_1", "REFRESH=True, UNIT=1, NO=1")
Value ' acquisition
Dim value As Variant
value = var.value
```

● Option

Option	Indispensability	Explanation	Range of value	Default value

REFRESH= <The file data update existence is specified >	－	The presence of the file data update processing is specified.	0 － 1	－
UNIT= <The unit system is specified >	－	The unit system of the file data is specified. (0: Present unit system and 1: Metric and 2: Inch)	0 ? 2	0
DATA_NO= <The data number is specified >	－	The data number of the file data is specified. (0: Current side and 1-10: Data number)	0 ? 10	0

● Data type

Type explanation			
VT_ARRAY | VT_R8			
	0	VT_R8	Macro variable (#500) is returned.
	1	VT_R8	Macro variable (#501) is returned.
	⋮		
	498	VT_R8	Macro variable (#998) is returned.
	499	VT_R8	Macro variable (#999) is returned.

● Correspondence command

Command type + function	LOD

5. Appendix

Appendix A.   Error code

 In this provider, an original error code exists. Details are the following. Table5-1Please refer to [wogo].
 Please refer to the chapter of the error code of "ORiN2 programming guide" for the ORiN2 commonness error.

<div align="center">Table5-1Original error code table</div>

Error number	Explanation
0x80110001	The specified signal kind doesn't exist.
0x80110002	There are a lot of specified digit numbers for the numerical value and numbers of characters of character strings. Or, it is not a mark that the specified signal number adjusts to the signal kind.
0x80110003	The checksum of the received message is illegal.
0x80110004	The file data acquired data while unacquired.
0x80110005	It tried to connect it with the machining centre of the version that did not correspond.

 Moreover, this provider does the mask by "0x8010FF**" and returns the completion code from the equipment (SPEEDIO etc.) that communicates with Protocol2.
 Please refer to "Manual of operation (data)" of the brother Co. for the completion code.

Appendix B.   Mechanism of reading file data

 In communication device communication protocol method 2 only for NC, there is a command to acquire the file data that the object device maintains. The method and the variable whose command type + function is "LOD" in the Brother.Protocol2 provider correspond.

<div align="center">Table5-2Table for method of file data and variable</div>

File data	Method	Variable
PDSP	RefreshPDSP GetPDSP GetMachinePOS GetRelativePOS	MACHINE_POS<??> RELATIVE_POS<??> ABSOLUTE_POS<??> DISTANCE_TARGET<??>

File data	Method	Variable
	GetAbsolutePOS GetDistanceTarget GetSpeed GetToolNo GetNextToolNo GetMagagineNo	SPEED<??> TOOL_NO<??> NEXT_TOOL_NO<??> MAGAGINE_NO<??>
ALARM	RefreshALARM GetALARM GetAlarmCount GetCurrentAlarm	ALARM_COUNT<??> ALARM<??>
PANEL	RefreshPANEL GetPANEL GetMode	MODE<??>MODE<??>
WKCNTR	RefreshWKCNTR GetWKCNTR GetNCWorkCounter GetInteractiveWorkCounter	NC_WORK_COUNTER<??> INTERACTIVE_WORK_COUNTER<??>
PRDC2	RefreshPRDC2 GetPRDC2 GetOpeTimeHistoryCount GetOpeTimeHistory	OPE_TIME_COUNT<??> OPE_TIME_HISTORY<??>
HEAC	GetHEAC SetHEACRange GetHEACHistoryCount GetHEACZHistory GetHEACXHistory GetHEACYHistory	HEAC_HISTORY_COUNT<??> HEAC_Z_HISTORY<??> HEAC_X_HISTORY<??> HEAC_Y_HISTORY<??>
TOLS	RefreshTOLS GetTOLS GetToolData	TOOL_DATA<??>
MCRS	RefreshMCRS GetMCRS GetMacroVariable	MACRO<??>

In the method of the above-mentioned and the variable, the file data of the object is maintained in the memory of PC that uses the Brother.Protocol2 provider, and the value is acquired there. When the value is acquired because the file data never acquired is not maintained in the memory of PC, it becomes an error.

The data maintained in the memory of PC can be updated by using method (Refresh**) of updating data. Moreover, the presence of the update of the file data when the argument and the variable of the method of acquiring part or all of the file data are acquired in the option can be specified.

The value is output based on the data updated there even when updating it by acquiring another data in the same file data to update data in each file data.

Appendix C. PLC signal kind

● PLC signal kind of reading object

Signal kind	Meaning	Range of signal
X	External input	000 - 3FF (Specify it by the hexadecimal number).
Y	External output	000 - 3FF (Specify it by the hexadecimal number).
BX	Internal input (bit)	000 - 3FF (Specify it by the hexadecimal number).
BY	Internal output (bit)	000 - 3FF (Specify it by the hexadecimal number).
BDX	Internal input (word)	000 - 255 (Specify it by the decimal number).
BDY	Internal output (word)	000 - 255 (Specify it by the decimal number).
M	Internal relay	0000 8191 (Specify it by the decimal number).
D	Data register	0000 2047 (Specify it by the decimal number).
LM0	A local relay is high-speed 1.	0000 1023 (Specify it by the decimal number).
LM1	A local relay is high-speed 2.	0000 1023 (Specify it by the decimal number).
LM2	A local relay is low-speed 1.	0000 1023 (Specify it by the decimal number).
LM3	A local relay is low-speed 2.	0000 1023 (Specify it by the decimal

Signal kind	Meaning	Range of signal
		number).
LD0	A local data register is high-speed 1.	0000 ? 2047 (Specify it by the decimal number).
LD1	A local data register is high-speed 2.	0000 2047(Specify it by the decimal number).
LD2	A local data register is low-speed 1.	0000 2047(Specify it by the decimal number).
LD3	A local data register is low-speed 2.	0000 2047(Specify it by the decimal number).
LTV0	The value is a local timer now high-speed 1.	000 – 255(Specify it by the decimal number).
LTV1	The value is a local timer now high-speed 2.	000 – 255(Specify it by the decimal number).
LTV2	The value is a local timer now low-speed 1.	000 – 255(Specify it by the decimal number).
LTV3	The value is a local timer now low-speed 2.	000 – 255(Specify it by the decimal number).
LTP0	The local timer setting value is high-speed 1.	000 – 255(Specify it by the decimal number).
LTP1	The local timer setting value is high-speed 2.	000 – 255(Specify it by the decimal number).
LTP2	The local timer setting value is low-speed 1.	000 – 255(Specify it by the decimal number).
LTP3	The local timer setting value is low-speed 2.	000 – 255(Specify it by the decimal number).
LCV0	The value is a local counter now high-speed 1.	000 – 255(Specify it by the decimal number).
LCV1	The value is a local counter now high-speed 2.	000 – 255(Specify it by the decimal number).
LCV2	The value is a local counter now low-speed 1.	000 – 255(Specify it by the decimal number).
LCV3	The value is a local counter now low-speed 2.	000 – 255(Specify it by the decimal number).
LCP0	The local counter setting value is high-speed 1.	000 – 255(Specify it by the decimal number).

Signal kind	Meaning	Range of signal
LCP1	The local counter setting value is high-speed 2.	000 – 255 (Specify it by the decimal number).
LCP2	The local counter setting value is low-speed 1.	000 – 255 (Specify it by the decimal number).
LCP3	The local counter setting value is low-speed 2.	000 – 255 (Specify it by the decimal number).

● PLC signal kind of being possible to write it

Signal kind	Meaning	Range of signal
Y	External output	000 – 3FF (Specify it by the hexadecimal number).
M	Internal relay	0000 8191 (Specify it by the decimal number).
D	Data register	0000 2047 (Specify it by the decimal number).
LM0	A local relay is high-speed 1.	0000 1023 (Specify it by the decimal number).
LM1	A local relay is high-speed 2.	0000 1023 (Specify it by the decimal number).
LM2	A local relay is low-speed 1.	0000 1023 (Specify it by the decimal number).
LM3	A local relay is low-speed 2.	0000 1023 (Specify it by the decimal number).
LD0	A local data register is high-speed 1.	0000 ? 2047 (Specify it by the decimal number).
LD1	A local data register is high-speed 2.	0000 2047 (Specify it by the decimal number).
LD2	A local data register is low-speed 1.	0000 2047 (Specify it by the decimal number).
LD3	A local data register is low-speed 2.	0000 2047 (Specify it by the decimal number).
LTV0	The value is a local timer now high-speed 1.	000 – 255 (Specify it by the decimal number).
LTV1	The value is a local timer now high-speed 2.	000 – 255 (Specify it by the decimal number).

Signal kind	Meaning	Range of signal
LTV2	The value is a local timer now low-speed 1.	000 – 255 (Specify it by the decimal number).
LTV3	The value is a local timer now low-speed 2.	000 – 255 (Specify it by the decimal number).
LTP0	The local timer setting value is high-speed 1.	000 – 255 (Specify it by the decimal number).
LTP1	The local timer setting value is high-speed 2.	000 – 255 (Specify it by the decimal number).
LTP2	The local timer setting value is low-speed 1.	000 – 255 (Specify it by the decimal number).
LTP3	The local timer setting value is low-speed 2.	000 – 255 (Specify it by the decimal number).
LCV0	The value is a local counter now high-speed 1.	000 – 255 (Specify it by the decimal number).
LCV1	The value is a local counter now high-speed 2.	000 – 255 (Specify it by the decimal number).
LCV2	The value is a local counter now low-speed 1.	000 – 255 (Specify it by the decimal number).
LCV3	The value is a local counter now low-speed 2.	000 – 255 (Specify it by the decimal number).
LCP0	The local counter setting value is high-speed 1.	000 – 255 (Specify it by the decimal number).
LCP1	The local counter setting value is high-speed 2.	000 – 255 (Specify it by the decimal number).
LCP2	The local counter setting value is low-speed 1.	000 – 255 (Specify it by the decimal number).
LCP3	The local counter setting value is low-speed 2.	000 – 255 (Specify it by the decimal number).