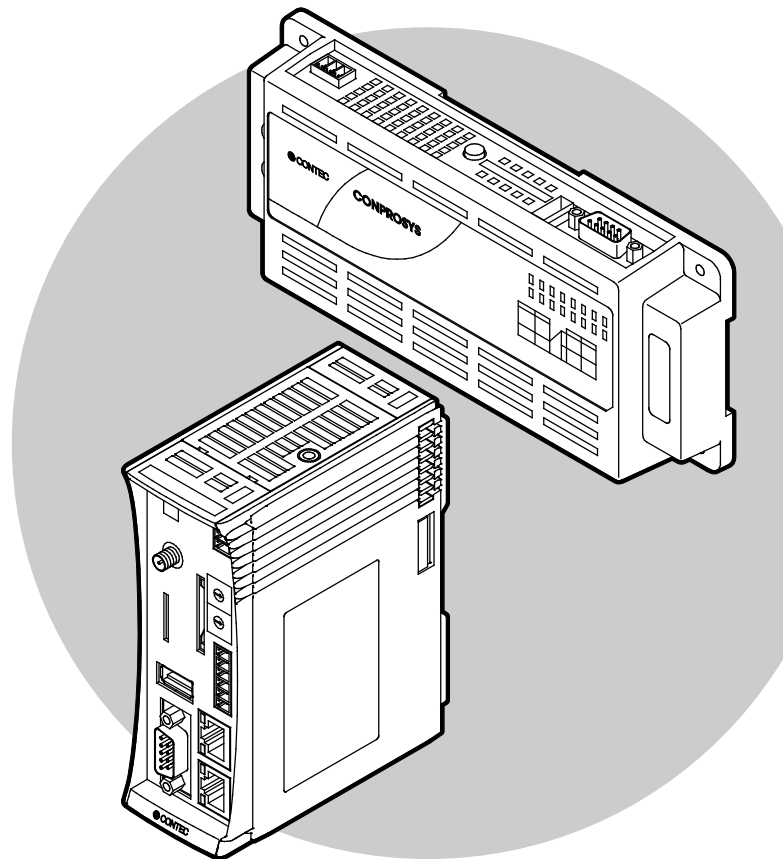


# Technical Guide

## FANUC CNC Connections

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# Introduction




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This guide introduces various manuals related to the product that you will use. As necessary, use these manuals before using the product.

# 1. Related Manuals

The manuals related to the product are listed below.  
Read them as necessary along with this document.

## ◆ Must Read the Following Manuals.

Name	Purpose	Contents	How to get
Product Guide	Must read this after opening the package.	This lists the product configuration and describes the precautions.	Included in the package (Printed matter)
Setup Manual	Read this when setting up the product.	This describes the required items for setup and configuration procedure.	 Download from the Contec website (PDF)
Reference Manual (Hardware)	Read this when operating the product.	This describes the hardware aspects such as functions and settings.	 Download from the Contec website (PDF)
Reference Manual (Software)	Read this when setting up the "CONPROSYS WEB Setting"	This describes how to set each function of "CONPROSYS WEB Setting".	 Download from the Contec website (PDF)

## ◆ Download Manuals

Download the manuals accordingly from the following URL.

**Download**

<https://www.contec.com/download/>

# Overview

---

This technical guide explains items such as the configuration and preconditions of the system that will be set and explained.

# 1. Main Functions

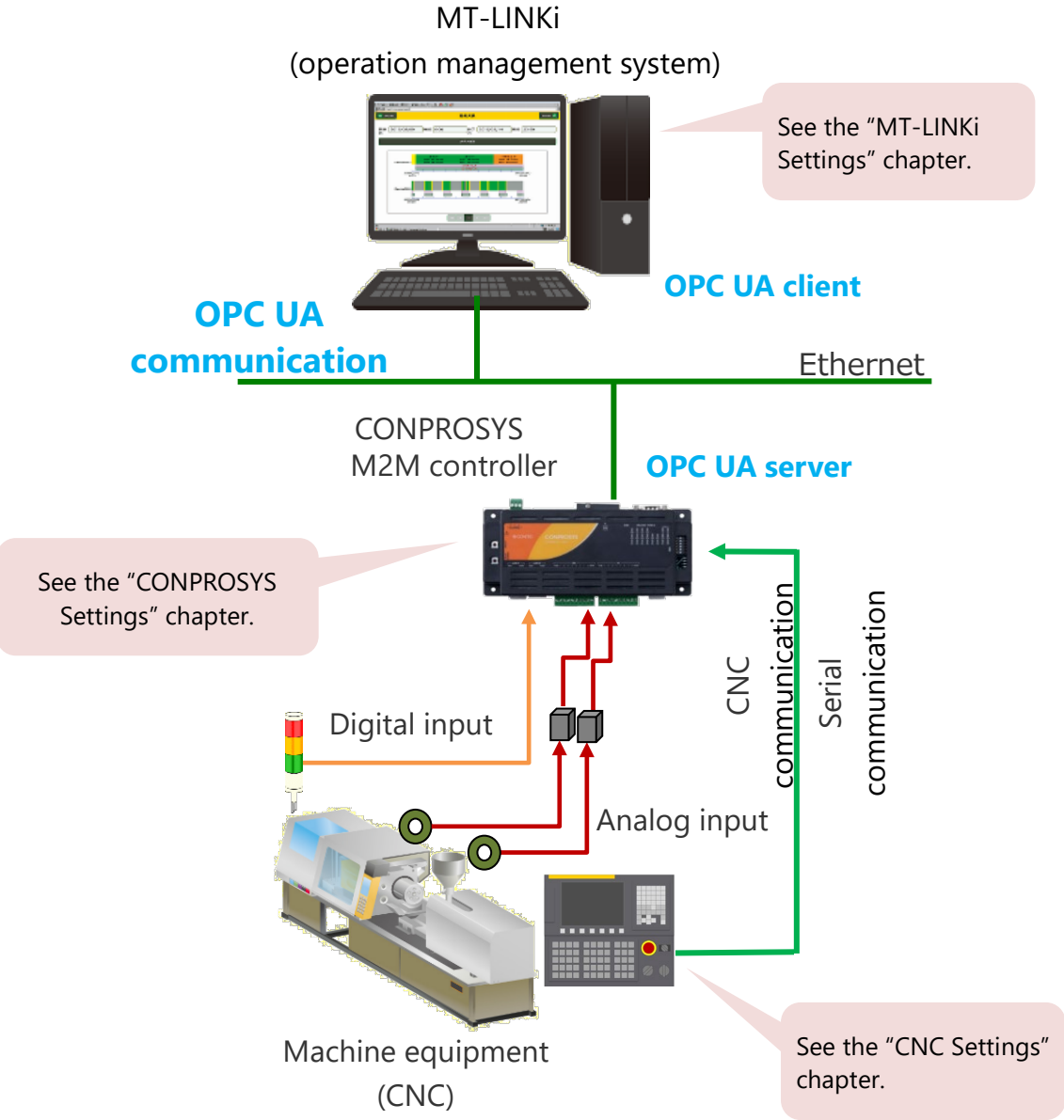
This guide explains the setting procedures for the functions listed below.

Use this guide together with other manuals such as the "Reference Manual (Hardware Edition)" and the "Reference Manual (Software Edition)" as necessary.

- Obtaining the external output command (DPRNT) output by the FANUC CNC
- Obtaining the operating information of a CNC or a similar device with the digital or analog input installed in this product
- Performing OPC UA communication with FANUC operation management software (MT-LINKi)
- Using the above functions to transfer the information obtained with the CNC external output command to the operation management software

# 2. System Configuration

The explanations given in this technical guide assume the system configuration shown below. The CONPROSYS can be used as a computer that transfers the information collected through serial communication and digital/analog input to the operation management software (MT-LINKi). This section explains the CNC settings, CONPROSYS settings, and MT-LINKi communication settings necessary to realize the following configuration.





## 3. Preconditions

The conditions required for obtaining information through serial communication with a FANUC CNC are shown below.

### 1. FANUC CNC-compliant Models

The information about compliant models is shown in the following table.

FANUC CNC model	LAN converter function	
	I/O signal (digital, analog input)	Serial communication (RS-232C), external output command (DPRNT)
FANUC Series 0	Yes	No
FANUC Series 15	Yes	Yes
FANUC Series 16/18/20/21	Yes	Yes
FANUC Power Mate –D/F/H	Yes	Yes
FANUC Series 16i/18i/21i	Yes	Yes
FANUC Power Mate i	Yes	Yes
FANUC Series 15i	Yes	Yes
FANUC Series 0i	Yes	Yes
FANUC Series 30i/31i/32i/35i	Yes	Yes
FANUC Power Motion i	Yes	Yes

### 2. CONPROSYS-compliant Models

The information about compliant models is shown in the following table.

CONPROSYS-compliant Models	
Model	Description
Integrated Type	
CPS-MC341-ADSC1-931	Equipped with multi I/O, OPC UA server, and MTConnect
CPS-MG341-ADSC1-931	Equipped with PLC data logger, multi I/O, OPC UA server, and MTConnect
CPS-MG341G-ADSC1-930	Equipped with PLC data logger, multi I/O, 3G WAN (Japan only), OPC UA server, and MTConnect
CPS-MG341G5-ADSC1-931	Equipped with PLC data logger, multi I/O, 4G WAN (Japan only), OPC UA server, and MTConnect
Configurable Type	
CPS-MCS341-DS1-131	Equipped with CPU module, OPC UA server, and MTConnect
CPS-MCS341G-DS1-130	Equipped with CPU module, 3G WAN (Japan only), OPC UA server, and MTConnect
CPS-MCS341G5-DS1-130	Equipped with CPU module, 4G WAN (Japan only), OPC UA server, and MTConnect
CPS-MCS341Q-DS1-131	Equipped with CPU module, 920MHz LAN (Japan only), OPC UA server, and MTConnect

## 3. Serial Communication

---

The conditions required for collecting information through serial communication with a CNC are shown below.

### 1. Installation of custom macros

The optional custom macros are installed on the CNC, and it must be possible to use the DPRNT external output command function.

### 2. Vacant RS-232C port

There is a vacant RS-232C port for outputting information. (It must be possible to occupy the port for this function.)

Alternatively, it must be possible to switch the port according to the operation conditions or to perform a similar operation.

### 3. Writing the external output command

In order to output information, it is necessary to write the external output command (DPRNT) in the CNC program.

## 4. Other

---

Whether the model is compliant or not, the compliant situation varies depending on the CNC's setup configuration and setting conditions.

For details, contact the machine equipment manufacturer who constructed the equipment.

## 4. Installation/Connection Method

For the installation/connection method, see the “Reference Manual (Hardware Edition)” for each controller.

Each controller has a mechanism that enables it to be installed on a DIN rail.

### 1. Serial Communication Cable (Optional)

RS-232C cables (serial communication cables) are available for connecting the FANUC CNC and the CONPROSYS. Purchase these cables as necessary.

#### CONPROSYS optional cables

Cables for connecting the FANUC CNC and the CONPROSYS



**CPS-CAB-S01-1** [Cable length 1m]

**CPS-CAB-S01-3** [Cable length 3m]

**CPS-CAB-S01-5** [Cable length 5m]

# CNC Settings

---

This chapter explains the setting details and methods when performing serial communication with a FANUC CNC.

# 1. Serial Communication Function Overview

The function that the CONPROSYS uses to collect information from a FANUC CNC is made possible by the external output command (DPRNT), a function designed to output information from the CNC. During CNC programming, it is necessary to write the external output command and to set the port to which data will be output.

Also, the CONPROSYS can manage the output information by outputting information with the external output command in the specified format shown below.

## 1. What Is Possible With the External Output Command (DPRNT)

- Obtaining the names and quantities of processed parts
- Obtaining the cycle time (processing time) during workpiece processing
- Obtaining the tool correction amount (tool wear amount)
- Using macro variables to obtain the wear amount of grindstones and similar objects
- Obtaining M codes and other such modal information
- Obtaining macro alarms
- Obtaining interface signals dedicated for custom macros

## 2. External Output Command

### Open command: POPEN

This command opens the data output port. It is necessary before the external output command.

### External output command: DPRNT

Outputs a character string and the details of the variables.

Format: DPRNT[a b #c [de] b1 #c1 [d1e1] ...]

a: Identifier (output destination node) \* See the next section.

b: Character string to output

c: Number of the stored variable of the data to output

d: Number of effective digits in positions greater than the decimal point of the variable

e: Number of effective digits in positions less than the decimal point of the variable

## Close command: PCLOS

This command closes the data output port. Execute this command after completing the data output.

\* For the detailed writing method, see "3. Data Output Method (Output Program)."

## External output command: Identifier

A list of the identifiers used in the external output command is shown in the following table.

According to the received identifier, the CONPROSYS associates the name of the node to which information will be disclosed during OPC communication.

No.	Identifier	OPC UA server function		
		Node name	Meaning	Type
1	(None)	PrintOutput	String output *1	String
2	PN*	ProductName	Product name	String
3	PC*	ProductResultNumber	Processed part count (PartsCount)	Int32
4	VA01*	value01	General-purpose numeric value 1	Double
5	VA02*	value02	General-purpose numeric value 2	Double
6	VA03*	value03	General-purpose numeric value 3	Double
7	VA04*	value04	General-purpose numeric value 4	Double
8	VA05*	value05	General-purpose numeric value 5	Double
9	VA06*	value06	General-purpose numeric value 6	Double
10	VA07*	value07	General-purpose numeric value 7	Double
11	VA08*	value08	General-purpose numeric value 8	Double
12	VA09*	value09	General-purpose numeric value 9	Double
13	VA10*	Value10	General-purpose numeric value 10	Double
14	SR01*	string01	General-purpose string 1	String
15	SR02*	string02	General-purpose string 2	String
16	SR03*	string03	General-purpose string 3	String
17	SR04*	string04	General-purpose string 4	String
18	SR05*	string05	General-purpose string 5	String
19	SR06*	string06	General-purpose string 6	String
20	SR07*	string07	General-purpose string 7	String
21	SR08*	string08	General-purpose string 8	String
22	SR09*	string09	General-purpose string 9	String
23	SR10*	String10	General-purpose string 10	String

\*1 The information received with the external output command is stored.

## Usage example

Command example: `DPRNT[VA01*#501[53]]`

Explanation: The external output command outputs the value of variable #501 with five digits in positions greater than the decimal point and three digits in positions less than the decimal point.  
Also, by using identifier VA01\*, information can be obtained into node name value01 when the OPC UA connection is established.

## 3. Output Information of the External Output Command

By writing the variable information (common and system variables) and character strings of a custom macro into a CNC program, the external output command (DPRNT) is output when the CNC program is executed.

The main system variables for which usage purposes are clearly defined are shown in the following table.

Variable number	Variable details
#1000 - #1133	Interface signal (data reading/writing from the PMC)
#2001 -	Tool correction amount
#3000	Macro alarm
#3001, #3002	Timer (milliseconds), timer (hours)
#3003, #3004	Automatic control
#3901, #3902	Processed part quantity, required part quantity
#4000 - #4130	Modal information
#5001 - #5120	Position data
#5201 - #5340	Workpiece origin offset amount

## 2.CNC Communication Settings

Examples of CNC communication setting parameters are shown below. Configure the settings according to the status of the CNC.

### ◆ FS16/18/21 RS-232C setting example

Item	Setting parameter	Setting details
I/O channel separation function	No.110#0=1	Perform separation control on the I/O channel numbers.
I/O channel	No.21=2 (No.110#0=1) or No.20=2 (No.110#0=0)	Set the data output to channel two. (Specify RS-232C serial port two.)
DPRNT newline character	No.6001#4=0	Use LF (0Fh).
DPRNT leading zeros	No.6001#1=1	Configure the setting so that nothing is output.
Output code	No.000#1=1 No.121#3=0	Use ISO codes.
Stop bit	No.121#0=1	Use two bits.
Newline character before and after data	No.121#7=1	Do not output a newline character before or after the data during data output.
Connected device specifications	No.122=0	I/O function specification number: General-purpose RS-232C device (use codes DC1 to DC4)
Baudrate	No.123=10	4800bps

- This is an example of setting the "I / O channel separation function" to be enabled (No.110 # 0 = 1) and setting the foreground output channel (No.21) to the CONPROSYS connection port (channel two).

### ◆ FS15 RS-232C setting example

Item	Setting parameter	Setting details
I/O channel	No.21=2	Set the data output to channel two.
DPRNT newline character	No.0000#3=1	Use LF (0Fh).
DPRNT leading zeros	No.7000#7=1	Configure the setting so that nothing is output.
Output code	No.0000#2=0 No.0000#4=0	No parity bit ISO codes
Stop bit	No.5161=2	Use two bits.
Connected device specifications	No.5002=6 No.5160=3	I/O function specification number: General-purpose RS-232C device (use codes DC1 to DC4)
Baudrate	No.5162=10	4800bps



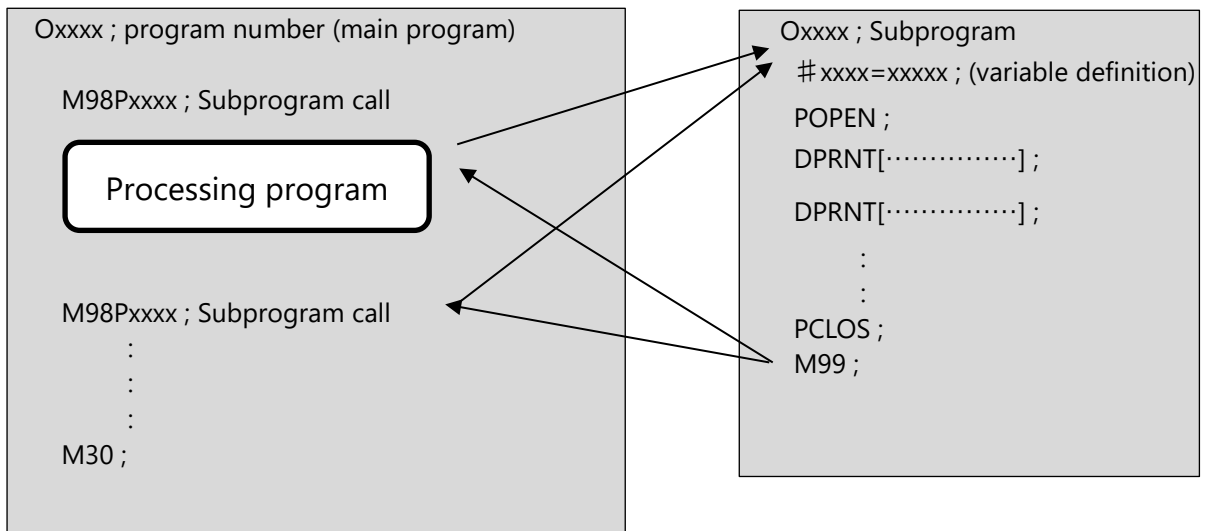
## 3.Data Output Method (Output Program)

An example of writing the external output command in a CNC program is shown below.

### 1. External Output Command (DPRNT) Writing Method

It is useful to use a subprogram to write the external output command (DPRNT) as shown below.

- Program concept



### 2. Part Name and Processed Part Quantity Output Example

- Main program

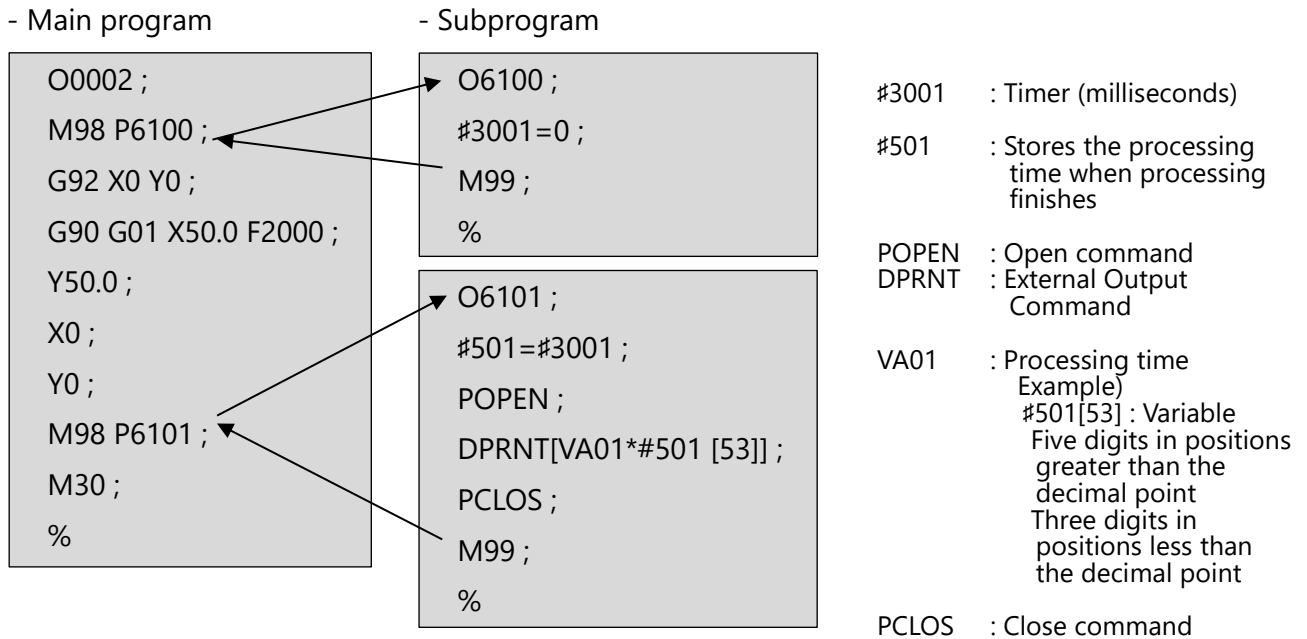
```
O0001 ;
G92 X0 Y0 ;
G90 G01 X50.0 F1000 ;
Y50.0 ;
X0 ;
Y0 ;
M98 P6000 ;
M30 ;
%
```

- Subprogram

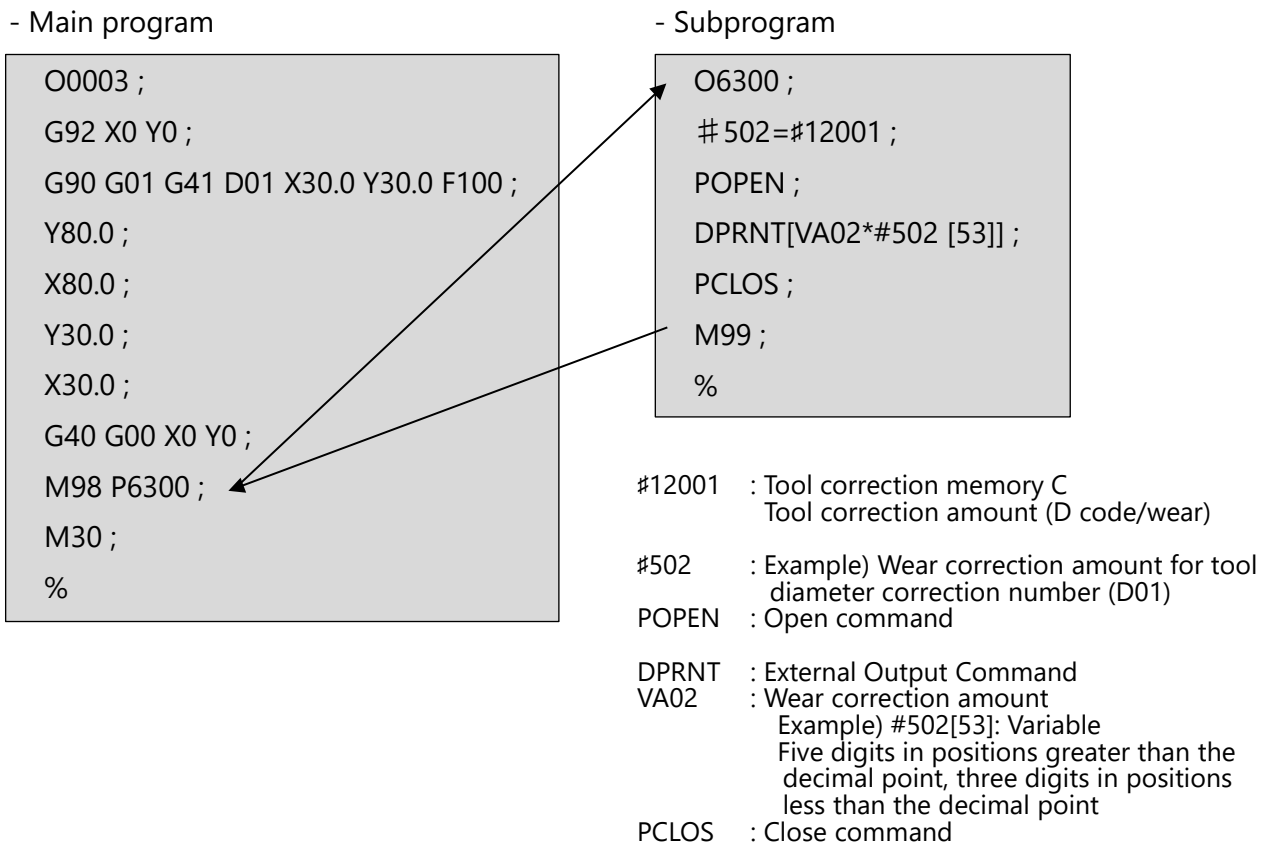
```
O6000 ;
#500=#3901+1 ;
POPEN ;
DPRNT[PN*PARTS01] ;
DPRNT[PC*#500 [30]] ;
PCLOS ;
M99 ;
%
```

- #3901 : Processed part quantity
- #500 : Count incremented by one when processing finishes
- POPEN : Open command
- DPRNT : External Output Command
- PN : Processed part name  
Example) PARTS01
- PC : Processed part quantity  
Example) Value of #500
- PCLOS : Close command

### 3. Cycle Time (Processing Time) Output Example



### 4. Correction Amount (Tool Wear Amount) Output Example



# CONPROSYS Settings

---

This chapter explains how to configure CONPROSYS settings related to CNC/MT-LINKi linking.

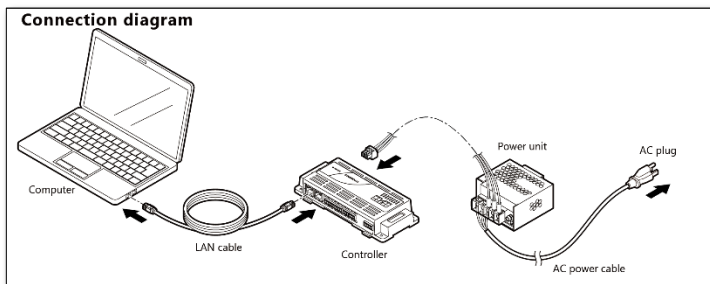
# 1. Basic Operation Methods

This chapter provides a simple explanation of how to access the CONPROSYS when configuring communication settings.

To configure CONPROSYS settings, access the web server operating on the CONPROSYS.

For detailed operation methods related to web access, see the "Setup Manual (or Introduction Guide)" and the "Reference Manual (Software Edition)."

An overview of the access method is shown below.



Construct an environment in which the controller can be connected to the network, and then use a web browser to access the controller.

The initial user information during this access is shown below.

User : mc341

Password : mc341

PC network settings example	Controller initial setting information
IP address : 10.1.1.200	IP address : 10.1.1.101
Subnet mask : 255.0.0.0	Subnet mask : 255.0.0.0

The following items are required in order to obtain CNC information and to connect to MT-LINKi.

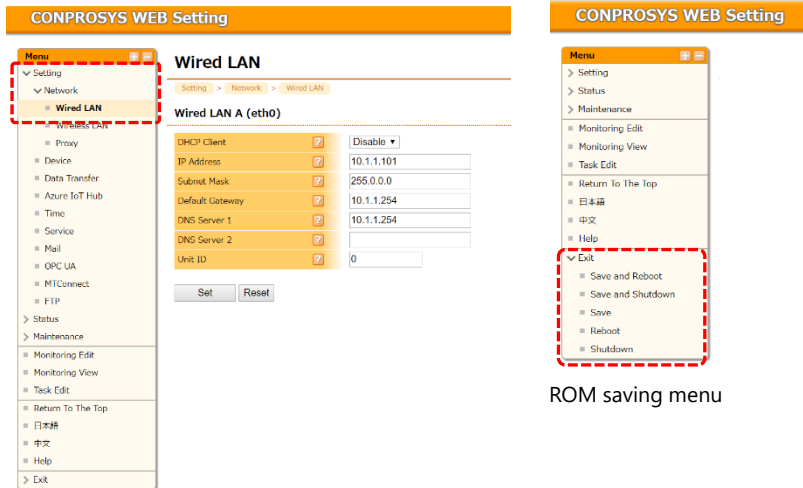
- Network settings
- CNC communication settings
- Settings related to OPC UA communication (including settings such as user settings)

In addition, configure the following settings if necessary.

- Time synchronization settings
- Task editing settings : When it is necessary to perform data conversion or judgment processing on the obtained information
- Digital input settings : Changes are required depending on the controller (CONPROSYS) and connection method being used.

## 2. Network Settings

The network settings can be configured from the “Wired LAN” setting on the Setting menu. After changing the settings, click “Save” on the Exit menu to save the setting details to the ROM.



Network settings screen

## 3.CNC Communication Settings

The settings related to serial communication for performing serial communication with a CNC and obtaining the external output command (DPRNT) information are written below. The setting details are contained in the “Enable Communication Function” and “Communication Parameters” settings.

### ◆ Accessing the settings screen

Communication settings are configured from the “Device” item on the Setting menu.



### ◆ Serial communication settings

For the serial communication settings, select “FANUC CNC,” and then configure the Baudrate and other such communication settings to match the CNC.

#### Serial Communications Signal

COM B	?	FANUC CNC ▼
Baudrate	?	4800 ▼
Data Bit	?	8bit ▼
Parity Bit	?	None ▼
Stop Bit	?	2bit ▼
Flow Control	?	Software ▼

Select “FANUC CNC.”

Configure the communication settings.

The details shown in the figure on the left are the default (recommended) values.

Set

Reset

\* Only the serial port installed on the main unit can be used to communicate with the CNC. Also, only one device can be targeted.

It is not possible to perform communication with expansion serial ports on configurable type controllers.

\* After changing the settings, perform the “Save” operation to save the setting details to the ROM.

## 4. OPC UA Settings and Specifications

This section explains how to configure the CONPROSYS settings in order to use the OPC UA server function to expand the information obtained on the CONPROSYS.

The main settings related to OPC UA are shown below.

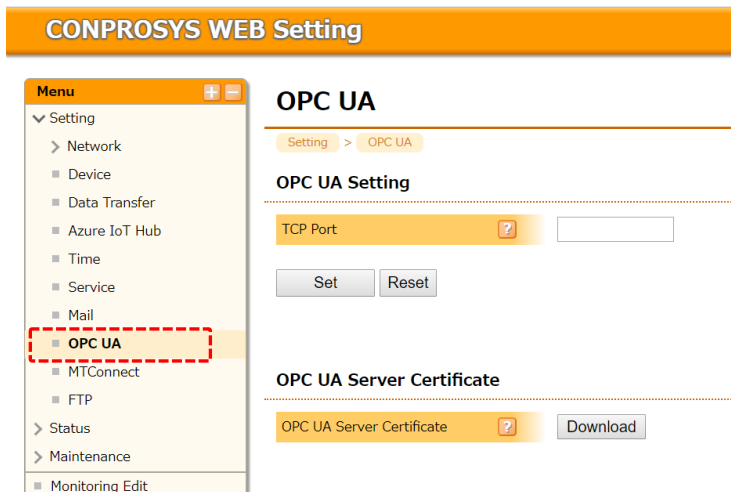
- OPC UA settings: Settings related to the communication port and application certificate
- Authenticated user settings: Settings related to users authenticated for OPC UA communication

### 1. OPC UA Settings

Select "OPC UA" on the CONPROSYS Setting menu to configure OPC UA settings.

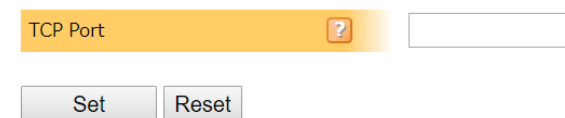
Set the port, configure the security settings, and configure other such settings as necessary.

The OPC UA server service starts even if these settings are not configured.



#### ◆ TCP port setting

Set the OPC UA communication port. If this is not set, the communication service starts with the default port, "4840."



\* After changing the settings, perform the "Save" operation to save the setting details to the ROM.

## ◆ OPC UA server certificate

Depending on the OPC UA client settings, it may be necessary to register a server application certificate on the client side in order to establish a session. Download the certificate in this situation.

### OPC UA Server Certificate

OPC UA Server Certificate



Download

## ◆ OPC UA client certificate

An operation screen for uploading the client application certificate and a function for managing the uploaded certificates are available when authenticating the user ID and certificate at the time of establishing a session with the OPC UA client.

### OPC UA Client Certificate

Choose File No file chosen

Upload

Clear



### OPC UA Client Certificate List

OPC UA Client Certificate

Delete

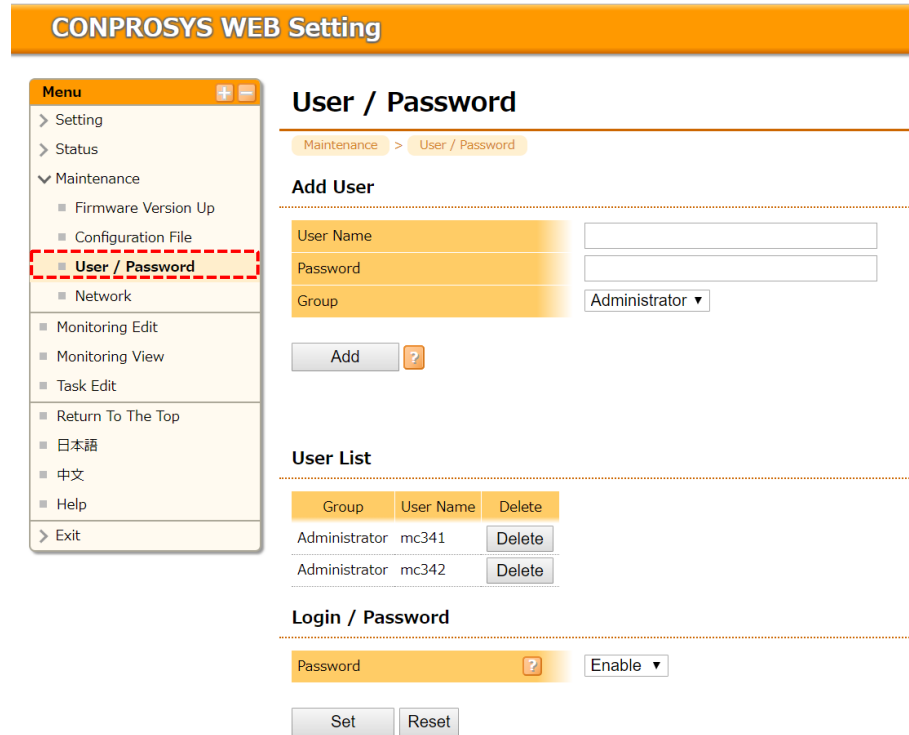
\* After changing the settings, perform the "Save" operation to save the setting details to the ROM.



## 2. Authenticated User Settings

The authenticated user settings are configured on the “CONPROSYS WEB Setting” screen for the CONPROSYS. For settings such as the authenticated user name used in OPC UA communication, use an account for logging in to CONPROSYS web maintenance.

Select “User / Password” from the Maintenance menu, and then add the user.



\* After changing the settings, perform the “Save” operation to save the setting details to the ROM.

## 3. OPC UA Server Specifications

### ◆ Function specifications

Item	Specifications
Endpoint URL, Server URL	opc.tcp://[IP Address]
Access type	Data Access(synchronized I/O)
Profile	Embedded UA Server Profile
Communication protocol	UA TCP Binary
Security policy	None, Basic128Rsa15, Basic256, Basic256Sha256
Security mode	Anonymous, Username/Password, Certificate/Private Key
Node tree structure	CONTEC ——— CPS-MC341-ADSC1 *1 ——— SubFolder ——— Node1 <div style="margin-left: 150px;">└── Node2</div>
Node editing	Not possible (fixed)

\*1 “CPS-MCS341-DS” when using a configurable type controller.

## ◆ Address space specifications

OPC UA node	Subfolder	Node name	Data type	Access	Data range
Digital input *1 Bit0, Bit1, Bit2, Bit3	Digital_Input	DI00, DI01, DI02, DI03	Boolean	Read	0, 1
Digital output *1 Bit0, Bit1	Digital_Output	DO00, DO01	Boolean	Read/Write	0, 1
Analog input *1 Channel0, Channel1	Analog_Input	AI00, AI01	UInt32	Read	0 - 4095
Counter input *1 Channel0, Channel1	Counter	CNT00, CNT01	UInt32	Read	0 - 16777215
Clear counter input *1 Channel0 Channel1	Counter_Clear	CNT00_CLR CNT01_CLR	Boolean	Read/Write	0, 1
Serial communication *2 String output Product name Processed part count General-purpose numeric value, 1 to 10 General-purpose string, 1 to 10	COM	PrintOutput ProductName ProductResultNumber value01 - value10 string01 - string10	String String Int32 Double String	Read	Depends on the CNC DPRNT descriptor
Other Battery charge remains	System	Battery	Boolean	Read	0 (No) 1 (Yes)
Information obtained through PLC communication 1000 nodes*3	Modbus	EX0000 - EX0999	UInt16	Read/Write	0 - 65535
Integer tag	TAG	TAG00~TAG99	Int32	Read/Write	0 - 2147483647
Character string tag	STAG	STAG00 - STAG99	-	Read/Write	-
Decimal point tag	DTAG	DTAG00 - DTAG99	Double	Read/Write	-

\*1 This setting is for the M2M Controller Integrated Type and for the M2M Gateway. The specifications are the same for the M2M Controller Configurable Type, but see the "Reference Manual (Software Edition)" for details.

\*2 Stores the external output command (DPRNT) information received from the CNC.

\*3 M2M Gateway only.

## 5. Digital Input Specifications

When obtaining CNC operating information, etc. via digital input, the power supply specifications can be changed from the selected CONPROSYS. The digital filter can also be set, which enables settings that prevent incorrect detections caused by noise and similar factors.

The way to set the power supply specifications and the digital filter is explained below.

### ◆ Accessing the settings screen

Communication settings are configured from the “Device” item on the Setting menu.



### ◆ Digital input settings

The power supply for driving the digital input circuit can be selected from “External Power” and “Internal Power” (only on models equipped with this function).

The digital filter can also be set. For details, see the “Reference Manual (Hardware Edition).”

#### Digital Input Signal

Digital Input Power	?	Internal Power ▼
Digital Filter	?	Not use ▼
DI/cnt2	?	Both DI and CNT ▼
DI/cnt3	?	Both DI and CNT ▼

Set    Reset

\* After changing the settings, perform the “Save” operation to save the setting details to the ROM.

## ◆ Digital Input Operation Test

As explained earlier, a switching function of the internal power mode (factory default state) or the external power mode is provided for the CONPROSYS digital input.

Setting to internal power mode, signals can be easily input by shortening the signal lines.

Use this function for the operation tests such as MT-LINKi settings.

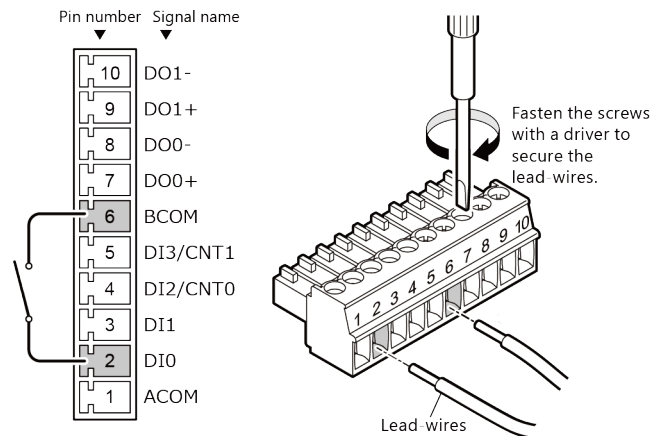
### A Signal Input Example

- Internal Power Mode (Device setting)

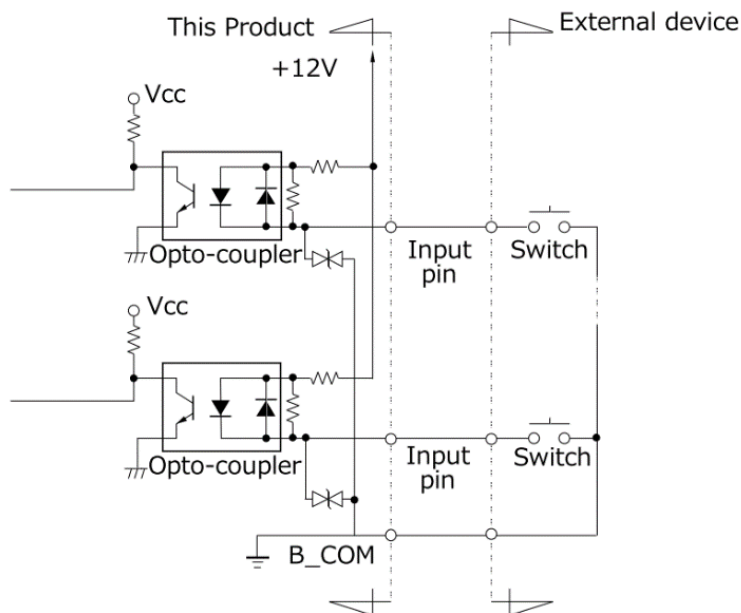
#### Digital Input Signal

Digital Input Power	<input style="background-color: #f0f0f0; border: 1px solid #ccc;" type="button" value="?"/>	<span style="border: 2px dashed red; padding: 2px;">Internal Power</span> ▼
Digital Filter	<input style="background-color: #f0f0f0; border: 1px solid #ccc;" type="button" value="?"/>	Not use ▼
DI/cnt2	<input style="background-color: #f0f0f0; border: 1px solid #ccc;" type="button" value="?"/>	Both DI and CNT ▼
DI/cnt3	<input style="background-color: #f0f0f0; border: 1px solid #ccc;" type="button" value="?"/>	Both DI and CNT ▼

-A Signal Input Example



- A Detailed Circuit Diagram



## 6. Host Communication Function

The ways to configure the settings for the OPC UA server functions in order to link with FANUC operation management software (MT-LINKi) have been explained above.

In the same manner, MT-Connect and MODBUS/TCP functions are installed as functions for communicating information obtained from the CNC with the host. Use these functions as necessary.

# MT-LINKi Settings

This chapter explains how to configure MT-LINKi communication settings for establishing an OPC UA connection to the CONPROSYS.

# 1. OPC UA Communication Settings

This chapter explains the MT-LINKi communication settings for using OPC UA communication to collect signals from the CONPROSYS. For details, see the “MT-LINKi Instruction Manual.”

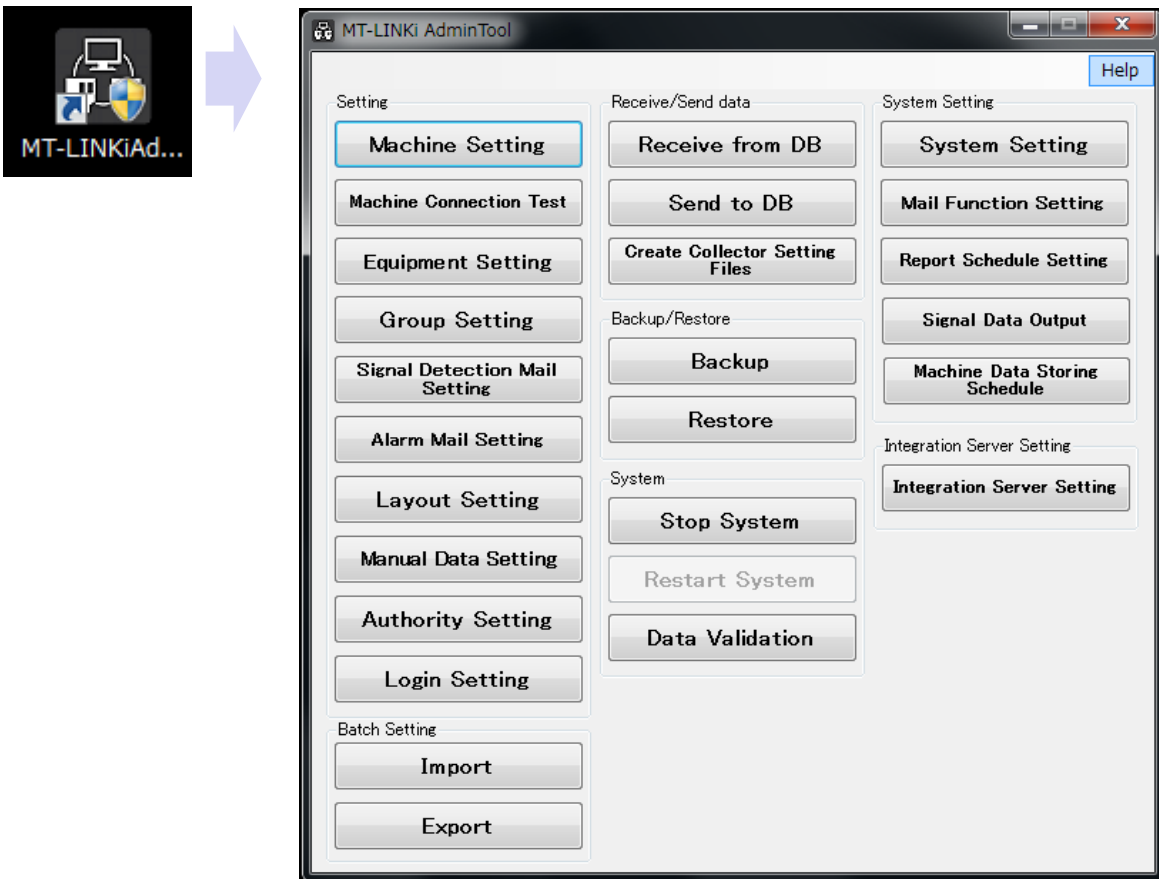
## ◆ MT-LINKi AdminTool

Use MT-LINKi AdminTool to configure the MT-LINKi communication and signal collection settings. MT-LINKi AdminTool is installed automatically when MT-LINKi is installed.

### Start MT-LINKi AdminTool

Start the program from the shortcut created on the desktop or from the Start menu.

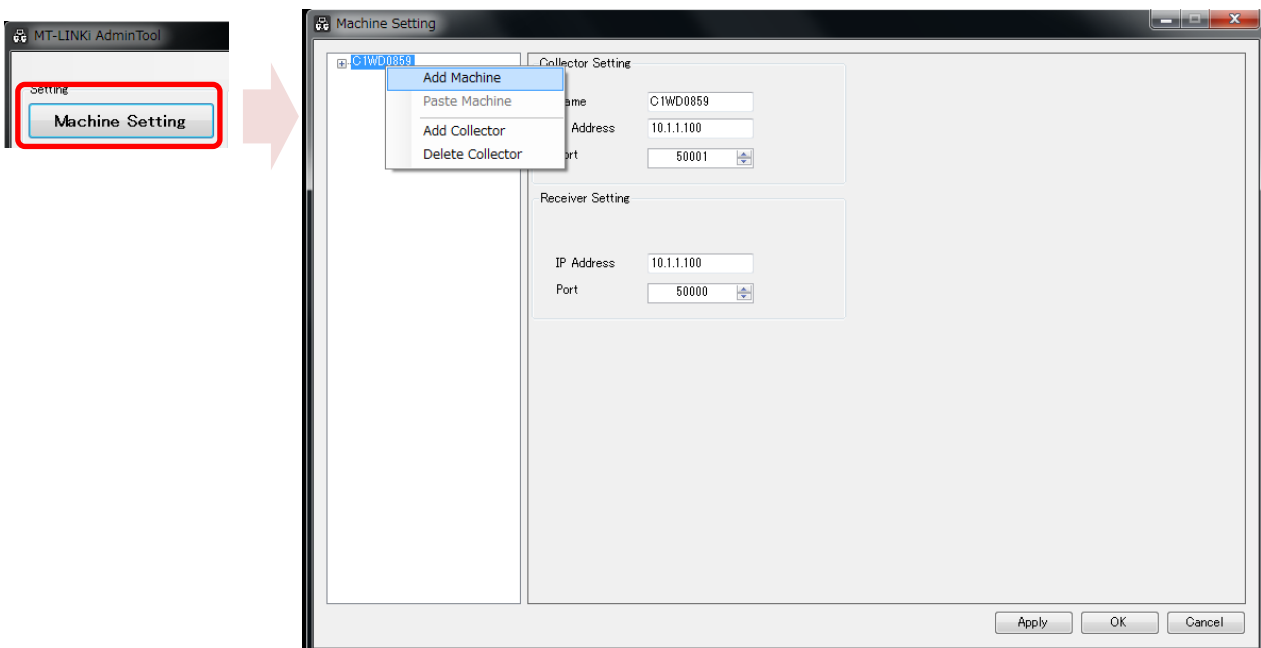
The menu screen shown in the following figure is displayed.



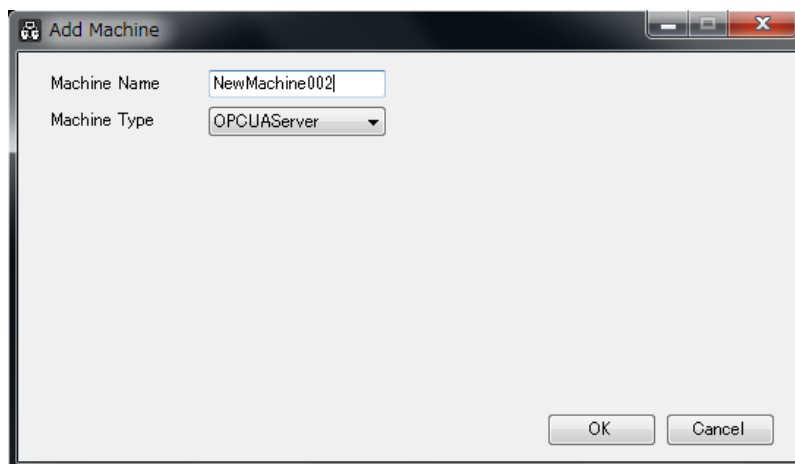
## ◆ Signal Collector Settings (Machine Setting)

This configures communication settings and signal collection with a communication target.

- 1 On the menu screen "MT-LINKi AdminTool", select the "Machine Setting".  
In the tree on the left side of the Machine Setting screen, the computer names and the information of the set machines are displayed.  
Select the computer name and right-click on the name to display a menu, then select "Add Machine."



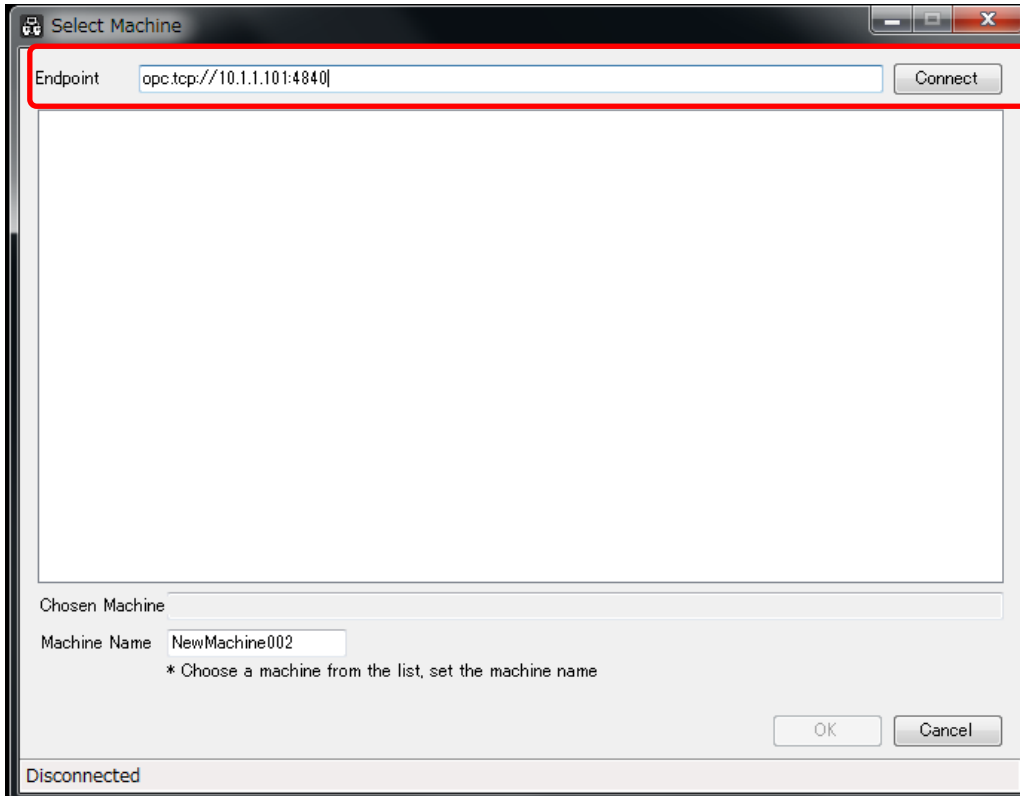
- 2 On the "Add Machine" screen, set the Machine Name.  
Also, select "OPCUAServer" for the Machine Type.  
Click the [OK] to display the "Select Machine" screen.





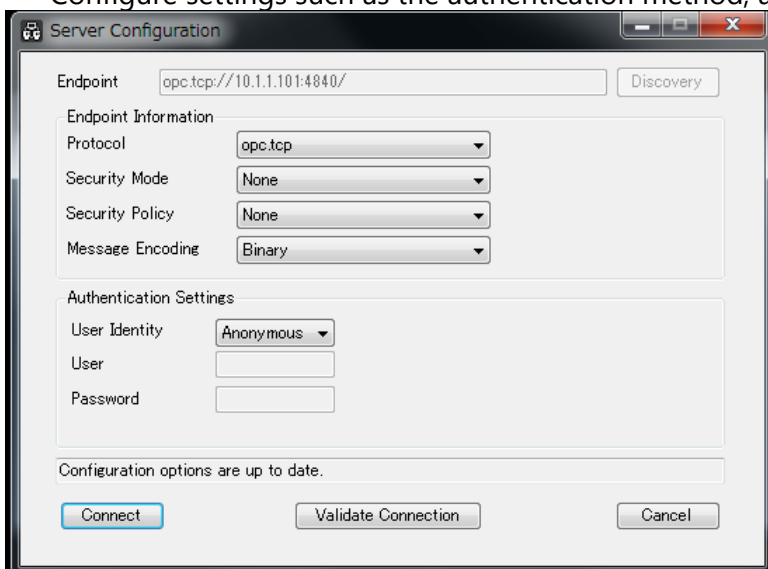
**3** Set the Endpoint to the address of the OPC server.  
OPC server address example: opc.tcp://10.1.1.101:4840

\* The address consists of the IP address and communication port of the CONPROSYS.  
"4840" is the default port for OPC UA communication. The default port can be omitted.



**4** When you set the Endpoint and click [Connect], the "Server Configuration" screen is displayed.

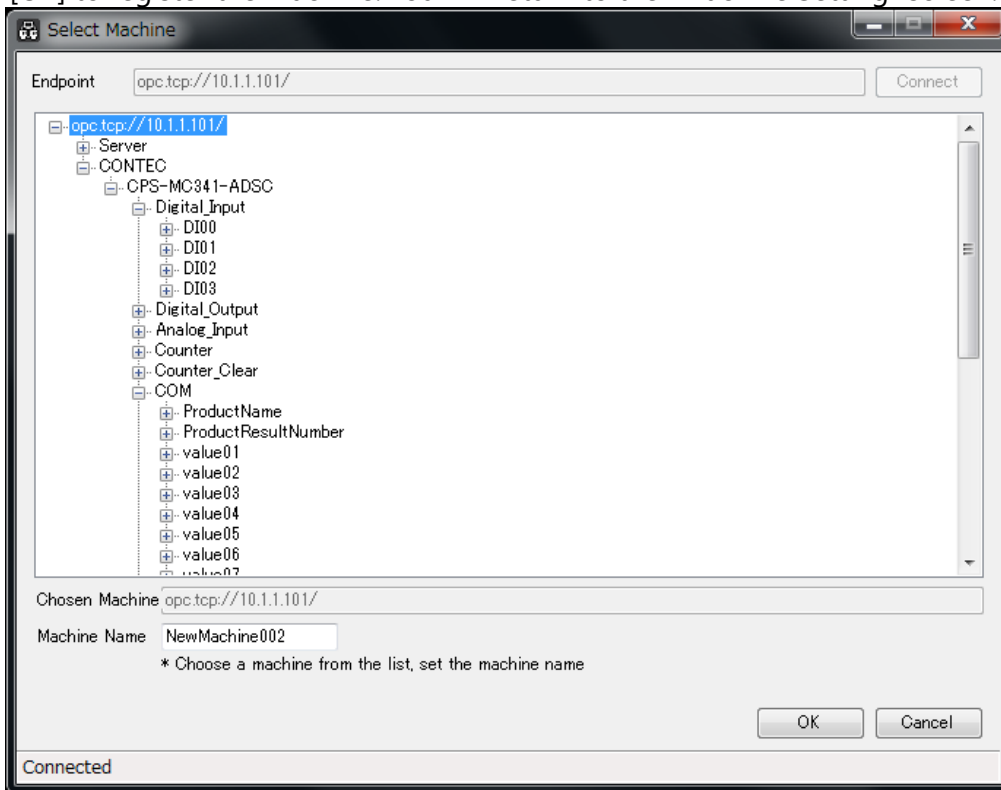
Configure settings such as the authentication method, and then click [Connect].



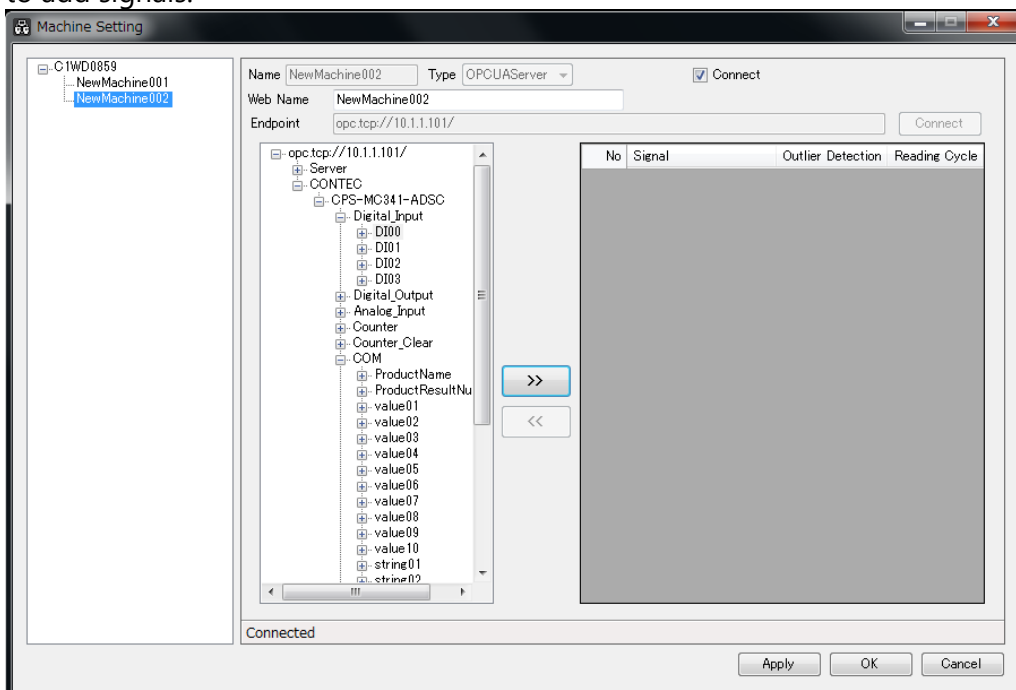
These are settings for security connections. Configure these settings as necessary. You can connect to the CONPROSYS with the default settings.

Click [Connect] to return to the "Select Machine" screen.

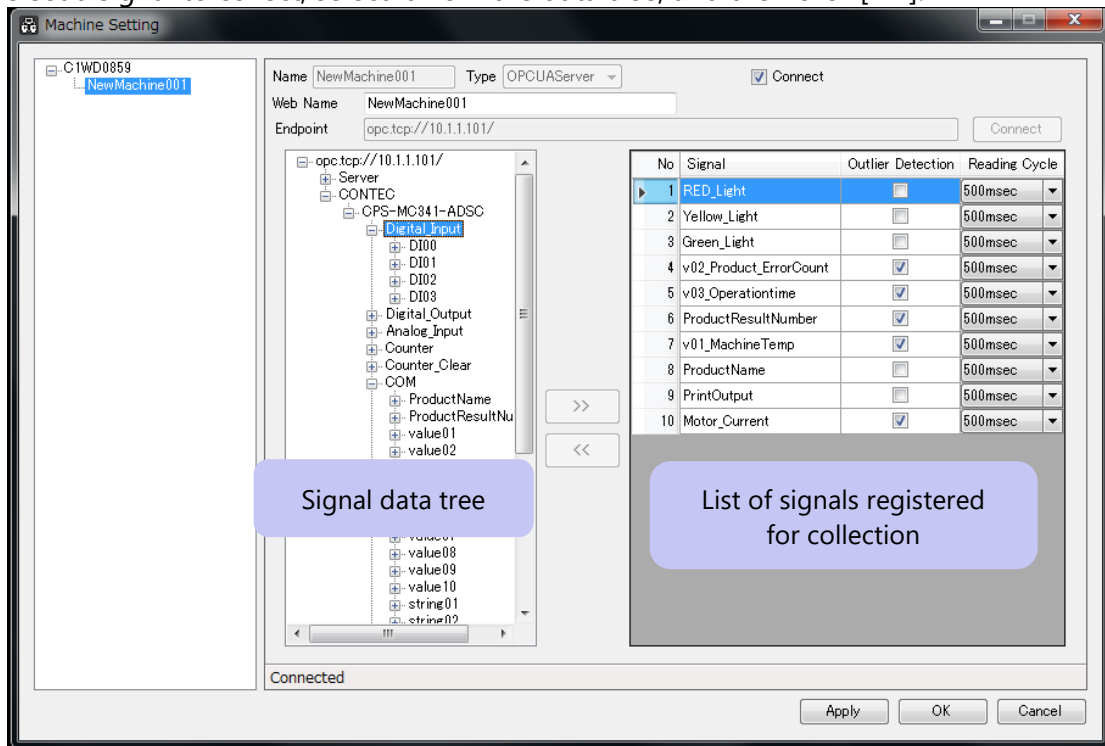
- A data tree such as that shown in the following figure is displayed on the “Select Machine” screen, and the [OK] button is enabled. Click [OK] to register the machine. You will return to the “Machine Setting” screen.



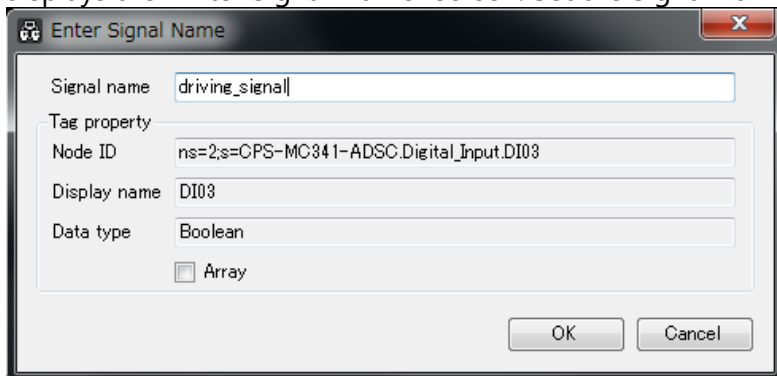
- The machine is added to the tree on the left side of the “Machine Setting” screen. Select the target machine to make it possible to check the list of signals that can be collected and to add signals.



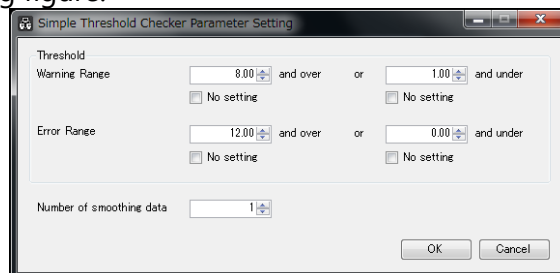
**7** To set a signal to collect, select it from the data tree, and then click [ > > ].



**8** Clicking [ > > ] displays the “Enter Signal Name” screen. Set the Signal name.



**9** After you register the signals, you can set items such as the outlier detection range and collection cycle on the “Machine Setting” screen. Outlier detection range: You can set the range to judge as an outlier. The settings screen is shown in the following figure.



Collection cycle: Set the cycle at which signals are collected and recorded. The shortest cycle is 500 milliseconds.

This completes the settings related to signal collection.

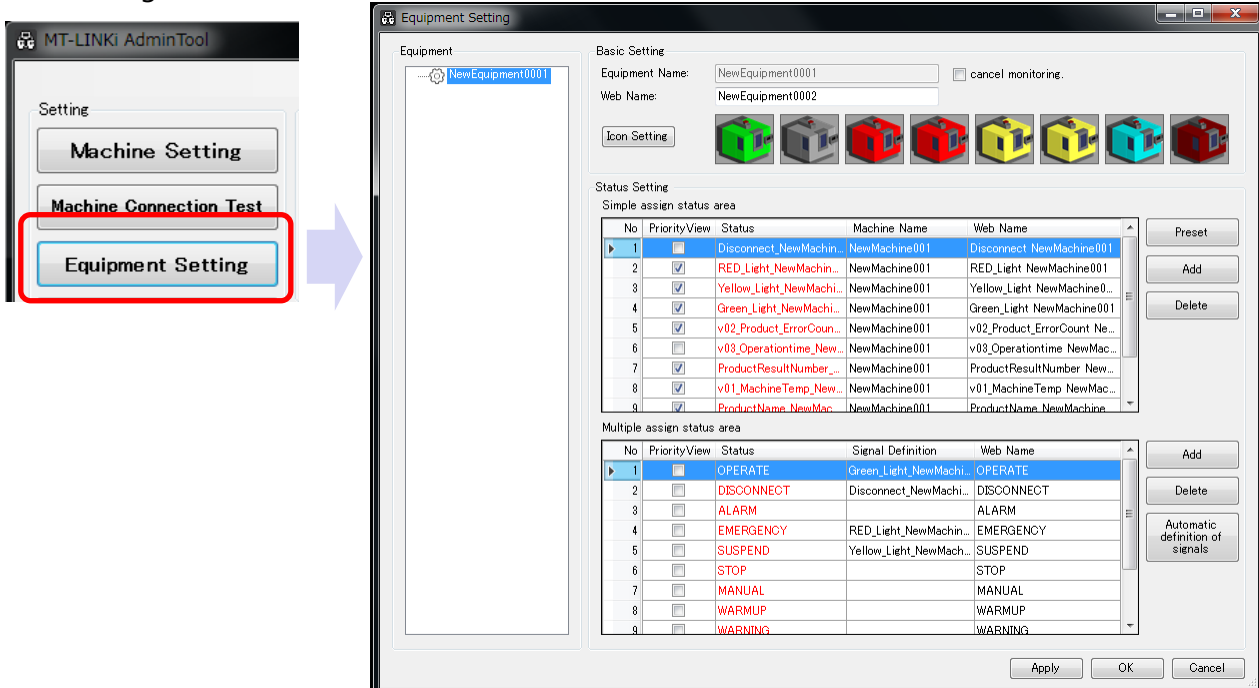
## ◆ Web Display Settings (Equipment Setting)

In the same manner as the settings for signal collection, use MT-LINKi AdminTool to configure the settings for the monitoring screen.

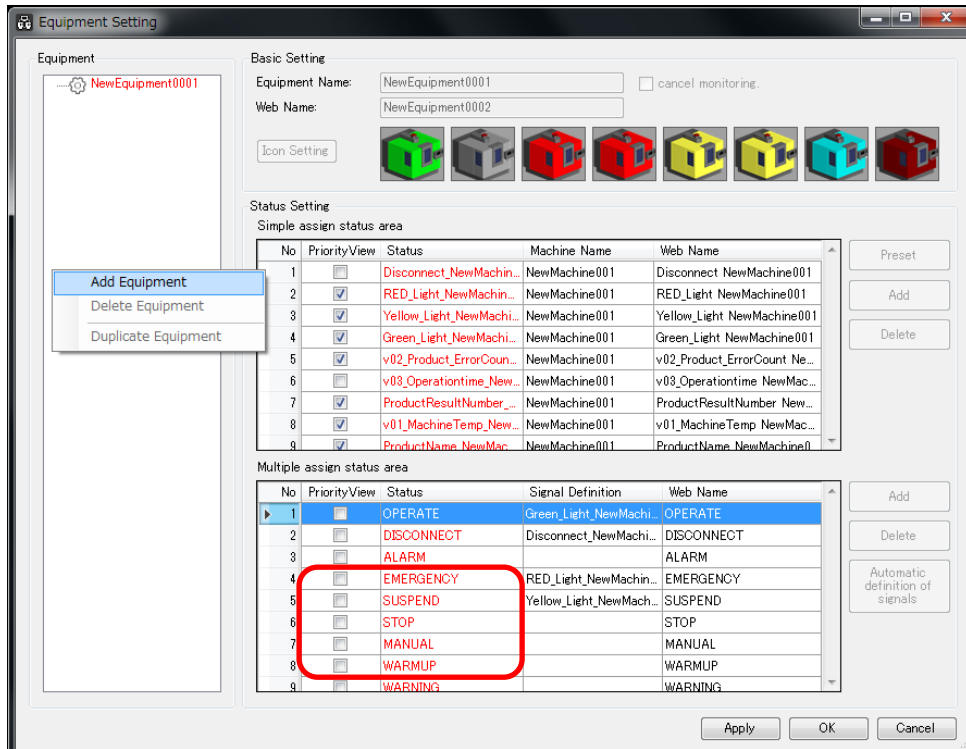
The signal definition per equipment can be configured in this setting.

For in-depth setting details, see the MT-LINKi manual.

- 1 Select "Equipment Setting" on the "MT-LINKi AdminTool" menu to display the "Equipment Setting" screen.



- 2 Add equipment. On the left side of the Equipment Setting screen, right-click in the Equipment column and Add Equipment can be selected. Set the name for the equipment to add that equipment

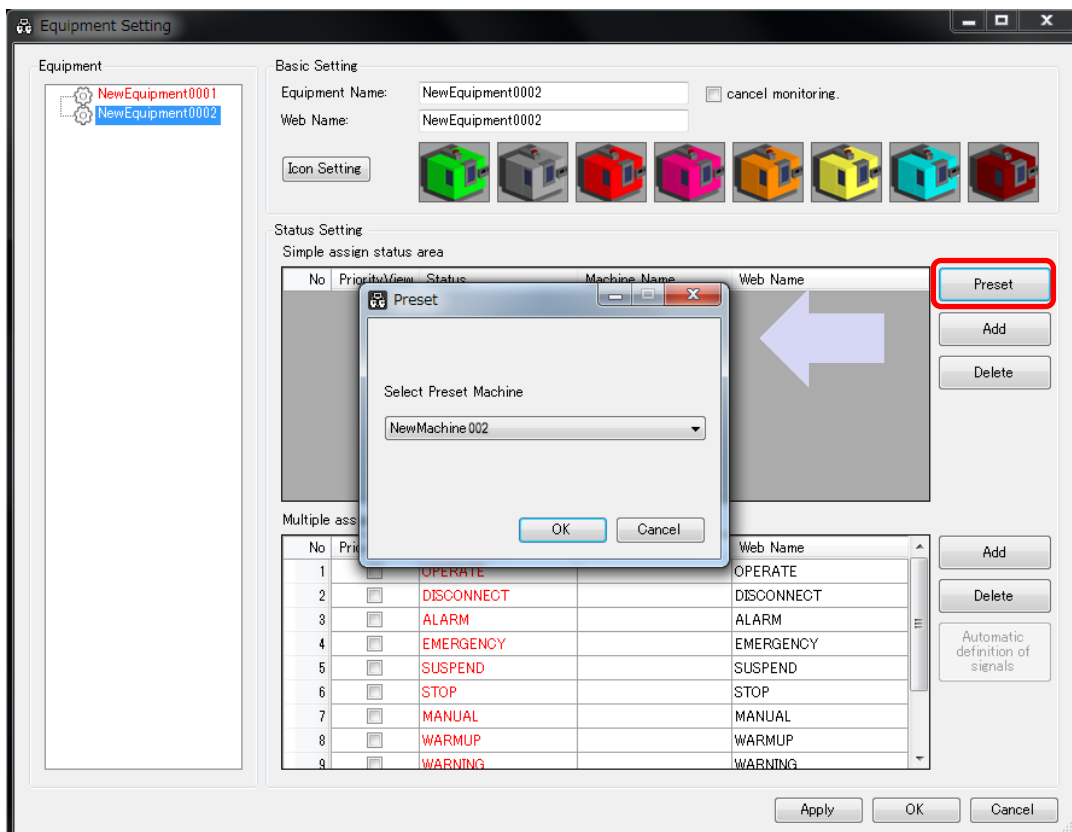


### 3 Simple assign status settings

Import signals that are obtained in the "Machine Setting".

Click the "Preset" button and select the machine from the "Select Preset Machine". This adds a signal to the selected machine.

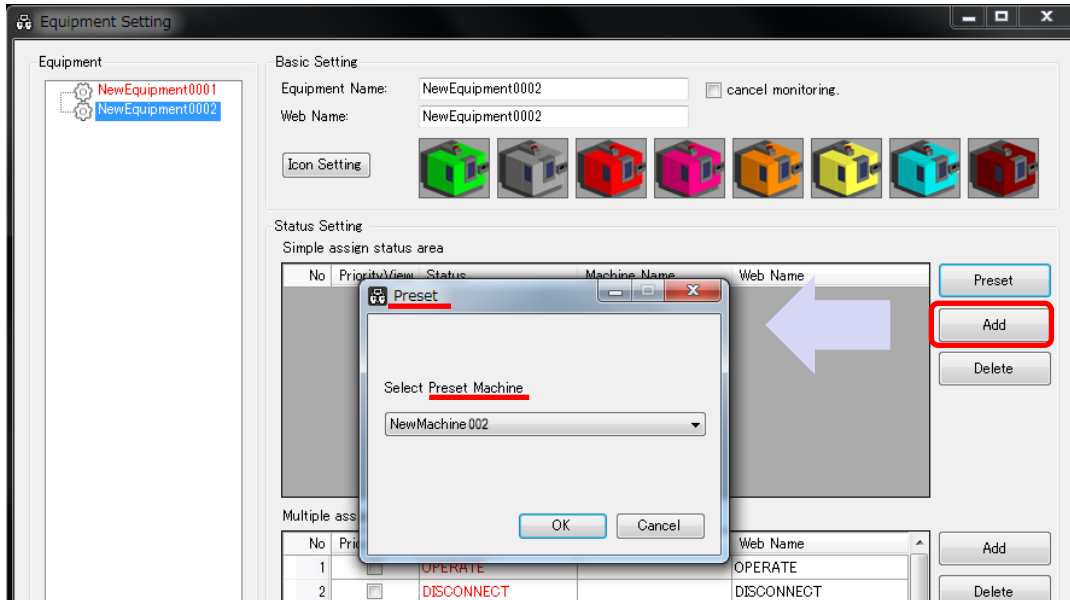
(Relate the equipment to the machine that is set in the "Machin Setting" (communication target) ).



"Preset" action clears old registered signals and add a signal of the specified machine.

\* The point in settings

When using several settings of "Machine Setting" (communication target) as one equipment. As explained earlier, click the "Preset" button and add one setting of "Machine Setting" first. Then, click the "Add" button to add more settings of "Machine Setting".

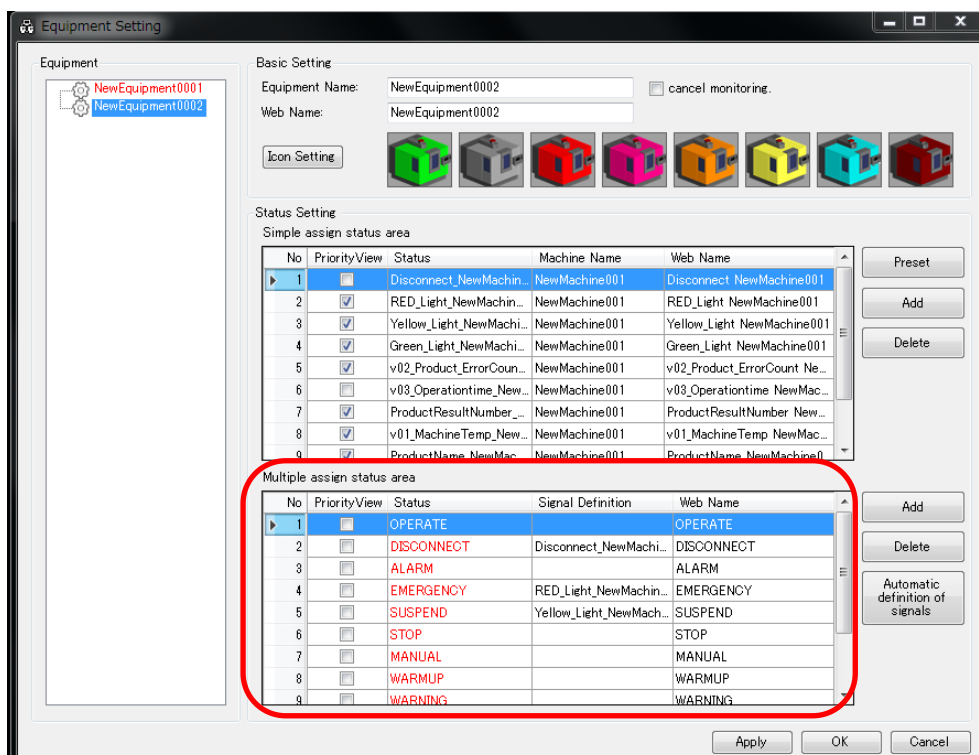


#### 4 Multiple assign status settings

Configure this setting to assign collected signals to the status information to monitor equipment units and to collect their operational and production results by MT-LINKi. The default is the presetting operation automatically assigns signal definitions corresponding to the selected machine.

You can add this setting as necessary. For details, see the MT-LINKi manual.

Here, an example of setting status is explained when collecting signals with the CONPROSYS.



- Edit Status

Multiple assign status area

No	Priority/View	Status	Machine Name	Web Name
1	<input type="checkbox"/>	OPERATE		OPERATE
2	<input type="checkbox"/>	DISCONNECT	Disconnect_NewMachi...	DISCONNECT
3	<input type="checkbox"/>	ALARM		ALARM
4	<input type="checkbox"/>	EMERGENCY	RED_Light_NewMachin...	EMERGENCY
5	<input type="checkbox"/>	SUSPEND	Yellow_Light_NewMach...	SUSPEND
6	<input type="checkbox"/>	STOP		STOP
7	<input type="checkbox"/>	MANUAL		MANUAL
8	<input type="checkbox"/>	WARMUP		WARMUP
9	<input type="checkbox"/>	WARNING		WARNING

Double-click on the specified status to edit. The screen in the following appears. Set the "Signal Definition".

Signal Setting

Status Name  
OPERATE

Web Name  
OPERATE

Signal Type  
Bool

User Signal Definition

OK Cancel

- Prescribe "Signal Definition"

Signal Definition is defined with the status name of the "Simple assign status" or the "Multiple assign status".

Equipment Setting

Equipment

- NewEquipment001
- NewEquipment002

Basic Setting

Equipment Name: NewEquipment002  cancel monitoring.

Web Name: NewEquipment002

Icon Setting

Status Setting

Simple assign status area

No	Priority/View	Status	Machine Name	Web Name
1	<input type="checkbox"/>	Disconnect_NewMachi...	NewMachine001	Disconnect NewMachine001
2	<input type="checkbox"/>	RED_Light_NewMachin...	NewMachine001	RED_Light NewMachine001
3	<input type="checkbox"/>	Yellow_Light_NewMachi...	NewMachine001	Yellow_Light NewMachine001
4	<input type="checkbox"/>	Green_Light_NewMachi...	NewMachine001	Green_Light NewMachine001
5	<input type="checkbox"/>	v02_Product_ErrorCoun...	NewMachine001	v02_Product_ErrorCount Ne...
6	<input type="checkbox"/>	v03_Operationtime_New...	NewMachine001	v03_Operationtime NewMac...
7	<input type="checkbox"/>	ProductResultNumber_...	NewMachine001	ProductResultNumber New...
8	<input type="checkbox"/>	v01_MachineTemp_New...	NewMachine001	v01_MachineTemp NewMac...
9	<input type="checkbox"/>	ProductName_NewMach...	NewMachine001	ProductName NewMachine0...

Multiple assign status area

No	Priority/View	Status	Signal Definition	Web Name
1	<input type="checkbox"/>	OPERATE		OPERATE
2	<input type="checkbox"/>	DISCONNECT	Disconnect_NewMachi...	DISCONNECT
3	<input type="checkbox"/>	ALARM		ALARM
4	<input type="checkbox"/>	EMERGENCY	RED_Light_NewMachin...	EMERGENCY
5	<input type="checkbox"/>	SUSPEND	Yellow_Light_NewMach...	SUSPEND
6	<input type="checkbox"/>	STOP		STOP
7	<input type="checkbox"/>	MANUAL		MANUAL
8	<input type="checkbox"/>	WARMUP		WARMUP
9	<input type="checkbox"/>	WARNING		WARNING

Signal Setting

Status Name  
OPERATE

Web Name  
OPERATE

Signal Type  
Bool

User Signal Definition  
Green Li

Multiple assign status name can be used for Signal Definition.

\*The point in Signal Definition 1 (A setting example)

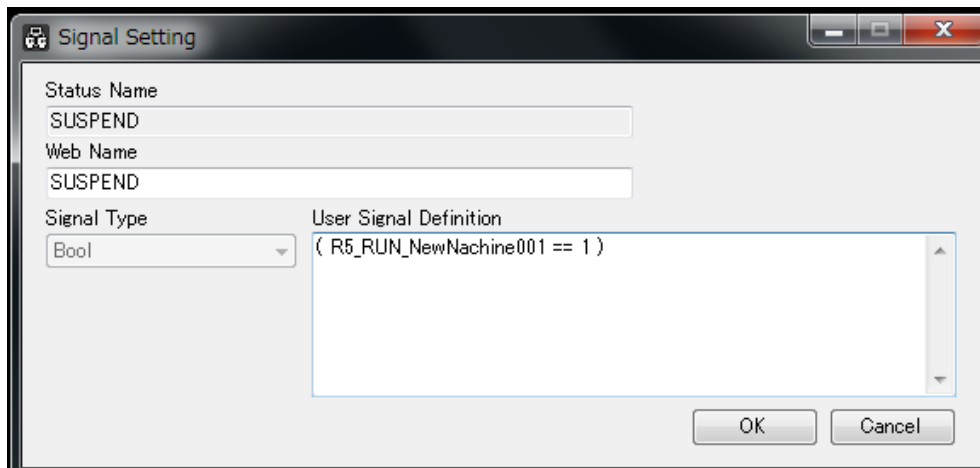
- When assigning Int32 type status (signal) to Bool type status, set as follows;

( TGA01\_conprosys001 == 1 )

When assign a variable (TAG) from the CONPROSYS, for example.

- When a Bool type signal is inverted, set as follows;

( DI00\_conprosys001 == false )



\* The point in Signal Definition 2 (A setting example)

- Condition Settings

Default

( Disconnect\_NewMachine001 ? "DISCONNECT" : "OPERATE" )

Setting contents: If the signal of Disconnect\_NewMachine001 is ON, it is determined as DISCONNECT (communication error), and if the signal is OFF, it is determined as OPERATE (operation).

A setting example

( Disconnect\_NewMachine001 ? "DISCONNECT" : ( Green\_Light\_NewMachine001 ? "OPERATE" : "STOP" ) )

This setting example is to determine two conditions.

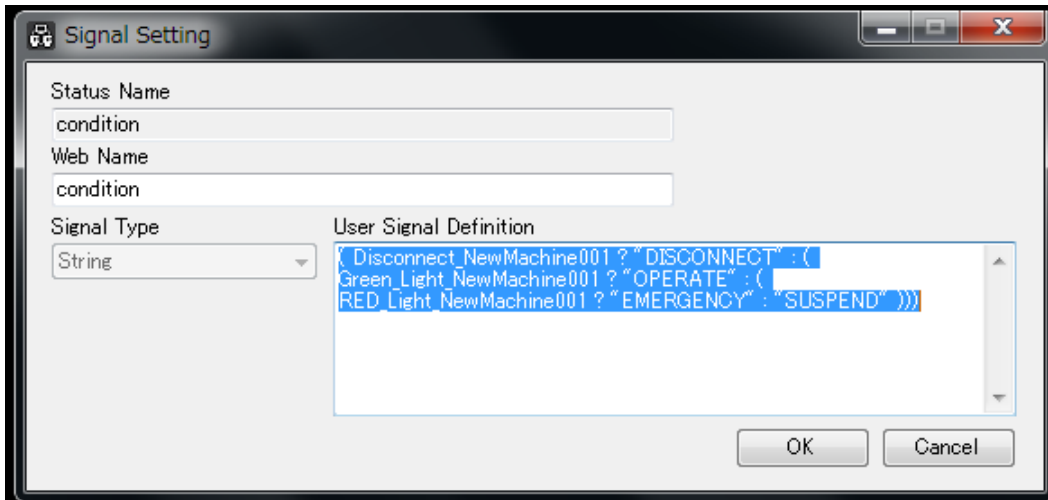
Setting contents: The communication error is determined as DISCONNECT, and when the communication is normal and the signal of Green\_Light\_NewMachine001 is ON, it is determined as OPERATE, and if the signal is OFF, it is determined as STOP.



Define Conditions

( Disconnect\_NewMachine001 ? "DISCONNECT" : [Prescribe additional conditions here] )

When there is no communication error, the condition is determined from other signals.



( Disconnect\_NewMachine001 ? "DISCONNECT" : ( Green\_Light\_NewMachine001 ? "OPERATE" : ( RED\_Light\_NewMachine001 ? "EMERGENCY" : "SUSPEND" )))

When an error occurs

"!" appears when a signal definition is prescribed inaccurately, and registration cannot be done.

A common mistake is missing a space (single-byte).

An error occurs if the prescribing format is not strictly followed.

(■DISCONNECT■?■"DISCONNECT" ■:■"OPERATE"■) ■=a space

(■DISCONNECT■?■"DISCONNECT" ■:■(■Green\_Light\_NewMachine001■?■"OPERATE" ■:■"STOP" ■))

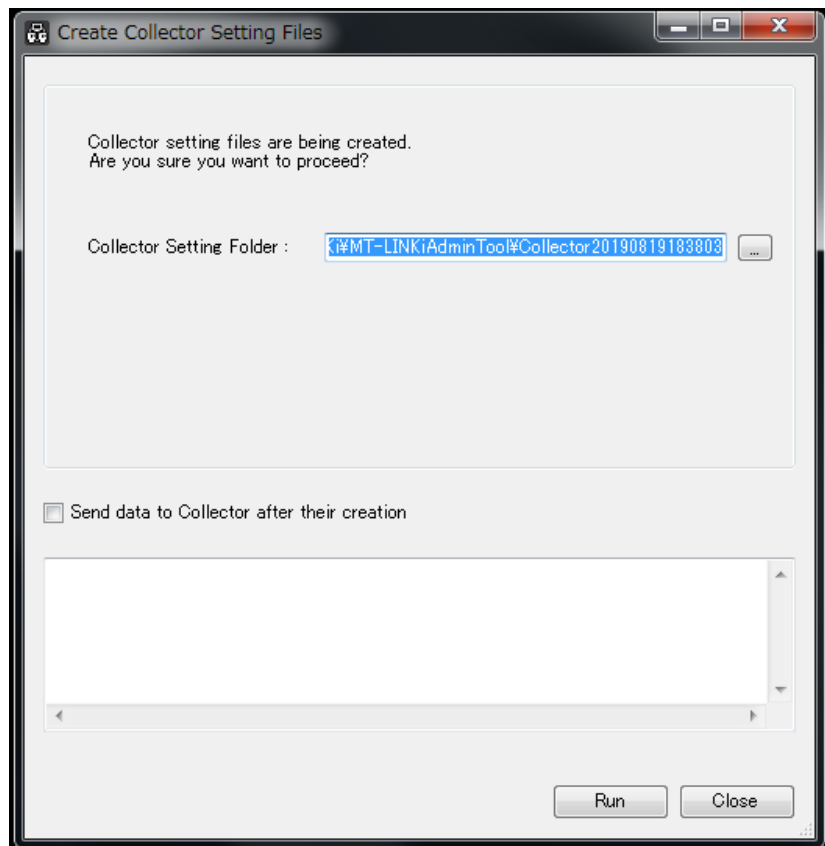
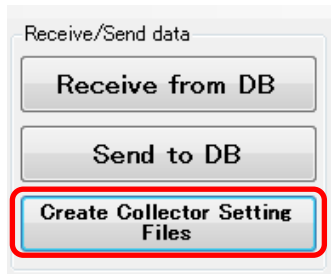
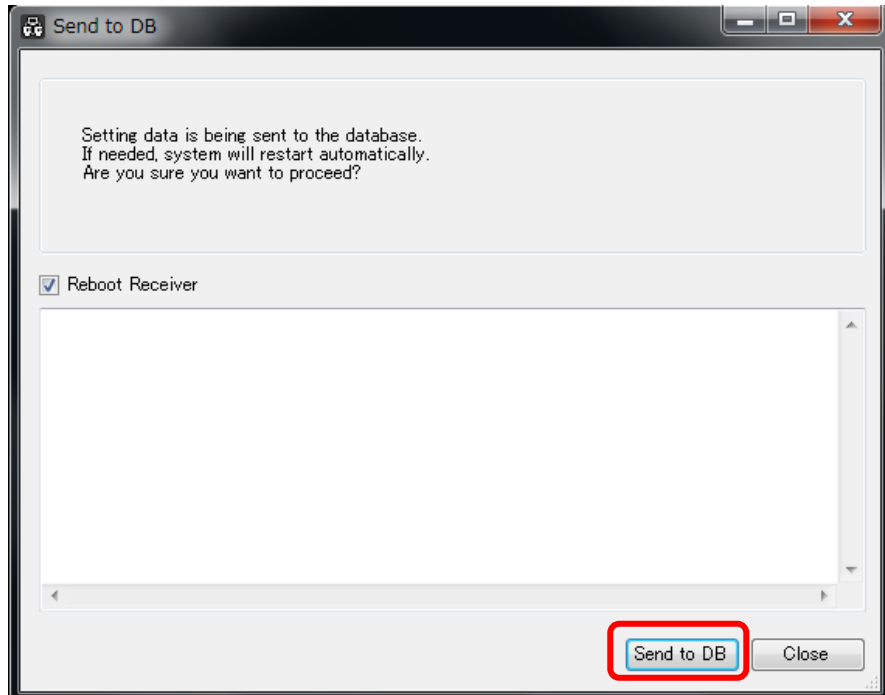
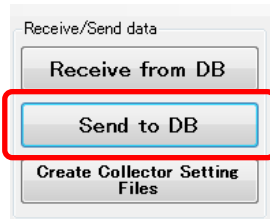
(■TGA01\_conprosys001==1■)

When using the status name, check that the signal is assigned accurately to the status that to be used.

## ◆ Applying setting details

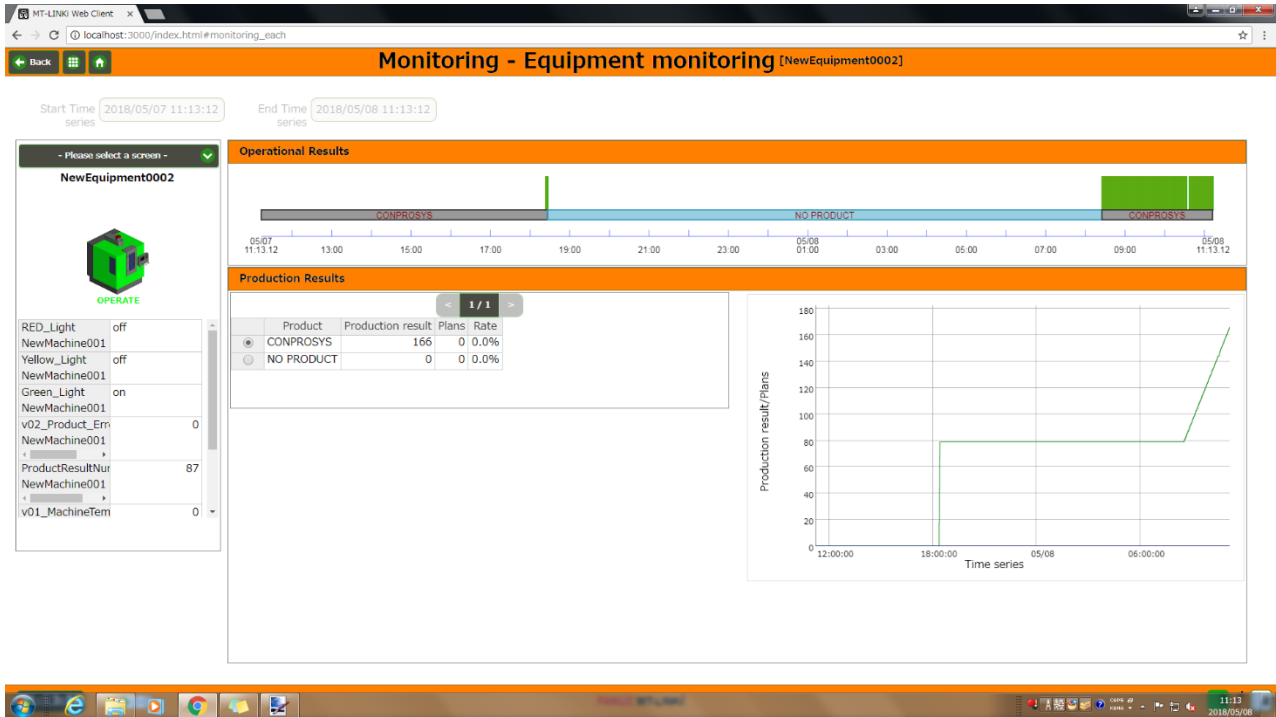
To apply the setting details to the signal collection processing, you have to perform the "Send to DB" operation and "Create Collector Setting Files" operation.

Perform the "Send to DB" operation and "Create Collector Setting Files" operation on the "MT-LINKi AdminTool" menu.



## ◆ Monitoring screen example

The concept of the MT-LINKi monitoring screen (web screen) is shown below.



# Customer Support and Inquiry

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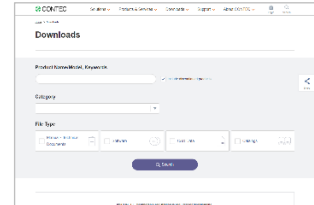
# 1.Services

CONTEC offers the useful information including product manuals that can be downloaded through the CONTEC website.

## Download

<https://www.contec.com/download/>

You can download updated driver software, firmware, and differential manuals in several languages. Membership registration (myCONTEC) is required to use the services.



# Revision History

MONTH YEAR	Summary of Changes
June 2018	The First Edition
August 2019	The new CNC -compliant model was added. The procedure of the CONPROSYS digital input test was added. The description of the MT-LINKi Signal Collector Settings was added.

**CONTEC CO., LTD.** 3-9-31, Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan

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FANUC CNC Connections

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