

espec Ltd.
Espec ThermalShock provider

Version 1.0.0

User's guide

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Remarks:

This document is translated into English using machine translation.

【 revision history 】

Version	Date	Content
1.0.0	2019-09-24	First edition.

【 Operation check model 】

Model	Version	Notes
TSA-71L-A	F2BTCCN10.11STD	
TSA-73ES-W (TSA-***3 series)	-----	

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1. Introduction

This manual is a provider's user's guide for acquiring and setting data for the thermal shock equipment of ESPEC Corporation. For applicable models, see Table 6-3 and Table 6-4. Figure 1-1 shows the provider and device configuration.

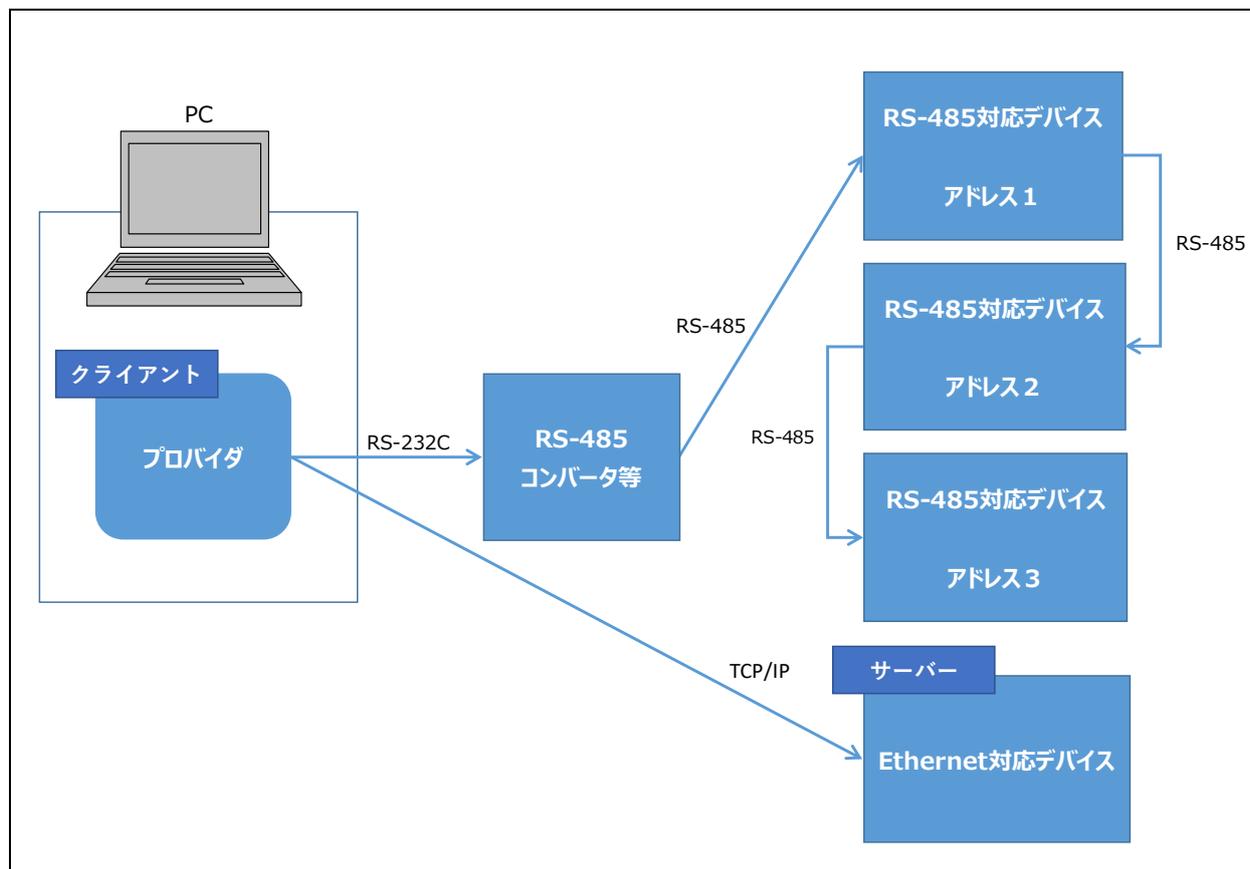


Figure1-1Block diagram

Moreover, figure 1-2 shows the correspondence between providers and devices.

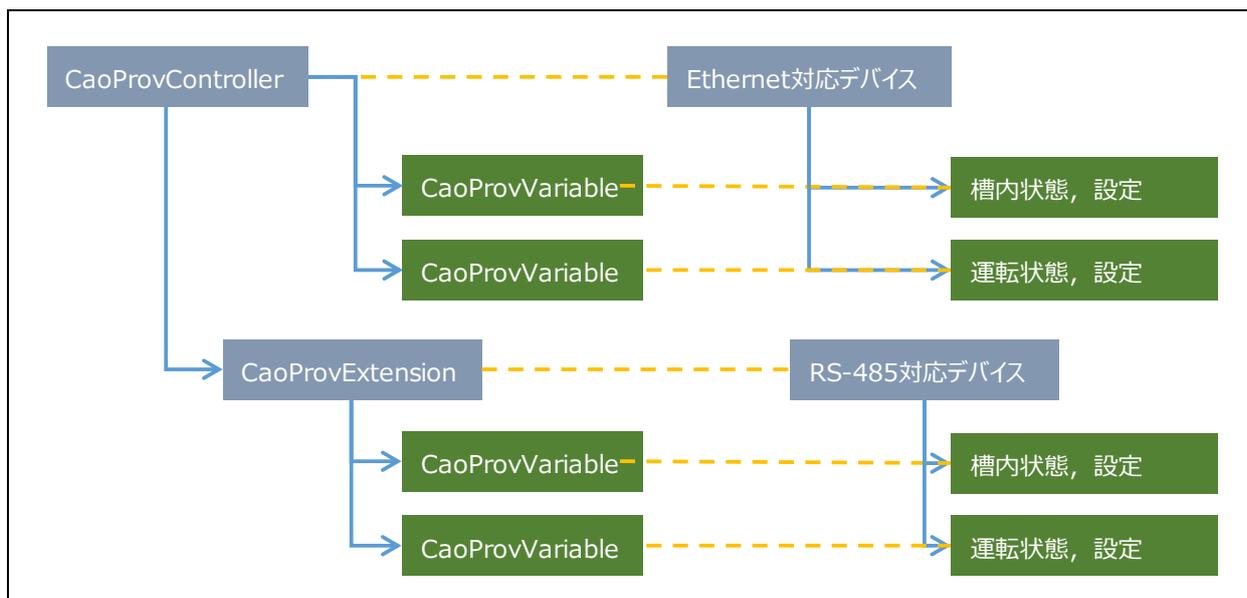


Figure1-2Espec ThermalShock provider and correspondence chart with thermal shock device

1.1. Source that becomes reference

The espec ThermalShock provider is developing referring to the user's manual offered by espec Ltd.. This manual is named the ThermalShock RS-485 manual and ThermalShock Ethernet manual later.

The future reference

- User's manual communication function RS-485 (material number 4015304029860)
- User's manual communication function Ethernet (material number 4000104007200)

2. Environmental setup for application development

2.1. Connection of thermal shock device and client PC

2.1.1. Connect it by serial communications.

Figure2-1 Thermal shock device (device for RS-485) and client PC are connected with [noyou] by serial communications through RS-232C. Moreover, a standard mode and the delimiter correspond to the data transfer with CR+LF. Set it as follows in the device for connected RS-485 referring to "Chapter 2 environment setting" of the ThermalShock RS-485 manual.

Set item	Set value
RS-485 forwarding mode setting	Standard mode
RS-485 delimiter setting	CR+LF

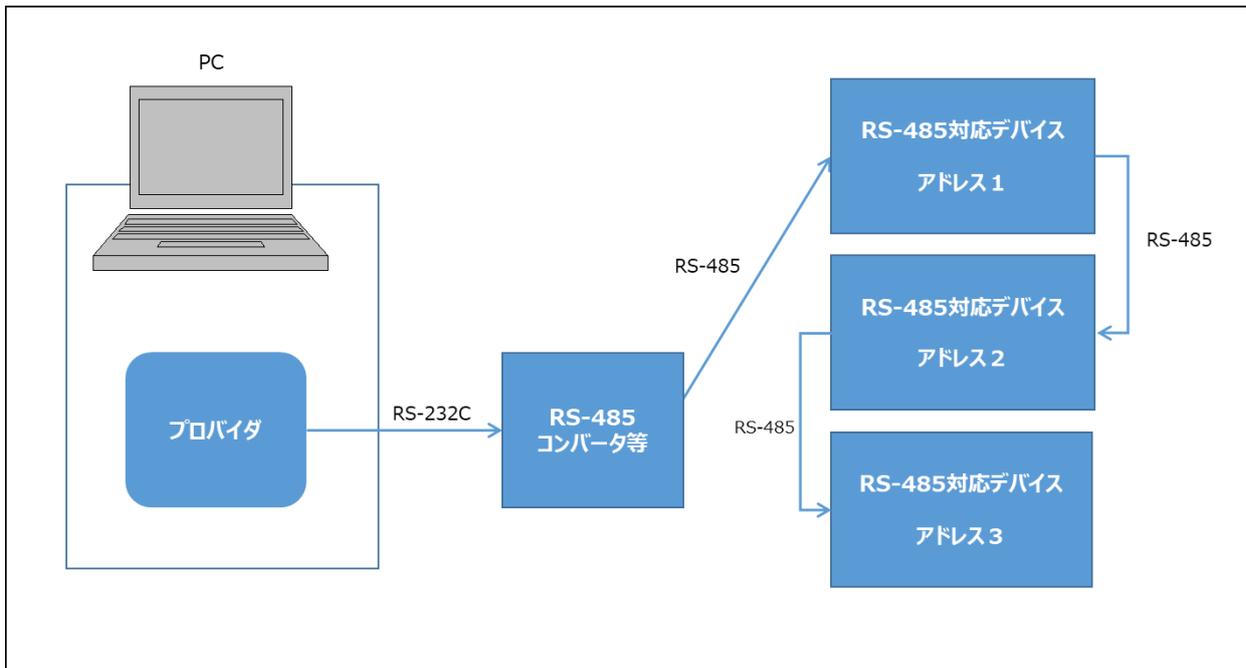


Figure2-1 Block diagram at serial communications

2.1.2. Connect it by the Ethernet communication.

Thermal shock device (device for Ethernet) and client PC are connected by the TCP/IP communication by Ethernet. It is not necessary to set it in the environmental setting because the delimiter is CR+LF fixation in the device for connected Ethernet.

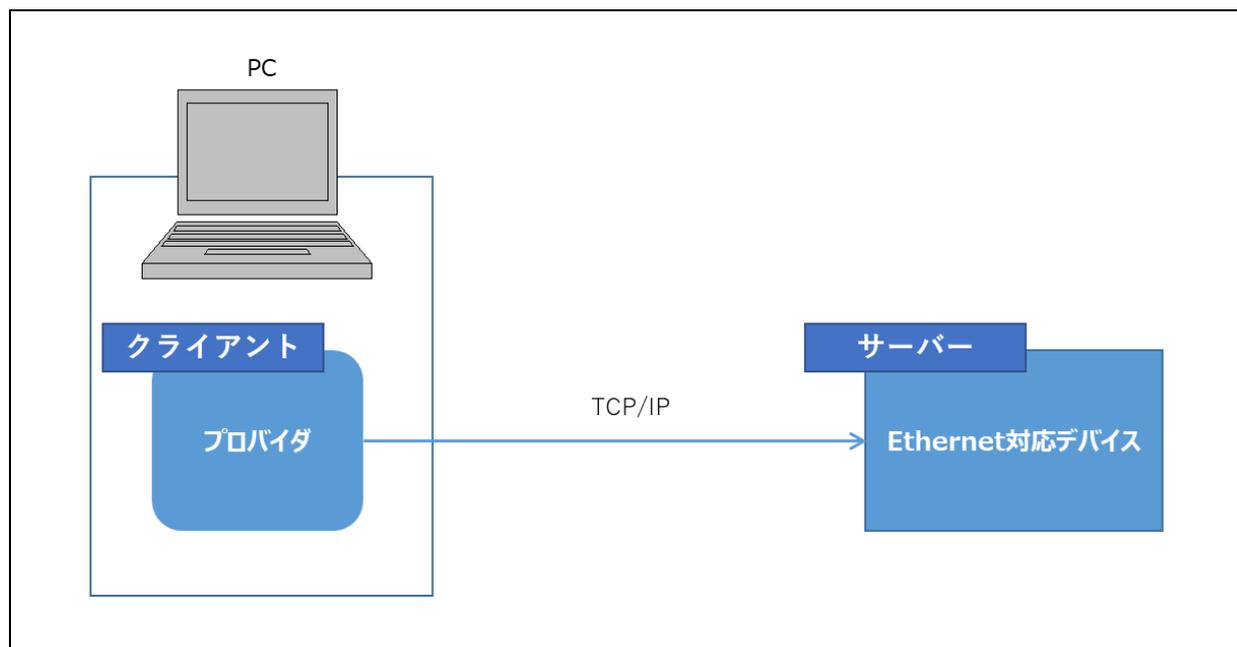


Figure2-2Block diagram when Ethernet is communicated

2.2. Setup of client PC development setting

2.2.1. Manual installation of espec ThermalShock provider

It is necessary to register the following registry when installing it to use the espec ThermalShock provider by hand power. Start the command prompt by the manager authority, and execute the regsvr32 command when you register the registry.

Table2-1Espec ThermalShock provider

File name	CaoProvespecThermalShock.dll
ProgID	CaoProv.espec.ThermalShock
Registry registration	regsvr32 CaoProvespecThermalShock.dll
Blotting out of registry registration	regsvr32 /u CaoProvespecThermalShock.dll

3. Command reference

3.1. Method/property list

Table3-1Method/property list

Category	Method/property		Function	Reference
CaoWorkspace				
	AddController	M	Connect it with the controller.	P. 10
CaoController				
	VariableNames	P	Acquisition of variable identifier list that can be connected	P. 12
	AddExtension	M	Addition of enhancing board object	P. 12
	AddVariable	M	Addition of variable object	P. 13
	Execute	M	Execution of enhancing command	P. 14
CaoExtenstion				
	ID	P	Acquisition/setting of ID	P. 14
	VariableNames	P	Acquisition of variable identifier list that can be connected	P. 14
	AddVariable	M	Addition of variable object	P. 15
	Execute	M	Execution of enhancing command	P. 15
CaoVariable				
	Value	P	Acquisition/setting of value	P. 15

3.2. Method property

3.2.1. CaoWorkspace class

3.2.1.1. AddController method

Connect it with corresponding ThermalShock referring to the parameter passed when the AddController method is executed. The specification of the AddController method is shown as follows.

Format

AddController

```
(
    "< controller name >" // Controller name (arbitrariness)
```

¹ M:メソッド, P:プロパティ, E:イベントをそれぞれ示します。

```

    "CaoProv. espec. ThermalShock", // Provider name (fixation)
    "< machine name >" // Provider execution machine name
    "< option >" // Optional character string
)

```

Option

The option specified for an optional character string is shown as follows. An optional character string becomes a character string to which each option shown in the following ties by comma (,).

Option	Indispensability	Explanation	Range of value	Default value
Conn	✓	Specify a cereal or optional Ethernet connection to connect it with the thermal shock device. Please refer to chapter 3.2.1.1.1 for details.	--	--
Timeout	--	Specify connection/sending and receiving time-out by the unit of ms.	1 - 4294967295	500

Usage example

```

Dim caoEng As CaoEngine ' Engine object
Dim caoWor As CaoWorkspace ' Workspace object
Dim caoCon As CaoController ' Controller object

Set caoEng = New CaoEngine
Set caoWor = caoEng.Workspaces.Item(0)
Set caoCon = caoWor.AddController("Controller", _
    "CaoProv. espec. ThermalShock", _
    "", _
    "Conn=com:1")

```

3.2.1.1.1. Conn is optional.

Connected parameter character string of optional Conn is shown as follows. It is shown to omit it here in the brace) and the underlined part under the explanation of each parameter shows the default value when the option is not specified respectively.

When you connect the device for RS-485 (serial communications)

(when two or more devices for RS-485 are connectedFigure1-1The reference) Do the RS-485 transmission rate setting, the RS-485 stop bit setting, the RS-485 data bit setting, and the RS-485 parity bit setting of each device thoroughly. Refer to "Chapter 2 environment setting" of the ThermalShock RS-485 manual and "Chapter 5 specification" for the setting of each device.

```
"Conn=Com:<COM Port>[:<BaudRate>[:<Parity>:<DataBits>:<StopBits>]]"
```

```
<COM Port>      : COM port number.
<BaudRate>     : Baud rate. 4800, 9600, 19200
<Parity>       : Parity. 'N'-NONE, 'E'-EVEN, 'O'-ODD
<DataBits>     : Data bit. '7'-7bit, '8'-8bit
<StopBits>    : Stop bit. '1'-1bit, '2'-2bit
```

When you connect the device for Ethernet (TCP/IP communication)

The device for Ethernet uses the port number of 57732.

```
"Conn=Eth:<IP>[:<Port>]"
```

```
<IP>   : Connection destination Internet Protocol address.
<Port> : Connection destination port. 57732
```

3.2.2. CaoController class**3.2.2.1. VariableNames property**

Acquire the variable identifier list. Describe the variable identifier acquired in this property later. It is possible to use it for one argument.

Usage example

```
' connection
Call Connect
' Variable identifier list acquisition
Dim names as Variant
names = caoCon.VariableNames
' cutting
Call Disconnect
```

3.2.2.2. AddExtension method

When it is necessary to connect it with the thermal shock device with RS-485, it is necessary to add the CaoExtension object corresponding to each thermal shock device to CaoController. In that case, specify the address number set to the thermal shock device for an optional character string.

The specification of the AddExtension method is shown as follows.

Format

AddExtension

```
(
    "< enhancing board name >" // Enhancing board name (arbitrariness)
    "< option >" // Optional character string
)
```

Option

The option specified for an optional character string is shown as follows. An optional character string becomes a character string to which each option shown in the following ties by comma (,).

Option	Indispensability	Explanation	Range of value	Default value
Addr	✓	Specify the address of the connected device. The address is necessary to identify two or more connected devices. Set a unique address to each device. (Figure1-1Drink and refer to [a] dress.)	1 - 16	--

Usage example

```
' connection
Call Connect
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Call caoCon.Extensions.Remove(caoExt.Index)
Set caoExt = Nothing
' cutting
Call Disconnect
```

3.2.2.3. AddVariable method

Add the variable object to CaoController. You can specify the variable name shown in Chapter 3.4.1.

The specification of AddVariable is shown as follows.

Format

AddVariable

```
(
    "< variable identifier >" // Variable identifier
    "< option >" // Optional character string (It is possible to omit it).
)
```

3.2.2.4. Execute method

Execute the enhancing command of CaoController. The commands that can be executed are shown in Chapter 3.3.1. The specification of Execute is shown as follows.

Format

Execute

```
(
    "< enhancing command name >" // Enhancing command name
    "< optional character string >" // Optional character string (It is possible
to omit it).
)
```

3.2.3. CaoExtension class

This provider can add this class only from the CaoController class with which the cereal is connected.

3.2.3.1. ID property

Acquire the address of the extension board.

Data type

Type explanation	
VT_14	The address is returned.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
ID (address) ' acquisition
Dim address Long
address = caoExt.ID
```

3.2.3.2. VariableNames property

Acquire the variable identifier list. The variable name can be used as the first argument of the AddVariable method.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable identifier list ' acquisition
Dim variables as Variant
variables = caoExt.VariableNames
```

3.2.3.3. AddVariable method

Add the variable object to CaoExtension. The variable names that can be used are shown in section 3.4.2.

The specification of AddVariable is shown as follows.

Format**AddVariable**

```
(
    "< variable identifier >"           // Variable identifier
    "< option >"                       // Optional character string (It is possible to omit it).
)
```

3.2.3.4. Execute method

Execute the enhancing command of CaoExtension. Section 3.3.2 shows the names of commands that can be executed. The specification of Execute is shown as follows.

Format**Execute**

```
(
    "< enhancing command name >"       // Enhancing command name
    "< optional character string >"     // Optional character string (It is possible
to omit it).
)
```

3.2.4. CaoVariable class**3.2.4.1. Value property**

Acquisition/set data from the connected device. For details, see 3.4. List of variables.

3.3. Execute method list

Define the command list that can be used in each class.

3.3.1. CaoController class command

Only when Ethernet is connected, the Execute method that executes it in the CaoController class is effective. Each command is detailed and the usage example is described.

Table3-2CaoController class command list

Command	Explanation	Reference
Command related to equipment setting		
GetROM	Acquire controller's ROM version.	P. 19
GetROMDISP	Acquire ROM version of the indicator.	P. 19
GetPOWERCUT	Acquire the power failure [fukudousa] mode.	P. 20
GetSTOPMODE	Acquire the device stop mode.	P. 20
GetDRYTEMP	Acquire the preset temperature for a dry driving.	P. 20
GetAMBTIME	Acquire the set time for the normal temperature driving.	P. 21
GetKEYPROTECT	Acquire the key protecting.	P. 21
SetKEYPROTECT	Set the key protecting.	P. 22
Command related to driving equipment		
GetMODE	Acquire driving the device.	P. 22
SetMODE	Set the mode of operation.	P. 26
GetASSIGN	Acquire the examination pattern.	P. 27
SetASSIGN	Set the examination pattern.	P. 27
GetTEMP	Acquire the exposing temperature.	P. 28
GetPRE	Acquire the preheating and [**] cool temperate degree.	P. 29
GetTIME	Acquire the exposing remainder time.	P. 29
GetCYCLE	Acquire examination cycle number.	P. 30
GetMODEL	Acquire model ID.	P. 30
GetALARM	Acquire the alarm state.	P. 31
OPESTANDBY	Put it into the state of idling.	P. 31
OPESETUP	Begin the preparation driving.	P. 32
OPESETUPEND	Begin the test operation after it prepares it.	P. 32
OPETEST	Begin examining.	P. 33

Command	Explanation	Reference
OPEHALT	Put the examination into the state of the interruption.	P. 33
OPERELEASE	Release the interruption of the examination.	P. 33
OPECYCLERESET	Cancel the remainder cycle.	P. 34
OPEDEFROST	Do the defrosting driving.	P. 34
OPEDRY	Do a dry driving.	P. 34
OPEPRESET-SETUP	Set the preparation reservation timer.	P. 35
OPEPRESET-TEST	Set the examination reservation timer.	P. 35
OPEPRESET-ON	Reserve the timer.	P. 36
OPEPRESET-CLR	Release the timer reservation.	P. 36
GetPRESET-HALT-ON	Acquire the interruption reservation status.	P. 36
OPEPRESET-HALT-ON	Do the interruption reservation.	P. 38
OPEPRESET-HALT-CLR	Release the interruption reservation.	P. 39
GetPRESET-HALT	Acquire interruption reservation counter information.	P. 40
OPEPRESET-HALT	Set details of the interruption reservation.	P. 41
Command related to examination pattern information		
PRGMREAD	Open the examination pattern in the reference mode.	P. 43
PRGMREADEND	Close the examination pattern that opens in the reference mode.	P. 43
PRGMWRITE	Open the examination pattern in the edit mode.	P. 43
PRGMWRITEEND	Close the examination pattern that opens in the edit mode.	P. 44
LISTTEMP	Acquire the exposing temperature setting value.	P. 44
TEMP	Set the exposing temperature setting.	P. 45
LISTPREAI	Acquire the preheating and the [**hiya] mode setting.	P. 45
PREAI	Set the preheating and the [**hiya] mode setting.	P. 46
LISTPRE	Acquire the preheating and [**] cool temperate degree setting.	P. 47
PRE	Set the preheating and [**] cool temperate degree setting.	P. 47
LISTTIME	Acquire an exposing time set value.	P. 48

Command	Explanation	Reference
TIME	Set the time setting.	P. 48
LISTCYCLE	Acquire examination cycle number.	P. 49
CYCLE	Set examination cycle number.	P. 49
LISTSTARTPOSITION	Acquire the start of the examination position setting.	P. 50
STARTPOSITION	Set the start of the examination position.	P. 50
LISTG-SOAK	Acquire the control point setting while it stabilizes.	P. 51
G-SOAK	Set the control mode while it stabilizes.	P. 51
LISTEND	Acquire the examination end condition setting.	P. 52
END	Set the end condition.	P. 52
LISTNAME	Acquire the examination pattern name.	P. 53
NAME	Set the examination pattern name.	P. 54
LISTSENSOR	Acquire the sensor position setting.	P. 54
SENSOR	Set the sensor position.	P. 55
LISTDEFROST	Acquire the defrosting mode setting.	P. 55
DEFROST	Set the defrosting mode.	P. 56
LISTTEMP-L-DEFROST	Acquire the defrosting standby position setting.	P. 57
TEMP-L-DEFROST	Set the defrosting standby position.	P. 57
LISTQ-EXP	Acquire the setting of shortening the exposing time.	P. 58
Q-EXP	Set the mode of shortening the exposing time.	P. 58
LISTTEMPLIMIT	/ temperature supercooling setting value is acquired ..temperature.. over.. rise up.	P. 59
TEMPLIMIT	/ temperature supercooling setting is set ..temperature.. over.. rise up.	P. 59
LISTAUXCOOLER	Acquire the supplementary cooling setting.	P. 60
AUXCOOLER	Set the supplementary cooling mode.	P. 61
LISTDRYMODESET	Acquire the back and forth processing temperature and the time setting.	P. 61
DRYMODESET	Set the back and forth processing temperature and the time setting.	P. 62
LISTDRYMODE	Acquire the back and forth processing mode setting.	P. 62
DRYMODE	Set the back and forth processing mode.	P. 63

Command	Explanation	Reference
LIST-PRE-ECONOMY	Acquire the eco-service condition setting.	P. 64
PRE-ECONOMY	Set the eco-service condition.	P. 64
LISTRELAY1	Acquire one external output setting.	P. 65
RELAY1	Set external output 1.	P. 66
LISTRELAY2	Acquire two external output settings.	P. 66
RELAY2	Set external output 2.	P. 67

3.3.1.1. Command related to equipment setting

3.3.1.1.1. GetROM command

Acquire controller's ROM version.

Item	Type explanation	
Return value	VT_BSTR	Device type ROM version

Usage example

The controller's addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetROM command execution

```
Dim val As String
val = caoCon.Execute("GetROM")
```

3.3.1.1.2. GetROMDISP command

Acquire ROM version of the indicator.

Item	Type explanation	
Return value	VT_BSTR	Device type ROM version

Usage example

The controller's addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetROMDISP command execution

```
Dim val As String
val = caoCon.Execute("GetROMDISP")
```

3.3.1.1.3. GetPOWERCUT command

Acquire the power failure [fukudousa] mode.

Item	Type explanation	
Return value	VT_BSTR	Present power failure [fukudousa] mode Either the following is acquired by the setting. <ul style="list-style-type: none"> • STOP: Setting that stops driving • CONTINUE: Setting that continues driving • DRY: Setting that stops driving after dryness is driven

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetPOWERCUT ' command execution

```
Dim val As String
val = caoCon.Execute("GetPOWERCUT")
```

3.3.1.1.4. GetSTOPMODE command

Acquire the device stop mode.

Item	Type explanation	
Return value	VT_BSTR	Present device power supply interception setting state Either the following is acquired by the setting. <ul style="list-style-type: none"> • ON: Effective • OFF: Invalidity

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetSTOPMODE ' command execution

```
Dim val As String
val = caoCon.Execute("GetSTOPMODE")
```

3.3.1.1.5. GetDRYTEMP command

Acquire the preset temperature for a dry driving.

Item	Type explanation	
Return value	VT_I4	Temperature setting value when dryness is driven

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetDRYTEMP ' command execution

```
Dim val As Long
val = caoCon.Execute("GetDRYTEMP")
```

3.3.1.1.6. GetAMBTIME command

Acquire the set time for the normal temperature driving.

Item	Type explanation	
Return value	VT_BSTR	Set time for normal temperature driving (HH:mm) <ul style="list-style-type: none"> In the thermal shock device, the normal temperature driving function is not possessed for the EL type (optional normal temperature bleaching uninstalling). Therefore, the device doesn't do the normal temperature driving operation though "00:30" (initial in instrumentation value) is returned in the EL type when this command is used.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetAMBTIME ' command execution

```
Dim val As String
val = caoCon.Execute("GetAMBTIME")
```

3.3.1.1.7. GetKEYPROTECT command

Acquire the key protecting.

Item	Type explanation	
Return value	VT_BSTR	State of key protecting <p>Either the following is acquired by the setting.</p> <ul style="list-style-type: none"> ON: When the data change protecting or the driving change protecting is effective OFF: When it is both the data change protecting and the driving change protecting invalid

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetKEYPROTECT ' command execution

```
Dim val As String
val = caoCon.Execute("GetKEYPROTECT")
```

3.3.1.1.8. SetKEYPROTECT command

Set the key protecting.

Item	Type explanation	
Argument	VT_BSTR	Specify the key protecting. The specified set value is as follows. <ul style="list-style-type: none"> • ON: The setting change protecting and the driving change protecting are turned on. • OFF: The setting change protecting and the driving change protecting are turned off.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

SetKEYPROTECT ' command execution

```
Dim result As String
result = caoCon.Execute("SetKEYPROTECT", "OFF")
```

3.3.1.2. Command related to driving equipment

The "SetMODE" command changes the operating state of the device, but cannot be combined. On the other hand, when the head of the command identifier is "OPE", combined driving can be done to do operation similar to the instruction button that the display machine of the machine has.

3.3.1.2.1. GetMODE command

Acquire the state of driving and the completion expected date of a present device. It is not calculated by the state of driving at the completion expected date. The date is not set when

there is no completion expected date. Details at the state of driving and the completion date are "Table3-3Refer to".

Item	Type explanation		
Return value	VT_ARRAY VT_BSTR		
	0	VT_BSTR	State of driving of present device
	1	VT_BSTR	(MM/dd) with completion expected date
	2	VT_BSTR	Completion schedule time (HH:mm)

Table3-3Display list of state of driving and completion schedule time

State of driving	Response data		TSA Series	TSE Series	TSB Series	TSD Series
	State of driving	Schedule time				
It is receiving it.	POWER-OFF	(Do not return anything.)	-	-	-	-
It is idling.	STANDBY	(Do not return anything.)	-	-	-	-
Liquid temperature [modo] is being done.	STABLETEMP	Completion schedule of liquid temperature [modo] doing time	×	×	-	×
It is collecting it.	RETRIVING	(Do not return anything.)	×	×	-	×
Normal temperature [modo] is being done.	AMB	(Do not return anything.)	×	×	×	-
The manual operation is being defrosted.	DEFROST	Time ..finish of defrosting..	-	-	×	-
Dryness is being driven.	DRY	(Do not return anything.)	-	×	×	×
It is preparing it.	SETUP	Time ..finish of preparation driving..	-	-	-	-
Preparation completion	READY	Preparation	-	-	-	-

State of driving	Response data		TSA Series	TSE Series	TSB Series	TSD Series
	State of driving	Schedule time				
		completion time				
It is examining it.	TEST	Examination expected completion time	-	-	-	-
The examination is interrupting.	HALT	Examination interruption time	-	-	-	-
The examination is interrupting (normal temperature inside).	AMB	Examination interruption time	×	×	×	-
.. (.. ..defrosting completion.. ..waiting..) when examination is interrupting	HALT	Time ..finish of defrosting..	-	-	×	-
Examination interruption defrosting + normal temperature inside	AMB	Examination interruption time	×	×	×	-
.. (.. ..defrosting completion.. ..waiting..) when being examining it	TEST	Examination expected completion completion time	-	-	×	-
Examination end (Be preparing it).	END-SETUP	Examination end time	-	-	-	-
Examination end (preparation completion)	END-READY	Examination end time	-	-	-	-
Examination end (Be stopping).	END-OFF	Examination end time	-	-	-	-
Examination end (Dryness is being driven).	END-DRY	Examination end time	-	×	×	×
Examination end (normal	END-AMB	Examination	-	×	×	×

State of driving	Response data		TSA Series	TSE Series	TSB Series	TSD Series
	State of driving	Schedule time				
temperature inside)		end time				
Examination end stop + normal temperature inside	END-OFF-AMB	Examination end time	×	×	×	-
Examination end (Be defrosting).	END-DEFROST	Time ..finish of defrosting..	-	-	×	-
Examination end (Liquid temperature [modo] is being done).	END-STABLETEMP	Examination end time	×	×	-	×
Examination end (Be collecting it).	END-REGAIN	Examination end time	×	×	-	×
Examination end defrosting + normal temperature inside	END-DEF-AMB	Time ..finish of defrosting..	×	×	×	-
The preparation reservation is standing by.	WAIT-SETUP	Schedule time that can be examined	-	-	-	-
The examination reservation is standing by.	WAIT-TEST	Examination expected completion time	-	-	-	-

- - ? correspondence × - Non-correspondence

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetMODE ' command execution

```
Dim values As Variant
values = caoCon.Execute("GetMODE")
```

Driving state ' acquisition

```
Dim opeState As String
opeState = values(0)
```

' acquisition with completion expected date

Dim day As String

day = values(1)

' acquisition at completion schedule time

Dim time As String

time = values(2)

3.3.1.2.2. SetMODE command

Set the mode of operation.

Item	Type explanation	
Argument	VT_BSTR	Specify the mode of operation. The mode of operation that can be specified is only single operation. The mode of operation that can be specified is "Table3-4Refer to".
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Table3-4Sending data when driving mode is changed

Sending data	Mode of operation	TSA series	TSE series	TSB series	TSD series
OFF	State of panel power supply OFF	-	-	-	-
STANDBY	State of idling	-	-	-	-
SETUP	Preparation driving	-	-	-	-
SETUPEND	Examination after it prepares it	-	-	-	-
TEST	Examination	-	-	-	-
HALT	Examination interruption	-	-	-	-
RELEASE	Examination interruption release	-	-	-	-
HEATRETURN	Do liquid temperature [modo] and drive.	×	×	-	×
HRET-ON	Do liquid temperature [modo] and reserve it.	×	×	-	×
HRET-CLR	Reservation release of liquid temperature [modo] doing	×	×	-	×
BOXMOVE-H	It is a sample or a movement requirement (right and left).	×	×	-	×
BOXMOVE-V	It is a sample or a movement requirement (vertical direction).	×	×	-	×
DEFROST	Defrosting driving	-	-	×	-

TAREMOVE	Movement in test area	×	-	×	-
DRY	Dry driving	-	×	×	×
AMB-ON	The commencement of commercial operation ..doing... normal temperature [modo]	×	×	×	-
AMB-CLR	Driving normal temperature [modo] wearing discontinuance	×	×	×	-

- - ? correspondence × - Non-correspondence

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

SetMODE ' command execution

```
Dim result As String
result = caoCon.Execute("SetMODE", "OFF")
```

3.3.1.2.3. GetASSIGN command

Acquire the examination pattern.

Item	Type explanation	
Return value	VT_ARRAY VT_VARIANT	
	0	VT_I4 Pattern number of examination pattern
	1	VT_BSTR Examination pattern name It is acquired within 14 characters or less.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetASSIGN ' command execution

```
Dim val As Variant
val = caoCon.Execute("GetASSIGN")
```

Pattern number ' acquisition

```
Dim ptrnNo As Long
ptrnNo = val(0)
```

Examination pattern name ' acquisition

```
Dim ptrnName As String
```

ptrnName = val(1)

3.3.1.2.4. SetASSIGN command

Set the examination pattern while selecting the thermal shock device.

Item	Type explanation	
Argument	VT_I4	Specify the pattern number of the driven examination pattern. Specify the pattern number within the range of 1-40.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _  
                                "conn=eth:192.168.0.2")
```

SetASSIGN ' command execution

```
Dim result As String
```

```
result = caoCon.Execute("SetASSIGN", 1)
```

3.3.1.2.5. GetTEMP command

Acquire the exposing temperature. The thermal data is sequentially set from the old one, and when the temperature sensor is disconnected, 999 is set.

Item	Type explanation		
Return value	VT_ARRAY VT_VARIANT		Thermal data sampled in ten seconds (six data of one minute)
	0	VT_BSTR	Sampling beginning time (HH:mm)
	1	VT_I4	One in temperature
	2	VT_I4	Two in temperature
	3	VT_I4	Three in temperature
	4	VT_I4	Four in temperature
	5	VT_I4	Five in temperature
	6	VT_I4	Six in temperature

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

"conn=eth:192.168.0.2")

GetTEMP ' command execution

```
Dim values As Variant
values = caoCon.Execute("GetTEMP")
```

' acquire the latest temperature.

```
Dim latestTemp As Long
latestTemp = values(6)
```

3.3.1.2.6. GetPRE command

Acquire the preheating and [**] cool temperate degree.

Item	Type explanation	
Return value	VT_ARRAY VT_I4	
	Temperature measurements of present high temperature tank and low temperature tank	
	0	VT_I4
1	VT_I4	Low temperature tank measurement temperature

- When the temperature sensor is disconnected, 999 is set.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetPRE ' command execution

```
Dim val() As Long
val = caoCon.Execute("GetPRE")
```

3.3.1.2.7. GetTIME command

Acquire the exposing remainder time.

Item	Type explanation	
Return value	VT_ARRAY VT_BSTR	
	State of exposing and the remainder time of pattern when being examining it	
	0	VT_BSTR

Item	Type explanation	
		H: The high temperature bleaching is being processed. A: High temperature bleaching processing unexecution
	1	VT_BSTR The remainder time (HH:mm)

- It exposes and the error is returned when not examining it. "for details of the error. Table5-2Refer to error code 0x8010001F of".

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetTIME ' command execution

```
Dim values() As String
values = caoCon.Execute("GetTIME")
```

3.3.1.2.8. GetCYCLE command

Acquire examination cycle number.

Item	Type explanation	
Return value	VT_ARRAY VT_I4	Set cycle number and number of execution cycles of patterns when being examining it
	0	VT_I4 Number of execution cycles
	1	VT_I4 Set cycle number

- Expose..running..remainder..cycle..number..provide..execution cycle..number..become.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetCYCLE ' command execution

```
Dim values() As Long
values = caoCon.Execute("GetCYCLE")
```

3.3.1.2.9. GetMODEL command

Acquire model ID.

Item	Type explanation	
Return value	VT_BSTR	Model ID.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetMODEL ' command execution

```
Dim val As String
val = caoCon.Execute("GetMODEL")
```

3.3.1.2.10. GetALARM command

Acquire the alarm state.

Item	Type explanation	
Return value	VT_EMPTY	There is no generated alarm.
	Or,	
	VT_ARRAY VT_I4	Alarm information up to six
	<i>i</i> VT_I4	Alarm number Refer to ThermalShock Ethernet manual "Table 3.4 warning code list" for details of the alarm number.

- A few minutes of alarm *i*-have generated (1-6)

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetALARM ' command execution

```
Dim values As Variant
values = caoCon.Execute("GetALARM")
```

' acquisition for a few minutes of alarm

```
If Not IsEmpty(values) Then
    Dim i As Long
    For i = 0 To UBound(values)
        Dim val As Long
        val = values(i)
    Next i
End If
```

3.3.1.2.11. OPESTANDBY command

Put the device into the state of idling.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPESTANDBY ' command execution

```
Dim result As String
result = caoCon.Execute("OPESTANDBY")
```

3.3.1.2.12. OPESETUP command

Put the device into the state of the preparation beginning.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPESETUP ' command execution

```
Dim result As String
result = caoCon.Execute("OPESETUP")
```

3.3.1.2.13. OPESETUPEND command

Put it into the state of the start of the examination after preparing the device.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPESETUPEND ' command execution

```
Dim result As String
result = caoCon.Execute("OPESETUPEND")
```

3.3.1.2.14. OPETEST command

Put the device into the state of the start of the examination.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPETEST ' command execution

```
Dim result As String
result = caoCon.Execute("OPETEST")
```

3.3.1.2.15. OPEHALT command

Put the device into the state of the examination interruption.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEHALT ' command execution

```
Dim result As String
result = caoCon.Execute("OPEHALT")
```

3.3.1.2.16. OPERERELEASE command

Release the examination interruption.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPERELEASE ' command execution

```
Dim result As String
result = caoCon.Execute("OPERELEASE")
```

3.3.1.2.17. OPECYCLERESET command

Delete the remainder cycle.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPECYCLERESET ' command execution

```
Dim result As String
result = caoCon.Execute("OPECYCLERESET")
```

3.3.1.2.18. OPEDEFROST command

Begin the defrosting driving.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEDEFROST ' command execution

```
Dim result As String
result = caoCon.Execute("OPEDEFROST")
```

3.3.1.2.19. OPEDRY command

Begin a dry driving.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEDRY ' command execution

```
Dim result As String
result = caoCon.Execute("OPEDRY")
```

3.3.1.2.20. OPEPRESET-SETUP command

Set the preparation reservation timer (time to complete the examination preparation).

Item	Type explanation	
Argument	VT_BSTR	Specify date (MM/dd,HH:mm).
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-SETUP ' command execution

```
Dim result As String
result = caoCon.Execute("OPEPRESET-SETUP", "03/05,19:21")
```

3.3.1.2.21. OPEPRESET-TEST command

Set the examination reservation timer (time for the examination to begin).

Item	Type explanation	
Argument	VT_BSTR	Specify date (MM/dd,HH:mm).
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-TEST ' command execution

```
Dim result As String
result = caoCon.Execute("OPEPRESET-TEST", "03/05,19:21")
```

3.3.1.2.22. OPEPRESET-ON command

Reserve the set timer effectively.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-ON command ' execution

```
Dim result As String
result = caoCon.Execute("OPEPRESET-ON")
```

3.3.1.2.23. OPEPRESET-CLR command

Release the timer that has been reserved.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-CLR ' command execution

```
Dim result As String
result = caoCon.Execute("OPEPRESET-CLR")
```

3.3.1.2.24. GetPRESET-HALT-ON command

Acquire the interruption reservation status.

Item	Type explanation
Return value	VT_ARRAY VT_BSTR

Item	Type explanation	
0	VT_BSTR	Interruption after exposing Either the following is acquired. <ul style="list-style-type: none"> • ON: It is reserving it. • OFF: It is not reserving it.
1	VT_BSTR	Interruption after cycle After exposing, the value, in the same form as the interruption, is acquired.
2	VT_BSTR	Counter 1 After exposing, the value, in the same form as the interruption, is acquired.
3	VT_BSTR	Counter 2 After exposing, the value, in the same form as the interruption, is acquired.
4	VT_BSTR	Counter 3 After exposing, the value, in the same form as the interruption, is acquired.
5	VT_BSTR	Counter 4 After exposing, the value, in the same form as the interruption, is acquired.
6	VT_BSTR	Counter 5 After exposing, the value, in the same form as the interruption, is acquired.
7	VT_BSTR	Counter 6 After exposing, the value, in the same form as the interruption, is acquired.

- In the counter product (TSD etc.) equipped with, all "OFF" is acquired one-counter. counter 6.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

GetPRESET-HALT-ON command ' execution

```
Dim val() As String
```

```
val = caoCon.Execute("GetPRESET-HALT-ON")
```

3.3.1.2.25. OPEPRESET-HALT-ON command

Do the examination interruption reservation setting. As for this command, operation is different depending on the argument. Specify either the following for the argument.

When you effectively do the counter interruption reservation

Item	Type explanation		
Argument	VT_ARRAY VT_VARIANT		
	0	VT_I4	Specify reservation No. Reservation No can be specified within the range of 1-6.
	1	VT_BOOL	Specify the setting repeatedly. It becomes a default configuration when omitting it. <ul style="list-style-type: none"> ▪ <u>False: Execution only once (default)</u> ▪ True: Repetition
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-HALT-ON command ' execution

```
Dim result As String
' when you repeatedly set none
Dim param As Long
param = 1
result = caoCon.Execute("OPEPRESET-HALT-ON", param)
```

' when you set the repetition

```
Dim params(1) As Variant
params(0) = CLng(1)
params(1) = CBool(True)
result = caoCon.Execute("OPEPRESET-HALT-ON", params)
```

When you effectively do the interruption reservation after the interruption reservation or the cycle after exposing

Item	Type explanation
------	------------------

Item	Type explanation	
Argument	VT_BSTR	Either the following can be specified. <ul style="list-style-type: none"> • EXP: Begin the interruption reservation after exposing. • CYC: Begin the interruption reservation after the cycle.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-HALT-ON command ' execution

```
Dim result As String
' begin the interruption reservation after exposing.
result = caoCon.Execute("OPEPRESET-HALT-ON", "EXP")
' begin the interruption reservation after the cycle.
result = caoCon.Execute("OPEPRESET-HALT-ON", "CYC")
```

3.3.1.2.26. OPEPRESET-HALT-CLR command

Do the examination interruption reservation. Note that operation is different depending on the value of the argument about this command.

Item	Type explanation	
Argument	VT_I4	Specify reservation No. Release the counter interruption reservation when you specify reservation No. Reservation No can be specified within the range of 1-6. Release the interruption reservation after the interruption reservation and exposing after the cycle when you specify a negative value.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

```

"conn=eth:192.168.0.2")
OPEPRESET-HALT-CLR ' command execution
Dim result As String
' when you release the counter interruption reservation
result = caoCon.Execute("OPEPRESET-HALT-CLR", 1)

' when you release the interruption reservation after the interruption reservation and
exposing after the cycle
result = caoCon.Execute("OPEPRESET-HALT-CLR", -1)

```

3.3.1.2.27. GetPRESET-HALT command

Acquire interruption reservation counter information.

Item	Type explanation		
Argument	VT_I4	Reservation interruption number (counter 1-6)	
Return value	VT_ARRAY VT_VARIANT		
	0	VT_I4	Number of execution counters
	1	VT_I4	Number of reservation counters
	2	VT_BSTR	The dead letter character enters name * name when it is unregistered.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
"conn=eth:192.168.0.2")

GetPRESET-HALT ' command execution
Dim values As Variant
values = caoCon.Execute("GetPRESET-HALT", 1)

' acquisition of number of execution counters
Dim exeCounter As Long
exeCounter = values(0)

' acquisition of number of reservation counters
Dim resCounter As Long
resCounter = values(1)

Name ' acquisition
Dim name As String
Name = values(2)

```

3.3.1.2.28. OPEPRESET-HALT command

Set the examination interruption counter. As for this command, operation is different depending on the argument. Specify either the following for the argument.

When you set the interruption counter

Item	Type explanation	
Argument	VT_ARRAY VT_VARIANT Set the interruption counter.	
	0	VT_I4 Specify reservation No. Reservation No can be specified within the range of 1-6.
	1	VT_I4 Specify the interruption counter setting value. The interruption counter setting value can be specified within the range of 1-9999.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _  
"conn=eth:192.168.0.2")
```

OPEPRESET-HALT ' command execution

```
Dim result As String
```

```
Dim params(1) As Long
```

```
params(0) = 1
```

```
params(1) = 100
```

```
result = caoCon.Execute("OPEPRESET-HALT", params)
```

When you set the name of an individual counter

Item	Type explanation	
Argument	VT_ARRAY VT_VARIANT Set the name of an individual counter.	
	0	VT_I4 Specify reservation No. Reservation No can be specified within the range of 1-6.
	1	VT_BSTR Specify the counter name. The counter name becomes set within 12 characters.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-HALT ' command execution

```
Dim result As String
Dim params(1) As Variant
params(0) = CLng(1)
params(1) = "Count"
result = caoCon.Execute("OPEPRESET-HALT", params)
```

When you reset the number of execution counters of interruption counters

Item	Type explanation	
Argument	VT_I4	Specify reservation No. Reservation No can be specified within the range of 1-6.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

OPEPRESET-HALT ' command execution

```
Dim result As String
Dim param As Long
param = 1
result = caoCon.Execute("OPEPRESET-HALT", param)
```

3.3.1.3. Command related to examination pattern information

When using a command to obtain test pattern information, it is necessary to execute the "PRGMREAD command" in advance and open the corresponding test pattern to be monitored. It is necessary to execute", and to open the examination pattern of the monitored correspondence. For commands that set test pattern information, it is necessary to execute the "PRGMWRITE command" in advance and open the corresponding test pattern. The test pattern setting is reflected when the "PRGMWRITEEND command" is executed and the test pattern is closed. If a setting command other than the test pattern setting command is executed before closing, it is forcibly closed and the edits made so far are discarded. For details, see "PRGMWRITE command" and "PRGMWRITEEND command".

3.3.1.3.1. PRGMREAD command

Open the examination pattern in the reference mode.

Item	Type explanation	
Argument	VT_I4	Specify the pattern number of the monitored examination pattern.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

PRGMREAD ' command execution

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

3.3.1.3.2. PRGMREADEND command

Close the examination pattern that opens in the reference mode.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

PRGMREADEND ' command execution

```
result = caoCon.Execute("PRGMREADEND")
```

3.3.1.3.3. PRGMWRITE command

Open the examination pattern in the edit mode.

Item	Type explanation	
Argument	VT_I4	Specify the pattern number of the edited examination pattern.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

PRGMWRITE ' command execution

```
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
```

3.3.1.3.4. PRGMWRITEEND command

Close the examination pattern that opens in the edit mode.

Item	Type explanation	
Argument	VT_I4	Specify the pattern number of the examination pattern under the edit.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
PRGMWRITEEND ' command execution
result = caoCon.Execute("PRGMWRITEEND", 2)
```

3.3.1.3.5. LISTTEMP command

Acquire the exposing temperature setting value.

Item	Type explanation		
Return value	VT_ARRAY VT_I4		
	0	VT_I4	Setting of temperature of high temperature bleaching value
	1	VT_I4	Setting of temperature of low temperature bleaching value

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

```

"conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTTEMP ' command execution
Dim values() As Long
values = caoCon.Execute("LISTTEMP")
    
```

3.3.1.3.6. TEMP command

Set the exposing temperature setting value. When [****hiya**] – preheating setting value is an automatic mode of operation, a preheating and [******] [**hiya****] fixed value are automatically set again.

Item	Type explanation		
Argument	VT_ARRAY VT_I4		
	0	VT_I4	Specify the setting of the temperature of the high temperature bleaching value.
	1	VT_I4	Specify the setting of the temperature of the low temperature bleaching value.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
"conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
TEMP ' command execution
result = caoCon.Execute("TEMP", Array(100, -65))
    
```

3.3.1.3.7. LISTPREAI command

Acquire the preheating and the [****hiya**] mode setting.

Item	Type explanation
------	------------------

Item	Type explanation	
Return value	VT_BSTR	<p>Preheating and [**hiya] mode setting</p> <p>Details of the acquired value are as follows.</p> <ul style="list-style-type: none"> ON: Preheating and either [**hiya] [no] are the automatic mode of operations. OFF: Preheating and both [**hiya] [no] are the manual mode of operations.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

LISTPREAI ' command execution

```
Dim val As String
```

```
val = caoCon.Execute("LISTPREAI")
```

3.3.1.3.8. PREAI command

Set the automatic mode of operation of a preheating and [**] [hiya**] fixed value.

Item	Type explanation	
Argument	VT_BSTR	<p>Specify the preheating and the [**hiya] mode.</p> <p>Specify either the following.</p> <ul style="list-style-type: none"> ON: It becomes the preheating and [**hiya] [tomo] automatic mode set. OFF: It becomes the preheating and the [**hiya] [tomo] hand movement mode set.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMWRITE", 2)
```

PREAI ' command execution

```
result = caoCon.Execute("PREAI", "ON")
```

3.3.1.3.9. LISTPRE command

Acquire the preheating and [**] cool temperate degree setting value.

Item	Type explanation		
Return value	VT_ARRAY VT_I4		
	0	VT_I4	Preheating temperature degree setting value
	1	VT_I4	[**] cool temperate degree setting value

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
```

LISTPRE ' command execution

```
Dim values() As Long
values = caoCon.Execute("LISTPRE")
```

3.3.1.3.10. PRE command

Set the preheating and [**] cool temperate degree.

Item	Type explanation		
Argument	VT_ARRAY VT_I4		
	0	VT_I4	Specify the preheating temperature degree setting value.
	1	VT_I4	Specify [**] cool temperate degree setting value.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

- When the preheating and [**] [hiya**] Sadamu are the automatic mode of operations, it becomes impossible to set.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

```
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
PRE ' command execution
result = caoCon.Execute("PRE", Array(80, -30))
```

3.3.1.3.11. LISTTIME command

Acquire an exposing time set value.

Item	Type explanation		
Return value	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Time of normal temperature bleaching (HH:mm)
	1	VT_BSTR	Time of high temperature bleaching (HH:mm)
	2	VT_BSTR	Time of low temperature bleaching (HH:mm)

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)

LISTTIME ' command execution
Dim values() As String
values = caoCon.Execute("LISTTIME")
```

3.3.1.3.12. TIME command

Set it at the exposing time.

Item	Type explanation		
Argument	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Specify time (HH:mm) of the normal temperature bleaching.
	1	VT_BSTR	Specify time (HH:mm) of the high temperature bleaching.
	2	VT_BSTR	Specify time (HH:mm) of the low temperature bleaching.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

- The setting (Excluding time 00:00⇔00:00 of the normal temperature bleaching) that becomes a zone change cannot be done for the examination pattern while driving.
- Set the time of the normal temperature bleaching with the thermal shock device in the EL

type (optional normal temperature bleaching uninstalling) as 00:00.

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
TIME ' command execution
result = caoCon.Execute("TIME", Array("00:00", "02:30", "01:00"))
```

3.3.1.3.13. LISTCYCLE command

Acquire examination cycle number.

Item	Type explanation	
Return value	VT_I4	Examination cycle number

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTCYCLE ' command execution
Dim val As Long
val = caoCon.Execute("LISTCYCLE")
```

3.3.1.3.14. CYCLE command

Set the repetition frequency of the examination pattern (cycle number).

Item	Type explanation	
Argument	VT_I4	Specify examination cycle number.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

```

"conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
CYCLE ' command execution
result = caoCon.Execute("CYCLE", 99)
    
```

3.3.1.3.15. LISTSTARTPOSITION command

Acquire the start of the examination position setting.

Item	Type explanation	
Return value	VT_BSTR	Start of the examination position The response by the setting is as follows. <ul style="list-style-type: none"> • H: Setting that begins from high temperature bleaching • L: Setting that begins from low temperature bleaching

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
"conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTSTARTPOSITION command ' execution
Dim val As String
val = caoCon.Execute("LISTSTARTPOSITION")
    
```

3.3.1.3.16. STARTPOSITION command

Set the start of the examination position.

Item	Type explanation	
Argument	VT_BSTR	Specify the start of the examination position. Specify either the following. <ul style="list-style-type: none"> • H: At the time of the high temperature bleaching beginning • L: At the time of the low temperature bleaching beginning
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
    
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
STARTPOSITION command ' execution
result = caoCon.Execute("STARTPOSITION", "H")
```

3.3.1.3.17. LISTG-SOAK command

Acquire the control point setting while it stabilizes.

Item	Type explanation	
Return value	VT_BSTR	Control while it stabilizes Either the following is acquired by the setting. <ul style="list-style-type: none"> • ON: The control operation is effective while it stabilizes. • OFF: Control operation invalidity while it stabilizes

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)

LISTG-SOAK ' command execution
Dim val As String
val = caoCon.Execute("LISTG-SOAK")
```

3.3.1.3.18. G-SOAK command

Set the control while it stabilizes.

Item	Type explanation	
Argument	VT_BSTR	Specify the control mode while it stabilizes. The values that can be specified are the same as the return value of "LISTG-SOAK command".
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
The controller's ' addition
```

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
G-SOAK ' command execution
result = caoCon.Execute("G-SOAK", "ON")
```

3.3.1.3.19. LISTEND command

Acquire the examination end condition setting.

Item	Type explanation	
Return value	VT_BSTR	Examination end condition Details of the acquired response are as follows. <ul style="list-style-type: none"> ▪ OFF: Stop ▪ SETUP: Preparation ▪ DEFROST: Stop after it defrosts ▪ DRY: Stop after it dries ▪ AMB: Stop after normal temperature ▪ DEF-DRY: Stop after it dries after normal temperature

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTEND ' command execution
Dim val As String
val = caoCon.Execute("LISTEND")
```

3.3.1.3.20. END command

Set the examination end condition.

Item	Type explanation
------	------------------

Item	Type explanation	
Argument	VT_BSTR	Specify the examination end condition. Specify either the following. <ul style="list-style-type: none"> ▪ OFF: Stop ▪ SETUP: State of preparation ▪ DEFROST: Stop after it defrosts ▪ DRY: Stop after it dries ▪ AMB: Stop after normal temperature (It is not possible to use it by uninstalling the EL type optional normal temperature bleaching). ▪ Defrost dry stop.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
END ' command execution
result = caoCon.Execute("END", "OFF")
    
```

3.3.1.3.21. LISTNAME command

Acquire the examination pattern name.

Item	Type explanation	
Return value	VT_BSTR	Pattern name The pattern name is returned by 14 characters (Space is set when not coming up to 14 characters).

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
' open the examination pattern in the reference mode.
Dim result As String
    
```

```

result = caoCon.Execute("PRGMREAD", 1)
LISTNAME ' command execution
Dim val As String
val = caoCon.Execute("LISTNAME")
    
```

3.3.1.3.22. NAME command

Set the examination pattern name.

Item	Type explanation	
Argument	VT_BSTR	Specify the examination pattern name. Specify it by the character string within 14 characters. Everything is converted into the capital letter when specifying it by the small letter.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
NAME ' command execution
result = caoCon.Execute("NAME", "PATTERN001")
    
```

3.3.1.3.23. LISTSENSOR command

Acquire the sensor position setting.

Item	Type explanation	
Return value	VT_BSTR	Sensor position. Details of the acquired response are as follows. <ul style="list-style-type: none"> ▪ UP: When windward sensor is used ▪ DOWN: When leeward sensor is used ▪ SPECIMENT: When sensor of temperature of sample is used

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
    
```

```
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTSENSOR ' command execution
Dim val As String
val = caoCon.Execute("LISTSENSOR")
```

3.3.1.3.24. SENSOR command

Set the sensor position.

Item	Type explanation	
Argument	VT_BSTR	Specify the sensor position. Specify either the following. <ul style="list-style-type: none"> ▪ UP: When you select the windward sensor ▪ DOWN: When you select the leeward sensor ▪ SPECIMEN: When you select the sample sensor
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
SENSOR ' command execution
result = caoCon.Execute("SENSOR", "UP")
```

3.3.1.3.25. LISTDEFROST command

Acquire the defrosting mode setting (defrosting condition).

Item	Type explanation	
Return value	VT_I4	Acquire defrosting cycle number when cycle defrosting is set.
	Or,	
	VT_BSTR	Defrosting condition The response by the setting is as follows. <ul style="list-style-type: none"> ▪ AI: Automatic defrosting setting ▪ NO: Defrosting stop setting

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
```

LISTDEFROST ' command execution

```
Dim val As Variant
val = caoCon.Execute("LISTDEFROST")
```

3.3.1.3.26. DEFROST command

Set the defrosting condition.

Item	Type explanation	
Argument	VT_I4	Specify cycle number. Specify an argument here when you want to specify cycle defrosting. Specify cycle number of defrosting within the range of 1-9999.
	Or,	
	VT_BSTR	Specify the defrosting mode. Either the following can be specified. <ul style="list-style-type: none"> • AI: When you specify an automatic defrosting • OFF: When you specify the stop mode
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
```

DEFROST ' command execution

' specify cycle number.

```
Dim param As Long
param = 99
result = caoCon.Execute("DEFROST", param)
```

' specify an automatic defrosting.

```
result = caoCon.Execute("DEFROST", "AI")
```

3.3.1.3.27. LISTEMP-L-DEFROST command

Acquire the defrosting standby position setting.

Item	Type explanation	
Return value	VT_BSTR	Defrosting standby position The response by the setting is as follows. <ul style="list-style-type: none"> ▪ H: It controls. ▪ OFF: It doesn't control. ▪ A: Do not control (normal temperature) The preparation standby of * EL type (optional normal temperature bleaching uninstalling).

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

LISTEMP-L-DEFROST ' command execution

```
Dim val As String
```

```
val = caoCon.Execute("LISTEMP-L-DEFROST")
```

3.3.1.3.28. TEMP-L-DEFROST command

Set the test area control when the defrosting completion is waited.

Item	Type explanation	
Argument	VT_BSTR	Specify the defrosting standby position. Specify either the following. <ul style="list-style-type: none"> ▪ H: The test area is controlled. ▪ OFF: The test area is not controlled. ▪ A: The test area is not controlled (normal temperature).
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

- When A is specified when the normal temperature bleaching function is a uninstalling, the error is returned. "for the error. Table5-2Refer to error code 0x80100006 of". Moreover, a similar error is returned under the setting of three zone examination pattern.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
TEMP-L-DEFROST ' command execution
result = caoCon.Execute("TEMP-L-DEFROST", "A")
    
```

3.3.1.3.29. LISTQ-EXP command

Acquire the setting of shortening the exposing time.

Item	Type explanation	
Return value	VT_BSTR	Exposing time crunch <ul style="list-style-type: none"> • ON: The abbreviated function is the exposing time effective. • OFF: Abbreviated function invalidity of exposing time

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTQ-EXP ' command execution
Dim val As String
val = caoCon.Execute("LISTQ-EXP")
    
```

3.3.1.3.30. Q-EXP command

Do the control of shortening the exposing time setting.

Item	Type explanation	
Argument	VT_BSTR	Specify the mode of shortening the exposing time. The values that can be specified are the same as the return value of "LISTQ-EXP command".
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
Q-EXP ' command execution
result = caoCon.Execute("Q-EXP", "ON")
```

3.3.1.3.31. LISTTEMPLIMIT command

/ temperature supercooling setting value is acquired ..temperature.. over.. rise up.

Item	Type explanation		
Return value	VT_ARRAY VT_I4		
	0	VT_I4	Temperature over[nobo**] fixed value
	1	VT_I4	Temperature supercooling setting value

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTTEMPLIMIT ' command execution
Dim values() As Long
values = caoCon.Execute("LISTTEMPLIMIT")
```

3.3.1.3.32. TEMPLIMIT command

/ temperature supercooling setting is set ..temperature.. over.. rise up.

Item	Type explanation		
Argument	VT_ARRAY VT_I4		
	0	VT_I4	Specify temperature over[noboatai]. It is possible to set it within the following ranges. <ul style="list-style-type: none"> Setting of temperature of high temperature bleaching value-setting of temperature of high temperature bleaching value +50°C

Item	Type explanation	
	1	VT_I4 Specify the temperature supercooling value. It is possible to set it within the following ranges. <ul style="list-style-type: none"> Setting of temperature of low temperature bleaching value -50°C-setting of temperature of low temperature bleaching value
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _  
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMWRITE", 2)
```

TEMPLIMIT ' command execution

```
result = caoCon.Execute("TEMPLIMIT", Array(180, -70))
```

3.3.1.3.33. LISTAUXCOOLER command

Acquire the supplementary cooling setting.

Item	Type explanation	
Return value	VT_BSTR	Auxiliary cooling Either the following is acquired by the setting. <ul style="list-style-type: none"> ON: A supplementary refrigerator is effective. OFF: Supplementary refrigerator invalidity

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _  
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

LISTAUXCOOLER ' command execution

```
Dim val As String
```

```
val = caoCon.Execute("LISTAUXCOOLER")
```

3.3.1.3.34. AUXCOOLER command

Set the mode of a supplementary refrigerator.

Item	Type explanation	
Argument	VT_BSTR	Specify the supplementary cooling mode. The values that can be specified are the same as the return value of "LISTAUXCOOLER" command.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMWRITE", 2)
```

AUXCOOLER ' command execution

```
result = caoCon.Execute("AUXCOOLER", "ON")
```

3.3.1.3.35. LISTDRYMODESET command

Acquire the back and forth processing temperature and the time setting.

Item	Type explanation		
Return value	VT_ARRAY VT_VARIANT		
	0	VT_I4	Preprocessing temperature setting value
	1	VT_BSTR	Preprocessing time set value (HH:mm)
	2	VT_I4	Postprocessing temperature setting value
	3	VT_BSTR	Postprocessing time set value (HH:mm)

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

LISTDRYMODESET ' command execution

```
Dim values() As Variant
```

```
values = caoCon.Execute("LISTDRYMODESET")
```

3.3.1.3.36. DRYMODESET command

Set the back and forth processing temperature and the time setting.

Item	Type explanation		
Argument	VT_ARRAY VT_VARIANT		
	0	VT_I4	Specify the preprocessing temperature setting value.
	1	VT_BSTR	Specify preprocessing time set value (HH:mm).
	2	VT_I4	Specify the postprocessing temperature setting value.
	3	VT_BSTR	Specify postprocessing time set value (HH:mm).
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

- The temperature setting value can be set within the range of 60–200°C.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMWRITE", 2)
```

DRYMODESET ' command execution

```
Dim param(3) As Variant
```

```
param(0) = CLng(50)
```

```
param(1) = "00:30"
```

```
param(2) = CLng(60)
```

```
param(3) = "01:15"
```

```
result = caoCon.Execute("DRYMODESET", param)
```

3.3.1.3.37. LISTDRYMODE command

Acquire the back and forth processing mode setting.

Item	Type explanation		
Return value	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Preprocessing mode <ul style="list-style-type: none"> • ON: Execute processing. • OFF: Do not execute processing.

Item	Type explanation		
	1	VT_BSTR	Postprocessing mode. Acquire the value, in the same form as the above-mentioned preprocessing mode,

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTDRYMODE ' command execution
Dim values() As String
values = caoCon.Execute("LISTDRYMODE")
    
```

3.3.1.3.38. DRYMODE command

Set the back and forth processing mode.

Item	Type explanation		
Argument	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Specify the preprocessing mode. Specify either the following. <ul style="list-style-type: none"> • ON: The processing mode becomes effective set. • OFF: The processing mode becomes invalid set.
	1	VT_BSTR	Specify the postprocessing mode. The value, in the same form as the value that the above-mentioned preprocessing mode specifies, can be specified.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
DRYMODE ' command execution
    
```

```
result = caoCon.Execute("DRYMODE", Array("ON", "OFF"))
```

3.3.1.3.39. LIST-PRE-ECONOMY command

Acquire the eco-service condition setting.

Item	Type explanation		
Return value	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Preheating eco-service condition <ul style="list-style-type: none"> • ON: Preheating eco-set effective • OFF: Preheating eco-setting invalidity
	1	VT_BSTR	[**hiya] eco-service condition <ul style="list-style-type: none"> • ON: [**hiya] eco-set effective • OFF: [**hiya] eco-setting invalidity

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMREAD", 1)
```

LIST-PRE-ECONOMY ' command execution

```
Dim values() As String
```

```
values = caoCon.Execute("LIST-PRE-ECONOMY")
```

3.3.1.3.40. PRE-ECONOMY command

Set the eco-service condition.

Item	Type explanation		
Argument	VT_ARRAY VT_BSTR		
	0	VT_BSTR	Specify the preheating eco-driving. Specify either the following. <ul style="list-style-type: none"> • ON: Preheating eco-set effective • OFF: Preheating eco-setting invalidity
	1	VT_BSTR	Specify the [**hiya] eco-driving. Specify either the following. <ul style="list-style-type: none"> • ON: [**hiya] eco-set effective • OFF: [**hiya] eco-setting invalidity

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

- When the setting of the temperature of the low temperature bleaching starts turning on the [**hiya] eco-setting at -66°C or less, the error is returned. "for details of the error. Table5-2..." refer to error code 0x80100019 in error code 0x80100006.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
```

```
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
```

```
result = caoCon.Execute("PRGMWRITE", 2)
```

PRE-ECONOMY ' command execution

```
result = caoCon.Execute("PRE-ECONOMY", Array("ON", "OFF"))
```

3.3.1.3.41. LISTRELAY1 command

Acquire one external output setting.

Item	Type explanation	
Return value	VT_I4	External output 1

- Details of a set value are as follows.

Set value	Explanation
1	Turning on when being examining it
2	Turning on when high temperature bleaching is driven
3	Turning on when low temperature bleaching is driven
4	ON(*1) after high temperature bleaching ends
5	ON(*1) after low temperature bleaching ends
6	Turning on after high temperature bleaching reaches
7	Turning on after low temperature bleaching reaches
8	Turning on when being stopping temporarily
9	Output OFF
10	Turning on when normal temperature bleaching is driven
11	ON(*1) after normal temperature bleaching ends

- 1 The output time depends on the setting on the screen. (1-60 seconds)

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the reference mode.

```
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
```

LISTRELAY1 command ' execution

```
Dim val As Long
val = caoCon.Execute("LISTRELAY1")
```

3.3.1.3.42. RELAY1 command

Set external output No.1.

Item	Type explanation	
Argument	VT_I4	Specify external output 1. A set value can specify 1-11. The values that can be specified are the same as the return value of "LISTRELAY1" command.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

- Set values 10 and 11 become impossible to use with the thermal shock device by the EL type (optional normal temperature bleaching uninstalling) it.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

' open the examination pattern in the edit mode.

```
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
```

RELAY1 command ' execution

```
result = caoCon.Execute("RELAY1", 8)
```

3.3.1.3.43. LISTRELAY2 command

Acquire two external output settings.

Item	Type explanation	
Return value	VT_I4	External output 2. The values that can be specified are the same as the return value of "LISTRELAY1" command.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the reference mode.
Dim result As String
result = caoCon.Execute("PRGMREAD", 1)
LISTRELAY2 command ' execution
Dim val As Long
val = caoCon.Execute("LISTRELAY2")
```

3.3.1.3.44. RELAY2 command

Set external output No.2.

Item	Type explanation	
Argument	VT_I4	Specify external output 2. The values that can be specified are the same as the return value of "RELAY1" command.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

' open the examination pattern in the edit mode.
Dim result As String
result = caoCon.Execute("PRGMWRITE", 2)
RELAY2 command ' execution
result = caoCon.Execute("RELAY2", 8)
```

3.3.2. CaoExtension class command

The Execute method that executes it in the CaoExtension class is effective only when connected by serial communications. Each command is detailed and the usage example is described.

Table3-5CaoExtension class command list

Command	Explanation	Reference
Command related to equipment setting		
GetROM	Acquire controller's ROM version.	P. 71
GetROMDISP	Acquire ROM version of the indicator.	P. 71

Command	Explanation	Reference
GetPOWERCUT	Acquire the power failure [fukudousa] mode.	P. 71
GetSTOPMODE	Acquire the device stop mode.	P. 71
GetG-SOAKTEMP	Acquire the stability condition for the control while it stabilizes.	P. 71
GetDRYTEMP	Acquire the preset temperature for a dry driving.	P. 72
GetAMBTIME	Acquire the set time for the normal temperature driving.	P. 72
GetKEYPROTECT	Acquire the key protecting.	P. 72
SetKEYPROTECT	Set the key protecting.	P. 72
Command related to driving equipment		
GetMODE	Acquire the mode of operation.	P. 72
SetMODE	Set the mode of operation.	P. 72
GetASSIGN	Acquire the examination pattern.	P. 72
SetASSIGN	Set the examination pattern.	P. 73
GetTEMP	Acquire the exposing temperature.	P. 74
GetPRE	Acquire the preheating and [**] cool temperate degree.	P. 74
GetTIME	Acquire the exposing remainder time.	P. 74
GetCYCLE	Acquire examination cycle number.	P. 74
GetMODEL	Acquire model ID.	P. 75
GetALARM	Acquire the alarm state.	P. 75
OPESTANDBY	Put it into the state of idling.	P. 75
OPESETUP	Begin the preparation driving.	P. 75
OPESETUPEND	Begin the test operation after it prepares it.	P. 76
OPETEST	Begin examining.	P. 76
OPEHALT	Put the examination into the state of the interruption.	P. 76
OPERELEASE	Release the interruption of the examination.	P. 76
OPECYCLERESET	Cancel the remainder cycle.	P. 76
OPEDEFROST	Do the defrosting driving.	P. 76
OPEDRY	Do a dry driving.	P. 76
OPEPRESET-SETUP	Set the preparation reservation timer.	P. 76

Command	Explanation	Reference
OPEPRESET-TEST	Set the examination reservation timer.	P. 76
OPEPRESET-ON	Reserve the timer.	P. 76
OPEPRESET-CLR	Release the timer reservation.	P. 77
Command related to examination pattern information		
PRGMREAD command	Open the examination pattern in the reference mode.	P. 77
PRGMREADEND command	Close the examination pattern that opens in the reference mode.	P. 78
PRGMWRITE command	Open the examination pattern in the edit mode.	P. 78
PRGMWRITEEND command	Close the examination pattern that opens in the edit mode.	P. 78
PRGMCREATE command	Open the examination pattern in the edit mode.	P. 79
PRGMCREATEEND command	Close the examination pattern that opens in the edit mode.	P. 79
LISTTEMP	Acquire the exposing temperature setting value.	P. 80
TEMP	Set the exposing temperature setting.	P. 80
LISTPREAI	Acquire the preheating and the [**hiya] mode setting.	P. 80
PREAI	Set the preheating and the [**hiya] mode setting.	P. 80
LISTPRE	Acquire the preheating and [**] cool temperate degree setting.	P. 80
PRE	Set the preheating and [**] cool temperate degree setting.	P. 80
LISTTIME	Acquire an exposing time set value.	P. 80
TIME	Set the time setting.	P. 81
LISTCYCLE	Acquire examination cycle number.	P. 81
CYCLE	Set examination cycle number.	P. 81
LISTSTARTPOSITION	Acquire the start of the examination position setting.	P. 81
STARTPOSITION	Set the start of the examination position.	P. 81
LISTPAUSE	Acquire the examination interruption reservation setting.	P. 81
PAUSE	Set the examination interruption reservation.	P. 82
LISTG-SOAK	Acquire the control point setting while it stabilizes.	P. 83

Command	Explanation	Reference
G-SOAK	Set the control mode while it stabilizes.	P. 83
LISTEND	Acquire the examination end condition setting.	P. 83
END	Set the end condition.	P. 83
LISTNAME	Acquire the examination pattern name.	P. 84
NAME	Set the examination pattern name.	P. 84
LISTSENSOR	Acquire the sensor position setting.	P. 84
SENSOR	Set the sensor position.	P. 84
LISTDEFROST	Acquire the defrosting mode setting.	P. 84
DEFROST	Set the defrosting mode.	P. 84
LISTTEMP-L-DEFROST	Acquire the defrosting standby position setting.	P. 85
TEMP-L-DEFROST	Set the defrosting standby position.	P. 85
LISTQ-EXP	Acquire the setting of shortening the exposing time.	P. 86
Q-EXP	Set the mode of shortening the exposing time.	P. 86
LISTTEMPLIMIT	/ temperature supercooling setting value is acquired ..temperature.. over.. rise up.	P. 86
TEMPLIMIT	/ temperature supercooling setting is set ..temperature.. over.. rise up.	P. 86
LISTAUXCOOLER	Acquire the supplementary cooling setting.	P. 86
AUXCOOLER	Set the supplementary cooling mode.	P. 86
LISTDRYMODESET	Acquire the back and forth processing temperature and the time setting.	P. 86
DRYMODESET	Set the back and forth processing temperature and the time setting.	P. 87
LISTDRYMODE	Acquire the back and forth processing mode setting.	P. 88
DRYMODE	Set the back and forth processing mode.	P. 88
LIST-PRE-ECONOMY	Acquire the eco-service condition setting.	P. 88
PRE-ECONOMY	Set the eco-service condition.	P. 88
LISTRELAY1	Acquire one external output setting.	P. 88
RELAY1	Set external output 1.	P. 88
LISTRELAY2	Acquire two external output settings.	P. 88
RELAY2	Set external output 2.	P. 88
ECONOMY	Set the eco-driving.	P. 88

3.3.2.1. Command related to equipment setting

3.3.2.1.1. GetROM command

Acquire controller's ROM version. Please refer to "GetROM" command of CaoController class for details.

3.3.2.1.2. GetROMDISP command

Acquire ROM version of the indicator. Please refer to "GetROMDISP" command of CaoController class for details.

3.3.2.1.3. GetPOWERCUT command

Acquire the power failure [fukudousa] mode.

Item	Type explanation	
Return value	VT_BSTR	Power failure [fukudousa] mode Either the following is acquired by the setting. <ul style="list-style-type: none"> • STOP: Setting that stops driving • CONTINUE: Setting that continues driving

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
GetPOWERCUT ' command execution
Dim val As String
val = caoExt.Execute("GetPOWERCUT")
```

3.3.2.1.4. GetSTOPMODE command

Acquire the device stop mode. Please refer to "GetSTOPMODE" command of CaoController class for details.

3.3.2.1.5. GetG-SOAKTEMP command

Acquire the stability condition for the control while it stabilizes.

Item	Type explanation	
Return value	VT_I4	The width of stability (temperature) for the stable control . The temperature is acquired within the range to 1-10.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
' GetG-SOAKTEMP ' command execution
Dim val As Long
val = caoExt.Execute("GetG-SOAKTEMP")
    
```

3.3.2.1.6. GetDRYTEMP command

Acquire the temperature setting value when dryness is driven. Please refer to "GetDRYTEMP" command of CaoController class for details.

3.3.2.1.7. GetAMBTIME command

Acquire the set time for the normal temperature driving. Please refer to "GetDRYTEMP" command of CaoController class for details.

3.3.2.1.8. GetKEYPROTECT command

Acquire the key protecting. Please refer to "GetKEYPROTECT" command of CaoController class for details.

3.3.2.1.9. SetKEYPROTECT command

Set the key protecting. Please refer to "SetKEYPROTECT" command of CaoController class for details.

3.3.2.2. Command related to driving equipment

3.3.2.2.1. GetMODE command

Acquire the state of driving and the completion expected date of a present device. Please refer to "GetMODE" command of CaoController class for details.

3.3.2.2.2. SetMODE command

Set the mode of operation. Details are "of the CaoController class. Please refer to "SetMODE" command of CaoController class for details.

3.3.2.2.3. GetASSIGN command

Acquire the examination pattern.

Item	Type explanation
Return value	VT_ARRAY VT_VARIANT

Item	Type explanation		
	0	VT_I4	Pattern number of examination pattern
	1	VT_I4	Memory type Either the following is acquired. <ul style="list-style-type: none"> • 0 : RAM • 1 : ROM
	2	VT_BSTR	Examination name. It is acquired within 14 characters.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
GetASSIGN ' command execution
Dim values As Variant
values = caoExt.Execute("GetASSIGN")
```

```
Pattern number ' acquisition
Dim ptrnNo As Long
ptrnNo = values(0)
```

```
Memory type ' acquisition
Dim memory As Long
Memory = values(1)
```

```
Examination ' name
Dim name As String
name = values(2)
```

3.3.2.2.4. SetASSIGN command

Set the examination pattern.

Item	Type explanation		
Argument	VT_ARRAY VT_I4		Specify the examination pattern.
	0	VT_I4	Pattern number of examination pattern
	1	VT_I4	Memory type Specify either the following. <ul style="list-style-type: none"> • 0 : RAM • 1 : ROM
Return value	VT_BSTR		When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
SetASSIGN ' command execution
Dim result As String
result = caoExt.Execute("SetASSIGN", Array(1,0))
```

3.3.2.2.5. GetTEMP command

Acquire the exposing temperature. Please refer to "GetTEMP" command of CaoController class for details.

3.3.2.2.6. GetPRE command

Please refer to "GetPRE" command of CaoController class for details.

3.3.2.2.7. GetTIME command

Acquire the exposing remainder time.

Item	Type explanation		
Return value	VT_ARRAY VT_BSTR		
	0	VT_BSTR	State of exposing <ul style="list-style-type: none"> • Exposing is expressed as follows. H: The high temperature bleaching is being driven. L: The low temperature bleaching is being driven. A: The normal temperature bleaching is being driven.
	1	VT_BSTR	The remainder time (HH:mm)

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
GetTIME ' command execution
Dim values() As String
values = caoExt.Execute("GetTIME")
```

3.3.2.2.8. GetCYCLE command

Acquire examination cycle number. Please refer to "GetCYCLE" command of CaoController class for details.

3.3.2.2.9. GetMODEL command

Acquire model ID. Please refer to "GetMODEL" command of CaoController class for details.

3.3.2.2.10. GetALARM command

Acquire the alarm state.

Item	Type explanation	
Return value	VT_EMPTY	There is no generated alarm.
	Or,	
	VT_ARRAY VT_I4	Alarm information up to six
	<i>i</i> VT_I4	Alarm number Refer to "Table 3.21 warning code" in the ThermalShock RS-485 manual for details of the alarm number.

- A few minutes of alarm *i*-have generated (1-6)

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
GetALARM ' command execution
Dim values As Variant
values = caoExt.Execute("GetALARM")

' acquisition for a few minutes of alarm
If Not IsEmpty(values) Then
    Dim i As Long
    For i = 0 To UBound(values)
        Dim val As Long
        val = values(i)
    Next i
End If
    
```

3.3.2.2.11. OPESTANDBY command

Put the device into the state of idling. Please refer to "OPESTANDBY" command of CaoController class for details.

3.3.2.2.12. OPESETUP command

Put the device into the state of the preparation beginning. Please refer to "OPESETUP" command of CaoController class for details.

3.3.2.2.13. OPESETUPEND command

Put it into the state of the start of the examination after preparing the device. Please refer to "OPESETUPEND" command of CaoController class for details.

3.3.2.2.14. OPETEST command

Put the device into the state of the start of the examination. Please refer to "OPETEST" command of CaoController class for details.

3.3.2.2.15. OPEHALT command

Put the device into the state of the examination interruption. Please refer to "OPEHALT" command of CaoController class for details.

3.3.2.2.16. OPERERELEASE command

Release the examination interruption. Please refer to "OPERERELEASE" command of CaoController class for details.

3.3.2.2.17. OPECYCLERESET command

Delete the remainder cycle. Please refer to "OPECYCLERESET" command of CaoController class for details.

3.3.2.2.18. OPEDEFROST command

Begin the defrosting driving. Please refer to "OPEDEFROST" command of CaoController class for details.

3.3.2.2.19. OPEDRY command

Begin a dry driving. Please refer to "OPEDRY" command of CaoController class for details.

3.3.2.2.20. OPEPRESET-SETUP command

Set the preparation reservation timer (time to complete the examination preparation). Please refer to "OPEPRESET-SETUP" command of CaoController class for details.

3.3.2.2.21. OPEPRESET-TEST command

Set the examination reservation timer (time for the examination to begin). Please refer to "OPESTANDBY" command of CaoController class for details.

3.3.2.2.22. OPEPRESET-ON command

Start the set timer. Details are "of the CaoController class. Please refer to "OPEPRESET-ON" command of CaoController class for details.

3.3.2.2.23. OPEPRESET-CLR command

Release the timer under the start. Please refer to "OPEPRESET-CLR" command of CaoController class for details.

3.3.2.3. Command related to examination pattern information

When using a command to acquire test pattern information, it is necessary to execute the "PRGMREAD command" in advance and open the corresponding test pattern to be monitored. To end the test pattern being monitored, it is necessary to execute the "PRGMREADEND command" and close the test pattern being monitored. For details, refer to "PRGMREAD command" and "PRGMREADEND command".

When using a command to set test pattern information, it is necessary to execute the "PRGMWRITE command" or "PRGMCREATE command" in advance and open the corresponding test pattern. The test pattern information setting is reflected when the "PRGMWRITEEND command" or "PRGMCREATEEND command" is executed and the test pattern is closed. If a setting command other than the test pattern setting command is executed before closing, it is forcibly closed and the edits made so far are discarded. If the test pattern is opened by executing the "PRGMWRITE command", execute the "PRGMWRITEEND command" to close it. If the test pattern is opened by executing the "PRGMCREATE command", execute the "PRGMCREATEEND command" to close it. See "PRGMWRITE command", "PRGMWRITEEND command", "PRGMCREATE command", "PRGMCREATEEND command" for details.

3.3.2.3.1. PRGMREAD command

Open the examination pattern in the reference mode.

Item	Type explanation		
Argument	VT_ARRAY VT_VARIANT		
	0	VT_I4	Pattern number of monitored examination pattern
	1	VT_I4	Memory type [Shi] that can specify either the following. <ul style="list-style-type: none"> • 0 : RAM • 1 : ROM
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

Usage example

' addition of extension board

```
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
PRGMREAD ' command execution
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1, 0))
```

3.3.2.3.2. PRGMREADEND command

Close the examination pattern that opens in the reference mode.

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
' open the examination pattern in the reference mode.
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1, 0))
PRGMREADEND ' command execution
result = caoExt.Execute("PRGMREADEND")
```

3.3.2.3.3. PRGMWRITE command

Open the examination pattern in the edit mode.

Item	Type explanation	
Argument	VT_I4	Pattern number of edited examination pattern
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
PRGMWRITE ' command execution
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)
```

3.3.2.3.4. PRGMWRITEEND command

Close the examination pattern that opens in the edit mode.

Item	Type explanation
------	------------------

Item	Type explanation	
Argument	VT_I4	Pattern number of examination pattern under edit
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
' open the examination pattern in the edit mode.
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)
PRGMWRITEEND ' command execution
result = caoExt.Execute("PRGMWRITEEND", 2)
    
```

3.3.2.3.5. PRGMCREATE command

Open the examination pattern in the edit mode.

Item	Type explanation	
Argument	VT_I4	Pattern number of edited examination pattern
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
PRGMCREATE ' command execution
Dim result As String
result = caoExt.Execute("PRGMCREATE", 2)
    
```

3.3.2.3.6. PRGMCREATEEND command

Close the examination pattern that opens in the edit mode.

Item	Type explanation	
Argument	VT_I4	Pattern number of examination pattern under edit
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the edit mode.
Dim result As String
result = caoExt.Execute("PRGMCREATE", 2)
PRGMCREATEEND ' command execution
result = caoExt.Execute("PRGMCREATEEND", 2)
```

3.3.2.3.7. LISTTEMP command

Acquire the exposing temperature setting value. Please refer to "LISTTEMP" command of CaoController class for details.

3.3.2.3.8. TEMP command

Set the exposing temperature setting value. Please refer to "TEMP" command of CaoController class for details.

3.3.2.3.9. LISTPREAI command

Acquire the preheating and the [**hiya] mode setting value. Please refer to "LISTPREAI" command of CaoController class for details.

3.3.2.3.10. PREAI command

Set the preheating and the [**hiya] mode setting. Please refer to "PREAI" command of CaoController class for details.

3.3.2.3.11. LISTPRE command

Acquire the preheating and [**] cool temperate degree setting value. Please refer to "LISTPRE" command of CaoController class for details.

3.3.2.3.12. PRE command

Set the preheating and [**] cool temperate degree. Please refer to "PRE" command of CaoController class for details.

3.3.2.3.13. LISTTIME command

Acquire an exposing time set value. Please refer to "LISTTIME" command of CaoController class for details.

3.3.2.3.14. TIME command

Set the time setting. Please refer to "TIME" command of CaoController class for details.

3.3.2.3.15. LISTCYCLE command

Acquire examination cycle number. Please refer to "LISTCYCLE" command of CaoController class for details.

3.3.2.3.16. CYCLE command

Set the repetition frequency of the examination pattern (cycle number). Please refer to "CYCLE" command of CaoController class for details.

3.3.2.3.17. LISTSTARTPOSITION command

Acquire the start of the examination position setting. Please refer to "LISTSTARTPOSITION" command of CaoController class for details.

3.3.2.3.18. STARTPOSITION command

Set the start of the examination position. Please refer to "STARTPOSITION" command of CaoController class for details.

3.3.2.3.19. LISTPAUSE command

Acquire the examination interruption reservation setting.

Item	Type explanation		
Return value	VT_ARRAY VT_VARIANT		
	0	VT_BSTR	Interruption reservation setting The response by the setting is as follows. <ul style="list-style-type: none"> • ON: At an examination interruption effective reservation • OFF: In case of the examination interruption reservation invalid
	1	VT_I4	Interruption reservation cycle number. 0 is acquired in case of the examination interruption reservation invalid.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the reference mode.
    
```

```
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1,0))
```

LISTPAUSE ' command execution

```
Dim values As Variant
values = caoExt.Execute("LISTPAUSE")
```

' acquire the interruption reservation setting.

```
Dim val1 As String
val1 = values(0)
```

' acquire interruption reservation cycle number.

```
Dim val2 As Long
val1 = values(1)
```

3.3.2.3.20. PAUSE command

Set the examination interruption reservation.

Item	Type explanation	
Argument	VT_I4	Specify interruption reservation cycle number when you specify an examination interruption effective reservation.
	Or,	
	VT_BSTR	Specify "OFF" when you specify the examination interruption reservation invalidity.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

' addition of extension board

```
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
```

' open the examination pattern in the edit mode.

```
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)
```

PAUSE ' command execution

' when you specify an examination interruption effective reservation

```
Dim param As Long
param = 10
result = caoExt.Execute("PAUSE", param)
```

' when you specify the examination interruption reservation invalidity

```
result = caoExt.Execute("PAUSE", "OFF")
```

3.3.2.3.21. LISTG-SOAK command

Acquire the control point setting while it stabilizes. Please refer to "LISTG-SOAK" command of CaoController class for details.

3.3.2.3.22. G-SOAK command

Set the control mode while it stabilizes. Please refer to "G-SOAK" command of CaoController class for details.

3.3.2.3.23. LISTEND command

Acquire the examination end condition setting.

Item	Type explanation	
Return value	VT_BSTR	Examination end condition Details of the acquired response are as follows. <ul style="list-style-type: none"> ▪ OFF: Stop ▪ HEATRETURN: Do liquid temperature [modo] and stop. ▪ SETUP: Preparation ▪ DEFROST: Stop after it defrosts ▪ DRY: Stop after it dries ▪ AMB: Stop after normal temperature

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the reference mode.
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1,0))

LISTEND ' command execution
Dim val As String
val = caoExt.Execute("LISTEND")
    
```

3.3.2.3.24. END command

Set the end condition.

Item	Type explanation	
Argument	VT_BSTR	Specify the examination end condition. The value that can be specified is .It is similar to the return value of".

Item	Type explanation	
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the edit mode.
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)

END ' command execution
result = caoExt.Execute("END", "OFF")

```

3.3.2.3.25. LISTNAME command

Acquire the examination pattern name. Please refer to "LISTNAME" command of CaoController class for details.

3.3.2.3.26. NAME command

Set the examination pattern name. Please refer to "NAME" command of CaoController class for details.

3.3.2.3.27. LISTSENSOR command

Acquire the sensor position setting. Please refer to "LISTSENSOR" command of CaoController class for details.

3.3.2.3.28. SENSOR command

Set the sensor position. Please refer to "SENSOR" command of CaoController class for details.

3.3.2.3.29. LISTDEFROST command

Acquire the defrosting mode setting (defrosting condition). Please refer to "LISTDEFROST" command of CaoController class for details.

3.3.2.3.30. DEFROST command

Set the defrosting mode. Details are "of the CaoController class. Please refer to "DEFROST" command of CaoController class for details.

3.3.2.3.31. LISTEMP-L-DEFROST command

Acquire the defrosting standby position setting.

Item	Type explanation	
Return value	VT_BSTR	Defrosting standby position The response by the setting is as follows. <ul style="list-style-type: none"> • H: Hot stand-by • A: Normal temperature standby

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the reference mode.
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1,0))

LISTEMP-L-DEFROST ' command execution
Dim val As String
val = caoExt.Execute("LISTEMP-L-DEFROST")
    
```

3.3.2.3.32. TEMP-L-DEFROST command

Set the defrosting standby position.

Item	Type explanation	
Argument	VT_BSTR	Specify the defrosting standby position. Specify either the following. <ul style="list-style-type: none"> • H: Set the defrosting standby position to the high temperature. • A: Set the defrosting standby position at the normal temperature.
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the edit mode.
Dim result As String
    
```

```
result = caoExt.Execute("PRGMWRITE", 2)
```

```
TEMP-L-DEFROST ' command execution
result = caoExt.Execute("TEMP-L-DEFROST", "A")
```

3. 3. 2. 3. 33. LISTQ-EXP command

Acquire the setting of shortening the exposing time. Please refer to "LISTQ-EXP" command of CaoController class for details.

3. 3. 2. 3. 34. Q-EXP command

Set the mode of shortening the exposing time. Please refer to "Q-EXP" command of CaoController class for details.

3. 3. 2. 3. 35. LISTTEMPLIMIT command

/ temperature supercooling setting value is acquired ..temperature.. over.. rise up. Please refer to "LISTTEMPLIMIT" command of CaoController class for details.

3. 3. 2. 3. 36. TEMPLIMIT command

/ temperature supercooling setting is set ..temperature.. over.. rise up. Please refer to "TEMPLIMIT" command of CaoController class for details.

3. 3. 2. 3. 37. LISTAUXCOOLER command

Acquire the supplementary cooling setting. Please refer to "LISTAUXCOOLER" command of CaoController class for details.

3. 3. 2. 3. 38. AUXCOOLER command

Set the supplementary cooling mode. Please refer to "AUXCOOLER" command of CaoController class for details.

3. 3. 2. 3. 39. LISTDRYMODESET command

Acquire the back and forth processing setting value.

Item	Type explanation		
Return value	VT_ARRAY VT_VARIANT		
	0	VT_I4	Temperature setting value
	1	VT_BSTR	Time set value (HH:mm)

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the reference mode.
Dim result As String
result = caoExt.Execute("PRGMREAD", Array(1,0))

LISTDRYMODESET ' command execution
Dim values As Variant
values = caoExt.Execute("LISTDRYMODESET")

' acquire the temperature setting value.
Dim val1 As Long
val1 = values(0)

' acquire a time set value.
Dim val2 As String
val2 = values(1)
    
```

3.3.2.3.40. DRYMODESET command

Set the back and forth processing temperature and the time setting.

Item	Type explanation		
Argument	VT_ARRAY VT_VARIANT		
	0	VT_I4	Specify the temperature setting value.
	1	VT_BSTR	Specify time set value (HH:mm).
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.	

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the edit mode.
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)

DRYMODESET ' command execution
Dim param(1) As Variant
param(0) = CLng(50)
param(1) = "00:30"
result = caoExt.Execute("DRYMODESET", param)
    
```

3.3.2.3.41. LISTDRYMODE command

Acquire the back and forth processing mode setting. Please refer to "LISTDRYMODE" command of CaoController class for details.

3.3.2.3.42. DRYMODE command

Set the back and forth processing mode. Please refer to "DRYMODE" command of CaoController class for details.

3.3.2.3.43. LIST-PRE-ECONOMY command

Acquire the eco-service condition setting. Please refer to "LIST-PRE-ECONOMY" command of CaoController class for details.

3.3.2.3.44. PRE-ECONOMY command

Set the eco-service condition. Please refer to "PRE-ECONOMY" command of CaoController class for details.

3.3.2.3.45. LISTRELAY1 command

Acquire a set value of external output 1. Please refer to "LISTRELAY1" command of CaoController class for details.

3.3.2.3.46. RELAY1 command

Set external output 1. Please refer to "RELAY1" command of CaoController class for details.

3.3.2.3.47. LISTRELAY2 command

Acquire a set value of external output 2. Please refer to "LISTRELAY2" command of CaoController class for details.

3.3.2.3.48. RELAY2 command

Set external output 2. Please refer to "RELAY3" command of CaoController class for details.

3.3.2.3.49. ECONOMY command

Set the saving driving.

Item	Type explanation
------	------------------

Item	Type explanation	
Argument	VT_BSTR	Specify the saving driving setting. Specify either the following. <ul style="list-style-type: none"> • ON: The saving driving function is effective. • OFF: Saving driving function invalidity
Return value	VT_BSTR	When the command is normally executed, the response character string from the equipment is stored as it is.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")

' open the examination pattern in the edit mode.
Dim result As String
result = caoExt.Execute("PRGMWRITE", 2)

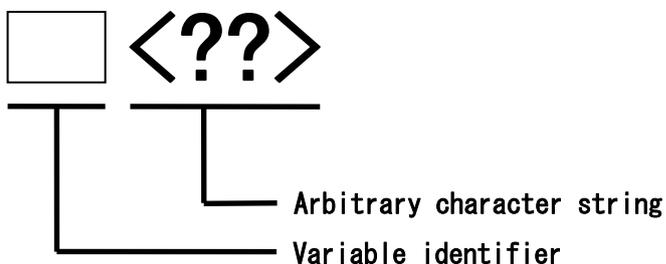
ECONOMY ' command execution
result = caoExt.Execute("ECONOMY", "ON")
    
```

3.4. Variable list

Define the variable list that can be used in each class. The variable indicates the object of the CaoVariable class. To register two or more variables (usefulness to change only the option), an arbitrary character string can be given.

The format to give the variable identifier an arbitrary character string is shown below.

Two or more variable commonness and specification formats



3.4.1. CaoController class variable

Only when Ethernet is connected, variables except "@MAKER_NAME" and "@VERSION" of the CaoController class are effective variables. Each command is detailed and the usage example is described.

Table3-6CaoController class variable list

Variable identifier	Explanation	Value		Reference
		get	put	
Variable related to provider information				
@MAKER_NAME	Acquire the manufacturer name.	-	-	P. 91
@VERSION	Acquire the provider version.	-	-	P. 91
@LASTDEVERR	Acquire the device error that occurred at the end.	-	-	P. 92
Variable related to equipment setting				
@ROM	Acquire controller's ROM version.	-	-	P. 92
@ROMDISP	Acquire ROM version of the indicator.	-	-	P. 93
@POWERCUT	Acquire the power failure [fukudousa] mode.	-	-	P. 93
@STOPMODE	Acquire the device stop mode.	-	-	P. 94
@DRYTEMP	Acquire the preset temperature for a dry driving.	-	-	P. 94
@AMBTIME	Acquire the set time for the normal temperature driving.	-	-	P. 94
@KEYPROTECT	Acquisition/set the key protecting.	-	-	P. 95
Variable related to driving equipment				
@MODE	Acquisition/set the mode of operation.	-	-	P. 95
@ASSIGN	Acquisition/set the examination pattern.	-	-	P. 96
@TEMP	Acquire the exposing temperature.	-	-	P. 97
@PRE	Acquire the preheating and [**] cool temperate degree.	-	-	P. 97
@TIME	Acquire the exposing remainder time.	-	-	P. 98
@CYCLE	Acquire examination cycle number.	-	-	P. 98
@MODEL	Acquire model ID.	-	-	P. 99

Variable identifier	Explanation	Value		Reference
		get	put	
@ALARM	Acquire the alarm state.	-	-	P. 99
@PRESET-HALT-ON	Acquire the interruption reservation status.	-	-	P. 100
PRESET-HALT	Acquire interruption reservation counter information.	-	-	P. 100

3.4.1.1. Variable related to provider information

It is a variable to acquire information that this provider is maintaining.

3.4.1.1.1. @MAKER_NAME

Acquire the manufacturer name.

Data type

Type explanation	
VT_BSTR	Manufacturer name

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@MAKER_NAME")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

3.4.1.1.2. @VERSION

Acquire the provider version.

Data type

Type explanation	
VT_BSTR	Provider version *. *.*

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

"conn=eth:192.168.0.2")

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@VERSION")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

3.4.1.1.3. @LASTDEVERR

Acquire the device error that occurred at the end.

Data type

Item	Type explanation		
Acquisition	VT_ARRAY VT_VARIANT		
	0	VT_BSTR	Error message
	1	VT_I4	Error code

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@LASTDEVERR")
```

Value ' acquisition

```
Dim values As Variant
values = var.value
```

Error message ' acquisition

```
Dim message As String
message = values(0)
```

Error code ' acquisition

```
Dim err As Long
err = values(1)
```

3.4.1.2. Variable related to equipment setting

It is a variable that acquisition/sets the set value set to the equipment.

3.4.1.2.1. @ROM

Acquire controller's ROM version.

Data type

Please refer to "GetROM" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@ROM")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

3.4.1.2.2. @ROMDISP

Acquire ROM version of the indicator.

Data type

Please refer to "GetROMDISP" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@ROMDISP")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

3.4.1.2.3. @POWERCUT

Acquire the power failure [fukudousa] mode.

Data type

Please refer to "GetPOWERCUT" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@POWERCUT")
Value ' acquisition
Dim val As String
val = var.value
```

3.4.1.2.4. @STOPMODE

Acquire the device stop mode.

Data type

Please refer to "GetSTOPMODE" command of CaoController class for details.

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

Variable ' addition
Dim var As CaoVariable
Set var = caoCon.AddVariable("@STOPMODE")
Value ' acquisition
Dim val As String
val = var.value
```

3.4.1.2.5. @DRYTEMP

Acquire the preset temperature for a dry driving.

Data type

Please refer to "GetDRYTEMP" command of CaoController class for details.

Usage example

```
The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")

Variable ' addition
Dim var As CaoVariable
Set var = caoCon.AddVariable("@DRYTEMP")
Value ' acquisition
Dim val As Long
val = var.value
```

3.4.1.2.6. @AMBTIME

Acquire the set time for the normal temperature driving.

Data type

Please refer to "GetAMBTIME" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@AMBTIME")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

3.4.1.2.7. @KEYPROTECT

Please refer to "GetKEYPROTECT" and "SetKEYPROTECT" command of CaoController class for details.

Data type

Item	Type explanation	
Acquisition/setting	VT_BSTR	State of key protecting

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@KEYPROTECT")
```

Value ' acquisition

```
Dim val As String
val = var.value
```

Value ' setting

```
var.value = "OFF"
```

3.4.1.3. Variable related to equipment driving

It is a variable that acquisition/sets a present state of the equipment.

3.4.1.3.1. @MODE

Acquisition/set the mode of operation. Please refer to "GetMODE" and "SetMODE" command of CaoController class for details.

Data type

Item	Type explanation	
Acquisition/setting	VT_ARRAY VT_BSTR	
	0	VT_BSTR State of driving of present device
	1	VT_BSTR (MM/dd) with completion expected date
	2	VT_BSTR Completion schedule time (HH:mm)

- When setting it, the completion schedule time with the completion expected date is disregarded.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
                                "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@MODE")
```

Value ' acquisition

```
Dim values() As String
values = var.value
```

Value ' setting

```
var.value = "OFF"
```

3.4.1.3.2. @ASSIGN

Acquisition/set the examination pattern.

Data type

Item	Type explanation	
Acquisition/setting	VT_ARRAY VT_VARIANT	
	0	VT_I4 Pattern number of examination pattern
	1	VT_BSTR Examination pattern name. It is acquired within 14 characters or less. However, when setting it, this item is disregarded.

Usage example

The controller's ' addition

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
```

```
"conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@ASSIGN")
```

Value ' acquisition

```
Dim values As Variant
values = var.value
```

Pattern number ' acquisition

```
Dim patternNo As Long
patternNo = values(0)
```

Examination pattern name ' acquisition

```
Dim patternName As String
patternName = values(1)
```

Value ' setting

```
Dim patternNo As Long
patternNo = 2
var.value = patternNo
```

3.4.1.3.3. @TEMP

Acquire the exposing temperature.

Data type

Please refer to "GetTEMP" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@TEMP")
```

Value ' acquisition

```
Dim values As Variant
values = var.value
```

' acquire the latest temperature.

```
Dim latestTemp As Long
latestTemp = values(6)
```

3.4.1.3.4. @PRE

Acquire the preheating and [**] cool temperate degree.

Data type

Please refer to "GetPRE" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@PRE")
```

Value ' acquisition

```
Dim values() As Long
values = var.value
```

3.4.1.3.5. @TIME

Acquire the exposing remainder time.

Data type

Please refer to "GetTIME" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

Variable ' addition

```
Dim var As CaoVariable
Set var = caoCon.AddVariable("@TIME")
```

Value ' acquisition

```
Dim values() As String
values = var.value
```

3.4.1.3.6. @CYCLE

Acquire examination cycle number.

Data type

Please refer to "GetCYCLE" command of CaoController class for details.

Usage example**The controller's ' addition**

```
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv. espec. ThermalShock", "", _
    "conn=eth:192.168.0.2")
```

```

Variable ' addition
Dim var As CaoVariable
Set var = caoCon.AddVariable("@CYCLE")
Value ' acquisition
Dim values() As Long
values = var.value

```

3.4.1.3.7. @MODEL

Acquire model ID.

Data type

Please refer to "GetMODEL" command of CaoController class for details.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")

Variable ' addition
Dim var As CaoVariable
Set var = caoCon.AddVariable("@MODEL")
Value ' acquisition
Dim val As String
val = var.value

```

3.4.1.3.8. @ALARM

Acquire the alarm state.

Data type

Please refer to "GetALARM" command of CaoController class for details.

Usage example

```

The controller's ' addition
Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")

Variable ' addition
Dim var As CaoVariable
Set var = caoCon.AddVariable("@ALARM")
Value ' acquisition
Dim values As Variant
values = var.value

' acquisition for a few minutes of alarm
If Not IsEmpty(values) Then

```

```

Dim i As Long
For i = 0 To UBound(values)
    Dim val As Long
    val = values(i)
Next i
End If
    
```

3.4.1.3.9. @PRESET-HALT-ON

Acquire the interruption reservation status.

Data type

Please refer to "GetPRESET-HALT-ON" command of CaoController class for details.

Usage example

The controller's ' addition

```

Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
    
```

Variable ' addition

```

Dim var As CaoVariable
Set var = caoCon.AddVariable("@PRESET-HALT-ON")
    
```

Value ' acquisition

```

Dim values() As String
values = var.value
    
```

3.4.1.3.10. PRESET-HALT

Acquire interruption reservation counter information.

Option

Option	Indispensability	Explanation	Range of value	Default value
No	-	Reservation interruption number	1~	--

Data type

Please refer to "GetPRESET-HALT" command of CaoController class for details.

Usage example

The controller's ' addition

```

Dim caoCon As CaoController
Set caoCon = caoWor.AddController("Controller", "CaoProv.espec.ThermalShock", "", _
                                "conn=eth:192.168.0.2")
    
```

Variable ' addition

```

Dim var As CaoVariable
    
```

```

Set var = caoCon.AddVariable("PRESET-HALT", "No=1")
Value ' acquisition
Dim values As Variant
values = var.value

' number of execution counters
Dim val1 As Long
val1 = values(0)
' number of reservation counters
Dim val2 As Long
val2 = values(1)
' name
Dim val3 As String
val3 = values(2)
    
```

3.4.2. CaoExtension class variable

The variable of the CaoExtension class is effective only when connected by serial communications. Each command is detailed and the usage example is described.

Table3-7CaoExtension class variable list

Variable identifier	Explanation	Value		Reference
		get	put	
Variable related to provider information				
@LASTDEVERR	Acquire the device error that occurred at the end.	-	-	P. 102
Variable related to equipment setting				
@ROM	Acquire controller's ROM version.	-	-	P. 102
@ROMDISP	Acquire ROM version of the indicator.	-	-	P. 102
@POWERCUT	Acquire the power failure [fukudousa] mode.	-	-	P. 102
@STOPMODE	Acquire the device stop mode.	-	-	P. 103
@G-SOAKTEMP	Acquire the stability condition for the control while it stabilizes.	-	-	P. 103
@DRYTEMP	Acquire the preset temperature for a dry driving.	-	-	P. 103
@AMBTIME	Acquire the set time for the normal temperature driving.	-	-	P. 103
@KEYPROTECT	Acquisition/set the key protecting.	-	-	P. 103
Variable related to driving equipment				

Variable identifier	Explanation	Value		Reference
		get	put	
@MODE	Acquisition/set the mode of operation.	-	-	P. 104
@ASSIGN	Acquisition/set the examination pattern.	-	-	P. 104
@TEMP	Acquire the exposing temperature.	-	-	P. 105
@PRE	Acquire the preheating and [**] cool temperate degree.	-	-	P. 105
@TIME	Acquire the exposing remainder time.	-	-	P. 105
@CYCLE	Acquire examination cycle number.	-	-	P. 105
@MODEL	Acquire model ID.	-	-	P. 105
@ALARM	Acquire the alarm state.	-	-	P. 106

3.4.2.1. Variable related to provider information

It is a variable to acquire information that this provider is maintaining.

3.4.2.1.1. @LASTDEVERR

Acquire the device error that occurred at the end. Details are variable "of the CaoController class. @LASTDEVERRRefer to".

3.4.2.2. Variable related to equipment setting

It is a variable that acquisition/sets the set value set to the equipment.

3.4.2.2.1. @ROM

Acquire controller's ROM version. Details are variable "of the CaoController class. @ROMRefer to".

3.4.2.2.2. @ROMDISP

Acquire ROM version of the indicator. Details are variable "of the CaoController class. @ROMDISPRefer to".

3.4.2.2.3. @POWERCUT

Acquire the power failure [fukudousa] mode.

Data type

Please refer to "GetPOWERCUT" command of CaoController class for details.

Usage example

' addition of extension board

```

Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable ' addition
Dim var As CaoVariable
Set var = caoExt.AddVariable("@POWERCUT")
Value ' acquisition
Dim val As String
val = var.value

```

3.4.2.2.4. @STOPMODE

Acquire the device stop mode. Details are variable "of the CaoController class. @STOPMODERefer to".

3.4.2.2.5. @G-SOAKTEMP

Acquire the stability condition for the control while it stabilizes.

Data type

Please refer to "GetG-SOAKTEMP" command of CaoController class for details.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable ' addition
Dim var As CaoVariable
Set var = caoExt.AddVariable("@G-SOAKTEMP")
Value ' acquisition
Dim val As Long
val = var.value

```

3.4.2.2.6. @DRYTEMP

Acquire the temperature setting value when dryness is driven. Details are variable "of the CaoController class. @DRYTEMPRefer to".

3.4.2.2.7. @AMBTIME

Acquire the set time for the normal temperature driving. Details are variable "of the CaoController class. @AMBTIMERefers to".

3.4.2.2.8. @KEYPROTECT

Acquisition/set the key protecting. Details are variable "of the CaoController class. @KEYPROTECTRefer to".

3.4.2.3. Variable related to equipment driving

It is a variable that acquisition/sets a present state of the equipment.

3.4.2.3.1. @MODE

Acquisition/set the mode of operation. Details are variable "of the CaoController class. @MODERefer to".

3.4.2.3.2. @ASSIGN

Acquisition/set the examination pattern.

Data type

Item	Type explanation	
Acquisition/setting	VT_ARRAY VT_VARIANT	
	0	VT_I4 Pattern number of examination pattern
	1	VT_I4 Memory type Specify either the following. <ul style="list-style-type: none"> • 0 : RAM • 1 : ROM
	2	VT_BSTR Examination name. It is acquired within 14 characters. However, when setting it, this item is disregarded.

Usage example

```

' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable ' addition
Dim var As CaoVariable
Set var = caoExt.AddVariable("@ASSIGN")
Value ' acquisition
Dim values As Variant
values = var.value

Pattern ' number
Dim val1 As Long
val1 = values(0)

Memory ' type
Dim val2 As Long
val2 = values(1)

Examination ' name

```

```
Dim val3 As String
val3 = values(2)
```

```
Value ' setting
Dim pattern(2) As Long
pattern(0) = 1
pattern(1) = 0
var.value = pattern
```

3.4.2.3.3. @TEMP

Acquire the exposing temperature. Details are variable "of the CaoController class. @TEMPRefer to".

3.4.2.3.4. @PRE

Acquire the preheating and [**] cool temperate degree. Details are variable "of the CaoController class. @PRERefer to".

3.4.2.3.5. @TIME

Acquire the exposing remainder time.

Data type

Please refer to "GetTIME" command of CaoController class for details.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable ' addition
Dim var As CaoVariable
Set var = caoExt.AddVariable("@TIME")
Value ' acquisition
Dim values() As String
values = var.value
```

3.4.2.3.6. @CYCLE

Acquire examination cycle number. Details are variable "of the CaoController class. @CYCLERefers to".

3.4.2.3.7. @MODEL

Acquire model ID. Details are variable "of the CaoController class. @MODELRefer to".

3.4.2.3.8. @ALARM

Acquire the alarm state.

Data type

Please refer to "GetALARM" command of CaoController class for details.

Usage example

```
' addition of extension board
Dim caoExt As CaoExtension
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
Variable ' addition
Dim var As CaoVariable
Set var = caoExt.AddVariable("@ALARM")
Value ' acquisition
Dim values As Variant
values = var.value

' acquisition for a few minutes of alarm
If Not IsEmpty(values) Then
    Dim i As Long
    For i = 0 To UBound(values)
        Dim val As Long
        val = values(i)
    Next i
End If
```

4. Programming by espec ThermalShock provider

In the espec ThermalShock provider, the device for client PC and RS-485 or the device for Ethernet can be connected.

The device for client PC and RS-485 can be connected by serial communications according to the following procedures in the beginning.

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

After it connects it with the device for RS-485, it can access information on the device for RS-485 by using the Execute method of CaoExtension or generating the CaoVariable object.

Next, the device for client PC and Ethernet can be connected by the Ethernet communication according to the following procedures.

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

After it connects it with the device for Ethernet, it can access information on the device for Ethernet by using the Execute method of CaoController or generating the CaoVariable object.

4.1. Sample programming to which examination pattern of device for RS-485 is changed

The sample program that changes the examination pattern as an example is shown here. Table4-1The requirement for [ni] sample programFigure4-1The flow of [ni] sample program is described respectively.

Table4-1Requirement for sample program

Requirement	Explanation
Connection destination	Connect it with the cereal.
	Connection destination COM port is COM1.
Content of processing	Acquire a present examination pattern.
	Change to examination pattern No2.

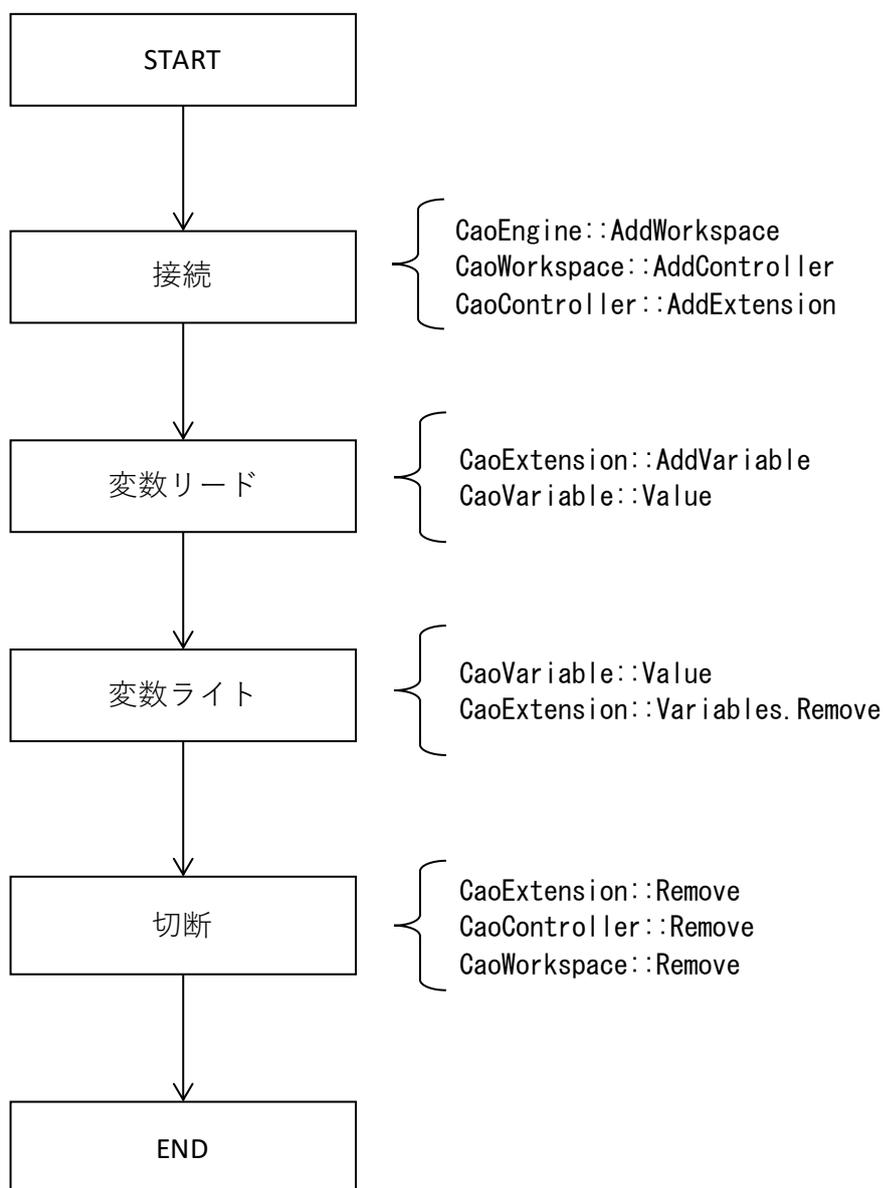


Figure4-1Flow of examination pattern change

A concrete code is shown from the following paragraphs.

4.1.1. Sample program

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

Sample	ChangeTestPattern_TSA-1. vb
---------------	------------------------------------

```

' object
Dim caoEng As CaoEngine
Dim caoWor As CaoWorkspace
Dim caoCon As CaoController
Dim caoExt As CaoExtension
  
```

Private Sub Main

```
' connection
Call Connect

' generation of CaoVariable object
Dim varASSIGN As CaoVariable
Set varASSIGN = caoExt.AddVariable("@ASSIGN")

' acquire the examination pattern.
Dim values As Variant
values = varASSIGN.value

' set the examination pattern.
Dim pattern(2) As Long
pattern(0) = 2
pattern(1) = 0
varASSIGN.value = pattern

' delete CaoVariable from CaoExtension.
Call caoExt.Variables.Remove(varASSIGN.Index)
' deletion of CaoVariable
Set varASSIGN = Nothing

' cutting
Call Disconnect
End Sub
```

Connection ' method

```
Private Sub Connect()
' generation of CaoEngine object
Set caoEng = New CaoEngine
' generation of CaoWorkspace object
Set caoWor = caoEng.AddWorkspace("Workspace", "")
' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
                                "CaoProv.espec.ThermalShock", _
                                "", _
                                "conn=com:1")
' generation of CaoExtension object
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
End Sub
```

Cutting ' method

```
Private Sub Disconnect()
' delete CaoExtension from CaoController.
Call caoCon.Extensions.Remove(caoExt.Index)
' deletion of CaoExtension
```

```

Set caoExt = Nothing

' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing

' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing

' deletion of CaoEngine
Set caoEng = Nothing
End Sub

```

4.1.1.1. Device and connection for RS-485

Take the following procedures to connect it with the device for RS-485.

- (1) Prepare the variable to maintain the object. The object necessary for the device connection is CaoEngine object, CaoWorkspace object, CaoController object, and CaoExtension object. When the CaoController object is acquired from CaoWorkspaces, the CaoWorkspace 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 caoEng As CaoEngine      ' variable for CaoEngine object
Dim caoWor As CaoWorkspace  ' variable for CaoWorkspace object
Dim caoCon As CaoController ' variable for CaoController object
Dim caoExt As CaoExtension  ' variable for CaoExtension object
Dim varASSIGN As CaoVariable ' variable for CaoVariable object

```

- (2) Generate the CaoEngine object. The CaoEngine object uses and generates the New key word.

```

' generation of CaoEngine object
Set caoEng = New CaoEngine

```

- (3) Acquire the CaoWorkspace object or generate 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 caoWor = caoEng.AddWorkspace("Workspace", "")

```

- (4) Generate the CaoController object. Set the CaoController object and set the provider name

used and the parameter to use it to generate it. In the espec ThermalShock provider, specify the COM port of the connection destination in the option. The example of the code is shown as follows.

```
' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
                                "CaoProv. espec. ThermalShock", _
                                ""', _
                                "conn=com:1")
```

(5) Generate the CaoExtension object. Set the CaoExtension object and set the parameter to use it to generate it. In the espec ThermalShock provider, specify the address of the connection destination in the option. The example of the code is shown as follows.

```
' generation of CaoExtension object
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
```

4.1.1.2. Acquisition/setting of variable

Generate the CaoVariable object of the variable to be accessed acquisition/to set the value of the variable, and reference/set the Value property of the CaoVariable object. When the Value property reference/is set, it is necessary to prepare the type variable matched to the Value property. The example of the code is shown as follows.

```
' generation of CaoVariable object
Dim varASSIGN As CaoVariable
Set varASSIGN = caoExt.AddVariable("@ASSIGN")

' acquire the examination pattern.
Dim values As Variant
values = varASSIGN.value

' set the examination pattern.
Dim pattern(1) As Long
pattern(0) = 2
pattern(1) = 0
varASSIGN.value = pattern

' delete CaoVariable from CaoExtension.
Call caoExt.Variables.Remove(varASSIGN.Index)
' deletion of CaoVariable
Set varASSIGN = Nothing
```

4.1.1.3. Device and cutting for RS-485

Delete the generated object, and delete the object deleted from the collection class that manages the object when the device for RS-485 and cutting it. The example of the code is shown

as follows.

```

' delete CaoExtension from CaoController.
Call caoCon.Extensions.Remove(caoExt.Index)
' deletion of CaoExtension
Set caoExt = Nothing
' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing
' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing
' deletion of CaoEngine
Set caoEng = Nothing
    
```

4. 2. Sample programming that monitors examination pattern of device for RS-485

The sample program that monitors the examination pattern as an example is shown here. Table4-2The requirement for [ni] sample programFigure4-2The flow of [ni] sample program is described respectively.

Table4-2Requirement for sample program

Requirement	Explanation
Connection destination	Connect it with the cereal.
	Connection destination COM port is COM1.
Content of processing	Open examination pattern No3 in the reference mode.
	Acquire the exposing temperature setting value.
	Acquire an exposing time set value.
	Close examination pattern No3 in the reference mode.

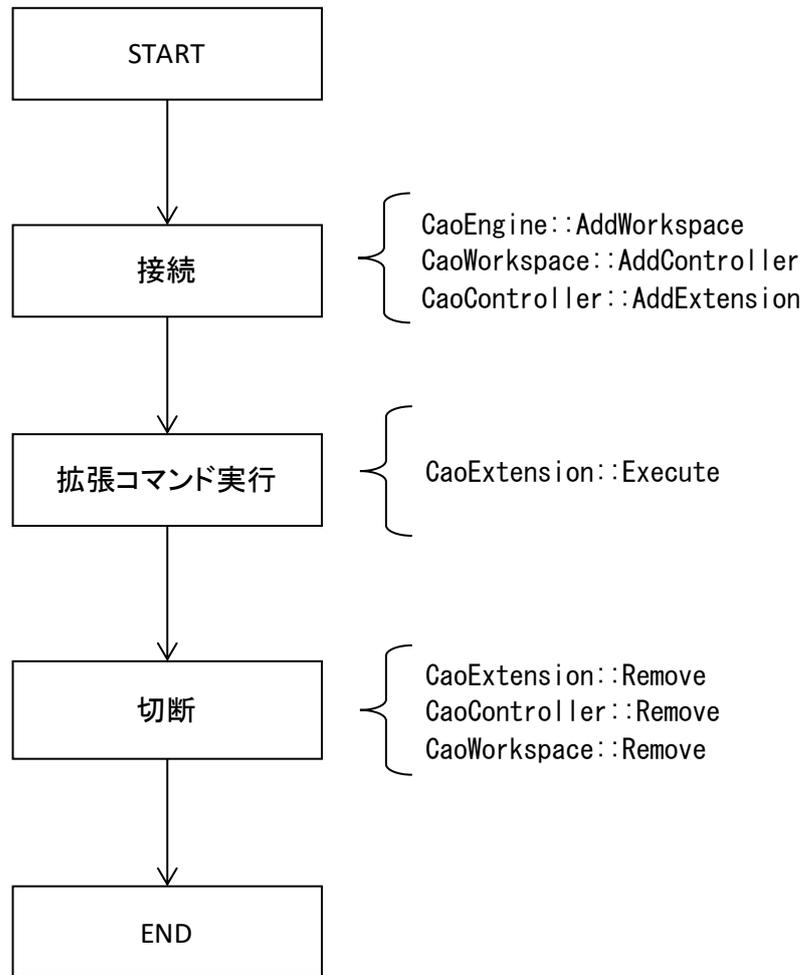


Figure4-2Flow of examination pattern monitor

A concrete code is shown from the following paragraphs.

4.2.1. Sample program

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

Sample	MonitoringTestPattern_TSA-1. vb
---------------	----------------------------------------

```

' object
Dim caoEng As CaoEngine
Dim caoWor As CaoWorkspace
Dim caoCon As CaoController
Dim caoExt As CaoExtension

Private Sub Main
    ' connection
    Call Connect

    Dim result As String
    ' open the examination pattern in the reference mode.
  
```

```

result = caoExt.Execute("PRGMREAD", Array(3, 0))

' acquire the exposing temperature setting value.
Dim tempVal() As Long
tempVal = caoExt.Execute("LISTTEMP")

' acquire an exposing time set value.
Dim timeVal() As String
timeVal = caoExt.Execute("LISTTIME")

' close the examination pattern in the reference mode.
result = caoExt.Execute("PRGMREADEND")

' cutting
Call Disconnect
End Sub

Connection ' method
Private Sub Connect()
' generation of CaoEngine object
Set caoEng = New CaoEngine
' generation of CaoWorkspace object
Set caoWor = caoEng.AddWorkspace("Workspace", "")
' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
                                "CaoProv. espec. ThermalShock", _
                                "", _
                                "conn=com:1")
' generation of CaoExtension object
Set caoExt = caoCon.AddExtension("Extension", "Addr = 1")
End Sub

Cutting ' method
Private Sub Disconnect()
' delete CaoExtension from CaoController.
Call caoCon.Extensions.Remove(caoExt.Index)
' deletion of CaoExtension
Set caoExt= Nothing

' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing

' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing

```

```

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

4.2.1.1. Device and connection for RS-485

Please Refer to section 4.1.1.1 for connection with RS-485 compatible devices.

4.2.1.2. Monitor of examination pattern

CaoExtension [o] Execute the Execute method of [bujekuto]. When the argument when the Execute method is executed and the return value after the Execute method is executed are referred, it is necessary to prepare the type variable matched to the Execute method. The example of the code is shown as follows.

```

Dim result As String
' open the examination pattern in the reference mode.
result = caoExt.Execute("PRGMREAD", Array(3,0))

' acquire the exposing temperature setting value.
Dim tempVal() As Long
tempVal = caoExt.Execute("LISTTEMP")

' acquire an exposing time set value.
Dim timeVal() As String
timeVal = caoExt.Execute("LISTTIME")

' close the examination pattern in the reference mode.
result = caoExt.Execute("PRGMREADEND")
    
```

4.2.1.3. Device and cutting for RS-485

Please Refer to section 4.1.1.3 for connection with RS-485 compatible devices.

4.3. Sample programming to which examination pattern of device for Ethernet is changed

The sample program that changes the examination pattern as an example is shown here. Table4-3The requirement for [ni] sample programFigure4-3The flow of [ni] sample program is described respectively.

Table4-3Requirement for sample program

Requirement	Explanation
Connection destination	Connect it by Ethernet (TCP/IP).
	Connection destination Internet Protocol address is 192.168.0.2.

Requirement	Explanation
Content processing of	Acquire a present examination pattern.
	Change to examination pattern No4.

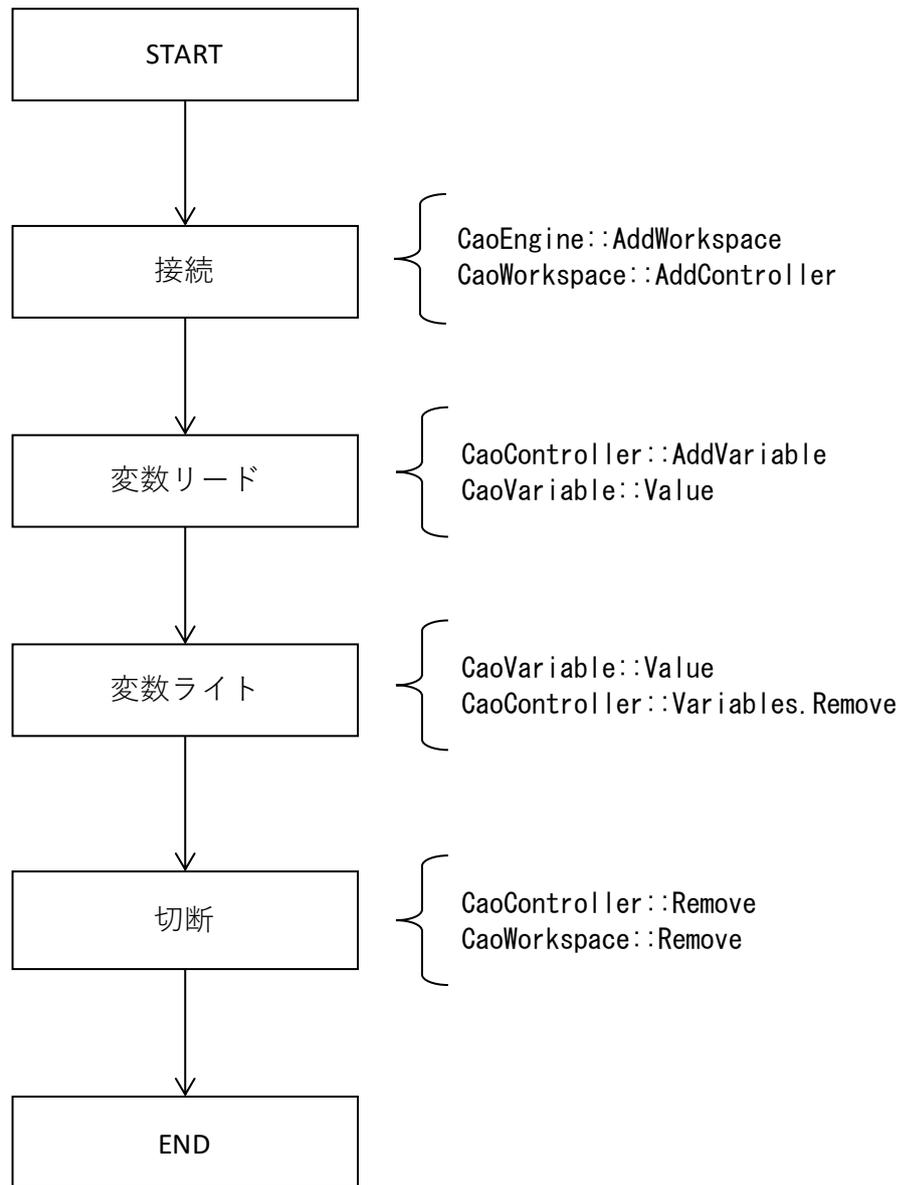


Figure4-3Flow of examination pattern change

A concrete code is shown from the following paragraphs.

4.3.1. Sample program

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

Sample	ChangeTestPattern_TSA-3. vb
---------------	------------------------------------

```

' object
Dim caoEng As CaoEngine
Dim caoWor As CaoWorkspace
Dim caoCon As CaoController

Private Sub Main
' connection
Call Connect

' generation of CaoVariable object
Dim varASSIGN As CaoVariable
Set varASSIGN = caoCon.AddVariable("@ASSIGN")

' acquire the examination pattern.
Dim values As Variant
values = varASSIGN.value

' set the examination pattern.
varASSIGN.value = 4

' delete CaoVariable from CaoExtension.
Call caoCon.Variables.Remove(varASSIGN.Index)
' deletion of CaoVariable
Set varASSIGN = Nothing

' cutting
Call Disconnect
End Sub

Connection ' method
Private Sub Connect()
' generation of CaoEngine object
Set caoEng = New CaoEngine
' generation of CaoWorkspace object
Set caoWor = caoEng.AddWorkspace("Workspace", "")
' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
                                "GaoProv. espec. ThermalShock", _
                                "", _
                                "conn=eth:192.168.0.2")
End Sub

Cutting ' method
Private Sub Disconnect()
' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing

```

```

' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing

' deletion of CaoEngine
Set caoEng = Nothing
End Sub

```

4.3.1.1. Device and connection for Ethernet

Take the following procedures to connect it with the device for Ethernet.

- (1) Prepare the variable to maintain the object. The object necessary for the device connection is CaoEngine object, CaoWorkspace object, and CaoController object. When the CaoController object is acquired from CaoWorkspaces, the CaoWorkspace 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 caoEng As CaoEngine      ' variable for CaoEngine object
Dim caoWor As CaoWorkspace   ' variable for CaoWorkspace object
Dim caoCon As CaoController  ' variable for CaoController object
Dim varASSIGN As CaoVariable ' variable for CaoVariable object

```

- (2) Generate the CaoEngine object. The CaoEngine object uses and generates the New key word.

```

' generation of CaoEngine object
Set caoEng = New CaoEngine

```

- (3) Acquire the CaoWorkspace object or generate 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 caoWor = caoEng.AddWorkspace("Workspace", "")

```

- (4) Generate the CaoController object. Set the CaoController object and set the provider name used and the parameter to use it to generate it. In the espec ThermalShock provider, specify the COM port of the connection destination in the option. The example of the code is shown as follows.

```

' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
                                "CaoProv. espec. ThermalShock", _

```

```
"" , _
"conn=eth:192.168.0.2")
```

4.3.1.2. Acquisition/setting of variable

Generate the CaoVariable object of the variable to be accessed acquisition/to set the value of the variable, and reference/set the Value property of the CaoVariable object. When the Value property reference/is set, it is necessary to prepare the type variable matched to the Value property. The example of the code is shown as follows.

```
' delete CaoController from CaoWorkspace.
Dim varASSIGN As CaoVariable
Set varASSIGN = caoCon.AddVariable("@ASSIGN")

' acquire the examination pattern.
Dim values As Variant
values = varASSIGN.value

' set the examination pattern.
Dim patternNo As Long
patternNo = 4
varASSIGN.value = patternNo

' delete CaoVariable from CaoExtension.
Call caoCon.Variables.Remove(varASSIGN.Index)
' deletion of CaoVariable
Set varASSIGN = Nothing
```

4.3.1.3. Device and cutting for Ethernet

Delete the generated object, and delete the object deleted from the collection class that manages the object when the device for Ethernet and cutting it. The example of the code is shown as follows.

```
' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing
' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing
' deletion of CaoEngine
Set caoEng = Nothing
```

4.4. Sample programming that monitors examination pattern of device for Ethernet

The sample program that monitors the examination pattern as an example is shown here.

Table4-4The requirement for [ni] sample programFigure4-4The flow of [ni] sample program is described respectively.

Table4-4Requirement for sample program

Requirement	Explanation
Connection destination	Connect it by Ethernet (TCP/IP).
	Connection destination Internet Protocol address is 192.168.0.2.
Content of processing	Open examination pattern No5 in the reference mode.
	Acquire the exposing temperature setting value.
	Acquire an exposing time set value.
	Close examination pattern No5 in the reference mode.

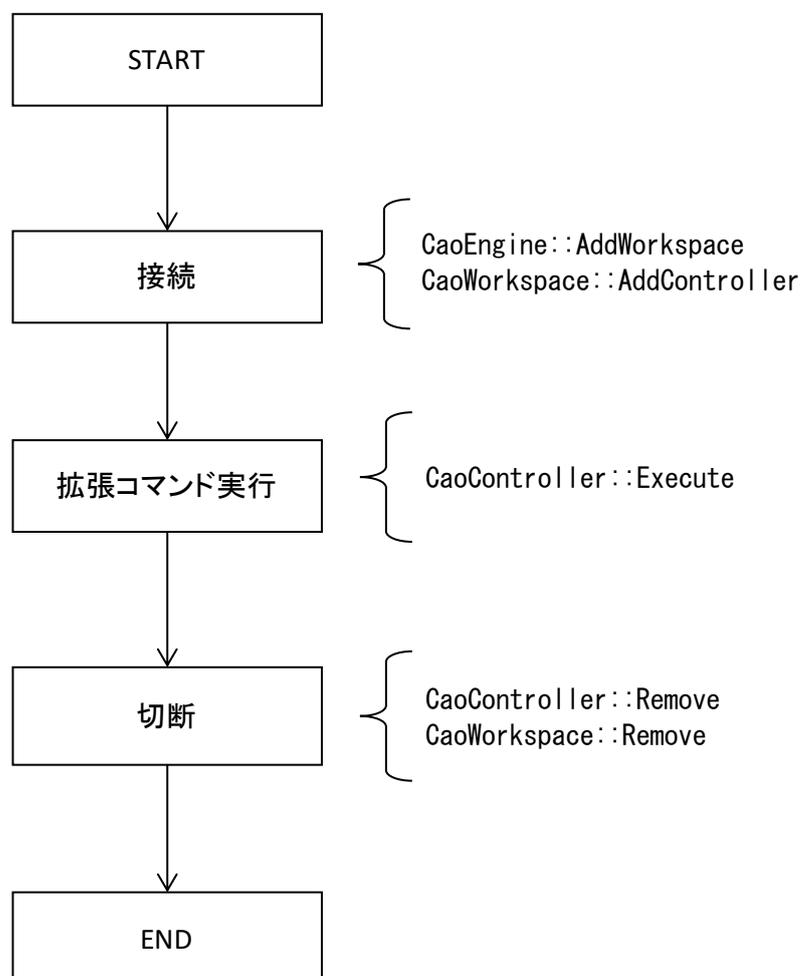


Figure4-4Flow of examination pattern monitor

A concrete code is shown from the following paragraphs.

4.4.1. Sample program

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

Sample	MonitoringTestPattern_TSA-3. vb
---------------	----------------------------------------

```

' object
Dim caoEng As CaoEngine
Dim caoWor As CaoWorkspace
Dim caoCon As CaoController

Private Sub Main
  ' connection
  Call Connect

  Dim result As String
  ' open the examination pattern in the reference mode.
  result = caoCon.Execute("PRGMREAD", 5)
  
```

```

' acquire the exposing temperature setting value.
Dim tempVal() As Long
tempVal = caoCon.Execute("LISTTEMP")

' acquire an exposing time set value.
Dim timeVal() As String
timeVal = caoCon.Execute("LISTTIME")

' close the examination pattern in the reference mode.
result = caoCon.Execute("PRGMREADEND")

' cutting
Call Disconnect
End Sub

Connection ' method
Private Sub Connect()
' generation of CaoEngine object
Set caoEng = New CaoEngine
' generation of CaoWorkspace object
Set caoWor = caoEng.AddWorkspace("Workspace", "")
' generation of CaoController object
Set caoCon = caoWor.AddController("Controller", _
"CaoProv.espec.ThermalShock", _
"", _
"conn=eth:192.168.0.2")
End Sub

Cutting ' method
Private Sub Disconnect()
' delete CaoController from CaoWorkspace.
Call caoWor.Controllers.Remove(caoCon.Index)
' deletion of CaoController
Set caoCon = Nothing

' delete CaoWorkspace from CaoEngine.
Call caoEng.Workspaces.Remove(caoWor.Index)
' deletion of CaoWorkspace
Set caoWor = Nothing

' deletion of CaoEngine
Set caoEng = Nothing
End Sub

```

4.4.1.1. Device and connection for Ethernet

Please refer to chapter 4.3.1.1 for The connection with the Ethernet device.

4.4.1.2. Monitor of examination pattern

CaoExtension [o] Execute the Execute method of [bujekuto]. When the argument when the Execute method is executed and the return value after the Execute method is executed are referred, it is necessary to prepare the type variable matched to the Execute method. The example of the code is shown as follows.

```
Dim result As String
' open the examination pattern in the reference mode.
result = caoCon.Execute("PRGMREAD", 5)

' acquire the exposing temperature setting value.
Dim tempVal() As Long
tempVal = caoCon.Execute("LISTTEMP")

' acquire an exposing time set value.
Dim timeVal() As String
timeVal = caoCon.Execute("LISTTIME")

' close the examination pattern in the reference mode.
result = caoCon.Execute("PRGMREADEND")
```

4.4.1.3. Device and cutting for Ethernet

Please Refer to section 4.3.1.3 for cutting with Ethernet compatible devices.

5. Espec ThermalShock provider error code

In this provider, the following original error codes in which the mask is done with 0x8011**** exist. (Table5-1Reference)

About a common error of ORiN2, Refer to the chapter of the error code of "ORiN2 SDK programming guide".

Table5-1Original error code table

Error number	Explanation
0x80110001	There is no optional address.
0x80110002	The address has already been registered.
0x80110003	The object cannot be added.

Moreover, this provider does the mask by "0x8010****" and returns the error code of the device. It is the following error codes based on the error message that has been sent from the device. (Table5-2Reference)

Table5-2Error code table of device

Error number	Error message	Explanation
0x80100001	CMD ERR	It is not possible to recognize it as command data.
0x80100002	CONTROLLER NOT READY-1	The command that was able to correspond only to the examination was used in states other than the examination.
0x80100003	CONTROLLER NOT READY-2	In the state of panel power supply OFF, it tried to do the protecting setting.
0x80100004	CONTROLLER NOT READY-3	At the time of driving to which the device cannot process the demand when you use a set command
0x80100005	CONTROLLER NOT READY-4	The humidity command was used for the device for humidity.
0x80100006	PARA ERR	The mistake is found in the added parameter.
0x80100007	DATA OUT OF RANGE	Outside data range
0x80100008	PROTECT ON	Set processing in the telecommunication facility is not enforceable by the remote protecting setting.
0x80100009	PRGM READ ERR-1	When you refer to the examination pattern without opening in the reference mode
0x8010000A	PRGM READ ERR-2	When you edit the driving change or the examination pattern when the examination pattern is being opened in the reference mode

Error number	Error message	Explanation
0x8010000B	PRGM READ ERR-3	When the examination pattern opens again in the reference mode when the examination pattern is opening in the reference mode
0x8010000C	PRGM READ ERR-20	When you use the parameter for the examination pattern that uses the STT function when the examination pattern that doesn't use the STT function is referred
0x8010000D	PRGM READ ERR-21	When you use the parameter that can use an examination pattern of STT alone that doesn't function when the examination pattern that uses the STT function is referred
0x8010000E	PRGM WRITE ERR-1	When you edit the examination pattern without opening in the edit mode
0x8010000F	PRGM WRITE ERR-2	When you refer to the driving change or the examination pattern when the examination pattern is being opened in the edit mode
0x80100010	PRGM WRITE ERR-3	When the examination pattern opens again in the edit mode when the examination pattern is opening in the reference mode
0x80100011	PRGM WRITE ERR-4	When you edit ROM pattern
0x80100012	PRGM WRITE ERR-5	When you start closing patterns other than the examination pattern that has opened
0x80100013	PRGM WRITE ERR-6	Screen. .examination. .pattern. .edit. .refer. When editing it by the communication command
0x80100014	PRGM WRITE ERR-7	When you edit a preheating and [**] [hiya**] fixed value when it preheats automatically and the [**hiya] mode is set
0x80100015	PRGM WRITE ERR-8	When you effectively do the setting of shortening the exposing time when the control is effective while it is effective or stabilizes of the saving driving
0x80100016	PRGM WRITE ERR-9	When you start making the control point setting while it stabilizes of an exposing effective time crunch effective
0x80100017	PRGM WRITE ERR-10	When you effectively do the eco-driving control setting to an exposing effective time crunch
0x80100018	PRGM WRITE ERR-11	When you do the supplementary cooling setting when a

Error number	Error message	Explanation
		supplementary optional cooling is uninstalled
0x80100019	PRGM WRITE ERR-14	When the setting of the temperature of the low temperature bleaching turns on [**] [hiya**] Sadamu at -66°C or less
0x8010001A	PRGM WRITE ERR-15	When the eco-driving setting is invalid
0x8010001B	PRGM WRITE ERR-20	When you use the examination pattern parameter that uses the STT function when the examination pattern that doesn't use the STT function is edited
0x8010001C	PRGM WRITE ERR-21	When you use the parameter that can use an examination pattern of STT alone that doesn't function when the examination pattern that uses the STT function is edited
0x8010001D	CMD_ERR	The mistake is found in the main command.
0x8010001E	INVALID REQ	When the function that the device cannot correspond is specified
0x8010001F	CHB NOT READY	When the command is not treatable by the state of the device
0x80100020	<u>The error message to which "Table 1.1 error message" of "Data treated by 1.3 communication function" of the ThermalShock RS-485 manual and ThermalShock Ethernet manual "1.3.3 error messages" had not been described was received.</u>	

6. Appendix

Appendix A. Correspondence of command of ThermalShock [puropaida] and command of device

The correspondence of the command of the CaoController class of this provider, the command of the CaoExtension class, and the command of the device is as follows. The TSA series corresponds to all the commands.

Table6-1For command of [puropaida] and command of device

Command of [puropaida]		Command of device	TSE Series	TSB Series	TSD Series
CaoController class	CaoExtension class				
GetROM		ROM?	-	-	-
GetROMDISP		ROM?, DISP	-	-	-
GetPOWERCUT		POWERCUT?	-	-	-
GetSTOPMODE		STOPMODE?	-	-	-
-	GetG-SOAKTEMP	G-SOAKTEMP?	-	-	×
GetDRYTEMP		DRYTEMP?	×	×	×
GetAMBTIME		AMBTIME?	×	×	×
GetKEYPROTECT		KEYPROTECT?	-	-	-
GetMODE		MODE?	-	-	-
GetASSIGN		ASSIGN?	-	-	-
GetTEMP		TEMP?	-	-	-
GetPRE		PRE?	-	-	-
GetTIME		TIME?	-	-	-
GetCYCLE		CYCLE?	-	-	-
GetMODEL		MODEL?	-	-	-
GetALARM		ALARM?	-	-	-
GetPRESET-HALT-ON	-	PRESET-HALT-ON?	×	×	-
GetPRESET-HALT	-	PRESET-HALT?	×	×	×
LISTTEMP		LISTTEMP?	-	-	-
LISTPREAI		LISTPREAI?	-	-	-
LISTPRE		LISTPRE?	-	-	-
LISTTIME		LISTTIME?	-	-	-
LISTCYCLE		LISTCYCLE?	-	-	-
LISTSTARTPOSITION		LISTSTARTPOSITION?	-	-	-

Command of [puropaida]		Command of device	TSE Series	TSB Series	TSD Series
GaoController class	GaoExtension class				
-	LISTPAUSE	LISTPAUSE?	-	-	-
LISTG-SOAK		LISTG-SOAK?	-	-	-
LISTEND		LISTEND?	-	-	-
LISTNAME		LISTNAME?	-	-	-
LISTSENSOR		LISTSENSOR?	-	×	-
LISTDEFROST		LISTDEFROST?	-	×	-
LISTTEMP-L-DEFROST		LISTTEMP-L-DEFROST?	×	×	×
LISTQ-EXP		LISTQ-EXP?	-	×	-
LISTTEMPLIMIT		LISTTEMPLIMIT?	-	-	-
LISTAUXCOOLER		LISTAUXCOOLER?	-	×	-
LISTDRYMODESET		LISTDRYMODESET?	×	×	×
LISTDRYMODE		LISTDRYMODE?	×	×	×
LIST-PRE-ECONOMY		LIST-PRE-ECONOMY?	×	×	×
LISTRELAY1		LISTRELAY1?	-	-	-
LISTRELAY2		LISTRELAY2?	-	-	-
SetKEYPROTECT		KEYPROTECT	-	-	-
SetMODE		MODE	-	-	-
SetASSIGN		ASSIGN	-	-	-
OPESTANDBY		OPESTANDBY	-	-	-
OPESETUP		OPESETUP	-	-	-
OPESETUPEND		OPESETUPEND	-	-	-
OPETEST		OPETEST	-	-	-
OPEHALT		OPEHALT	-	-	-
OPERELASE		OPERELASE	-	-	-
OPECYCLERESET		OPECYCLERESET	-	-	-
OPEDEFROST		OPEDEFROST	-	×	-
OPEDRY		OPEDRY	×	×	×
OPEPRESET-SETUP		OPEPRESET-SETUP	-	-	-
OPEPRESET-TEST		OPEPRESET-TEST	-	-	-
OPEPRESET-ON		OPEPRESET-ON	-	-	-
OPEPRESET-CLR		OPEPRESET-CLR	-	-	-
OPEPRESET-HALT-ON	-	OPEPRESET-HALT-ON	×	×	×
OPEPRESET-HALT-CLR	-	OPEPRESET-HALT-CLR	×	×	×

Command of [puropaida]		Command of device	TSE Series	TSB Series	TSD Series
GaoController class	GaoExtension class				
OPEPRESET-HALT	-	OPEPRESET-HALT	×	×	×
PRGMREAD		PRGMREAD	-	-	-
PRGMREADEND		PRGMREADEND	-	-	-
PRGMWRITE		PRGMWRITE	-	-	-
PRGMWRITEEND		PRGMWRITEEND	-	-	-
-	PRGMCREATE	PRGMCREATE	-	-	-
-	PRGMCREATEEND	PRGMCREATEEND	-	-	-
TEMP		TEMP	-	-	-
PREAI		PREAI	-	-	-
PRE		PRE	-	-	-
TIME		TIME	-	-	-
CYCLE		CYCLE	-	-	-
STARTPOSITION		STARTPOSITION	-	-	-
DEFROST		DEFROST	-	×	-
TEMP-L-DEFROST		TEMP-L-DEFROST	×	×	×
-	PAUSE	PAUSE	-	-	-
Q-EXP		Q-EXP	-	×	-
G-SOAK		G-SOAK	-	-	-
-	ECONOMY	ECONOMY	-	-	-
SENSOR		SENSOR	-	×	-
AUXCOOLER		AUXCOOLER	-	×	-
END		END	-	-	-
NAME		NAME	-	-	-
TEMPLIMIT		TEMPLIMIT	-	-	-
RELAY1		RELAY1	-	-	-
RELAY2		RELAY2	-	-	-
DRYMODESET		DRYMODESET	×	×	×
DRYMODE		DRYMODE	×	×	×
PRE-ECONOMY		PRE-ECONOMY	×	×	×

- - ? correspondence × - Non-correspondence

Appendix B. Variable of ThermalShock [puropaida] and correspondence of command of device

The CaoController class variable, the CaoExtension class variable of this provider, and the correspondence of the command of the device are as follows.

Table6-2For command of device variable of [puropaida]

Variable of [puropaida]		Command of device		TSE	TSB	TSD
CaoController class	CaoExtension class	get_Value	put_Value	Series	Series	Series
@ROM		ROM?	-	-	-	-
@ROMDISP		ROM?, DISP	-	-	-	-
@POWERCUT		POWERCUT?	-	-	-	-
@STOPMODE		STOPMODE?	-	-	-	-
-	@G-SOAKTEMP	G-SOAKTEMP?	-	-	-	×
@DRYTEMP		DRYTEMP?	-	×	×	×
@AMBTIME		AMBTIME?	-	×	×	×
@KEYPROTECT		KEYPROTECT?	KEYPROTECT	-	-	-
@MODE		MODE?	MODE	-	-	-
@ASSIGN		ASSIGN?	ASSIGN	-	-	-
@TEMP		TEMP?	-	-	-	-
@PRE		PRE?	-	-	-	-
@TIME		TIME?	-	-	-	-
@CYCLE		CYCLE?	-	-	-	-
@MODEL		MODEL?	-	-	-	-
@ALARM		ALARM?	-	-	-	-
@PRESET-HALT-ON	-	PRESET-HALT-ON?	-	×	×	-
PRESET-HALT	-	PRESET-HALT?	-	×	×	×

- - ? correspondence × - Non-correspondence

Appendix C. Corresponding model list

The corresponding model list described in the ThermalShock RS-485 manual and the ThermalShock Ethernet manual is described. In this provider, there is a command that doesn't correspond in models other than the TSA series. Details are "of the appendix. Table6-1" と 「Table6-2Refer to".

Table6-3RS-485 corresponding model list

Model	Notes
TSA-41L	

TSA-71L	
TSA-71S	
TSA-71H	
TSA-101L	
TSA-101S	
TSA-201S	
TSA-301L	
TSE-11	
TSB-21	
TSB-51	
TSD-100	

Table6-4Ethernet corresponding model list

Model	Notes
TSA-**3 series	
TSD-101-W	