

ATI Industrial Automation Net F/T provider

Version 1.0.1

User's guide

April 16, 2020

Remarks:

[Revision history]

Version	Date	Description
1.0.0	1/19/2015	First edition.
1.0.1	4/16/2020	Added an original error code "E_ABNORMAL_SENSOR_STATUS".

[Supported model]

Models	Version	Notes
Net F/T	-	

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1. Introduction

This is a CAO provider user's guide for ATI Industrial Automation Force torque sensor system "Net F/T Interface". Hereafter, the CAO provider (CaoProvNetFT.dll) described in this user's guide is called Net F/T provider.

The next chapter describes the overview of this Net F/T provider, and the chapter 3 lists the command reference.

2. Overview of provider

2.1. Overview

Net F/T provider is a CAO provider that eliminates ATI Industrial Automation force torque sensor system-dependent functions and offers CAO provider interface specification-defined functions.

The file format of Net F/T provider is DLL (Dynamic Link Library) and it is automatically loaded from CAO engine when it is used. When using Net F/T provider, you need to install OriN2SDK or, manually register the registration with reference to the following table.

Table 2-1 Net F/T provider

File name	CaoProvNetFT.dll
ProgID	CaoProv. ATI. NetFT
Registry registration	regsvr32 CaoProvNetFT.dll
Un-registration	regsvr32 /u CaoProvNetFT.dll

Net F/T provider only has operation modes that wait response data.

- Operation mode

Acquires the measurement data by `CaoVariable.get_Value()`.

Process is suspended until the response data is received from Net F/T.

2.2. Method and property

2.2.1. CaoWorkspace::AddController method

Net F/T provider, to establish a connection, connection parameters for communication is referred at AddController execution.

For this parameter's option, specify the communication format, and timeout.

```
Syntax AddController(<bstrCtrlName:BSTR>,<bstrProvName:BSTR>,  
                    <bstrPCName:BSTR>,<bstrOption:BSTR>)  
  
<bstrCtrlName>      : [In] Controller name (any)  
<bstrProvName>      : [in] Option string  
                    Fixed value =" CaoProv.ATI.NetFT  
<bstrPcName>        [in] Computer name where the provider runs  
<bstrOption>        [in] Option string
```

The following shows the list of option string items.

Table 2-2 Option strings of CaoWorkspace::AddController

Option	Meaning
Conn=<Connection parameter>	Required. This sets the communication form and connection parameters. For details, refer to 2.2.1.1.
[Timeout=<timeout>]	Specifies the communication timeout (millisecond) for sending and receiving. (Default: 500)

2.2.1.1. Conn option

The following shows connection parameter strings of Conn option. Parameters enclosed by square brackets (“[]”) can be omitted. An underlined selection in each parameter is the default value when there is no entry for the parameter.

“Conn=UDP:<Dest IP>[:<Dest Port>[:<Src IP>[:<Src Port>]]]”

<Dest IP> : IP address of the connection destination. (Default : 127.0.0.1)

<Dest Port> : UDP port number of the connection destination. (Default: 49152)

<Src IP> : IP address of the connection source (Default: 255.255.255.255)

If “255.255.255.255” is entered as connection source IP address, the IP address of the local machine will be automatically set as a source IP address.

<Src Port> : Port number of the connection source . (Default: 0)

If “0” is entered as a connection source port number, available port number will be automatically set.

2.2.2. CaoController::Execute method

Executes a command.

For the argument of Execute method, specify a command with BSTR, specify a parameter with VARIANT array.

For information about commands, refer to 3.1.

Syntax [<vntRet:VT_VARIANT>=]Execute(<bstrCmd:VT_BSTR>[,<vntParam:VT_VARIANT>])

< vntRet >	:	[out] Command return value
< bstrCmd >	:	[in] Command
< vntParam >	:	[In] Parameter

2.2.3. CaoController::AddVariable method

Generates a variable object.

For about implemented system variables, refer to 2.3.1.

Syntax AddVariable(<bstrVariableName:VT_BSTR>[,<vntOption:VT_BSTR>])

< bstrVariableName >	:	[in] Variable Name
<bstrOption>	:	[in] Option string

2.2.4. CaoVariable:: get_Value property

Obtainss value of variable.

For details, refer to 2.3.

2.3. Variable list

2.3.1. Controller class

Table 2 Controller class system variable list

Variable name	Data type	Description	Attribute	
			get	put
@Data	VT_I4 VT_ARRAY	Force/Torque sensor value Values are stored in an array by the following order. <RDT sequence number>, <F/T sequence number>, <system status code>, <Fx>, <Fy>, <Fz>, <Tx>, <Ty>, <Tz> Digital output values are stored in the area from <Fx> to <Tz>.	✓	-

2.4. Error code

In Net F/T provider, the following original error codes are designated. [For about ORiN2 common errors, refer to the error code section of ORiN2programming guide.](#)

Table 2-3 Original error code list

Error name	Error number	Description
E_RECV_DATA_BROKEN	0x80100001	Received data was damaged.
E_ABNORMAL_SENSOR_STATUS	0x80100002	Force torque sensor status is abnormal. Please check the details of the sensor condition from the web browser for the sensor setting.

3. Command reference

This chapter explains each command of CaoController::Execute method.

3.1. Controller class

Table 3-1 CaoController::Execute command list

Command	Function	
BIAS	Resets the strain gauge.	P. 9
BufferClear	Clear reception buffer	P. 9

3.1.1. CaoController::Execute("BIAS") command

Executes the reset of the Net F/T strain gauge. For details, refer to "Net F/T Network Force/Torque Sensor System Installation and Operation Manual".

Syntax BIAS()

Return value : none

Example

```
caoCtrl.Execute("BIAS") ' Reset the strain gauge
```

3.1.2. CaoController::Execute("BufferClear") command

Clears the received buffer and then executes the error clear process.

Syntax BufferClear()

Return value : none

Example

```
caoCtrl.Execute("BufferClear") ' Clear the reception buffer
```
